PRESS B TO MARCH: THE EFFECTS OF VIDEO GAMES ON POLITICAL BEHAVIOR

By

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To Rosalina. My princess and favorite research collaborator.

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Dissertations are meant to be an academic researcher's first major leap into independent scholarship. The irony, though, is that no one ever writes a dissertation alone. There are always others putting in the various kinds of visible and invisible labor that make a project like this possible. I would like to take this opportunity to thank some of them now.

First, I would like to thank my dissertation committee chair, Michael Martinez. His mentorship has been the perfect balance of constructive skepticism and sincere encouragement. From the very beginning of the project, he has nudged me to conceptualize my argument in a way that maximized its rigor and impact without ever detracting from its magic. From its inchoate beginnings to its present form, he has put a tremendous amount of time, effort, and faith into my efforts. I will be forever grateful for his guidance and friendship.

But a dissertation is ultimately reviewed and passed by five scholars—and I am fortunate to have such insightful, patient, and supportive members of my committee: Beth Rosenson, Yu-Hao Lee, Dan Smith, and Larry Dodd. They all brought their expertise, critical insights, tough (but constructive) questions and comments, and unwavering support to this project. This project would not exist in any form, let alone this form, without them.

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I am blessed to have made so many wonderful friends—both before and after I began my time here in Gainesville. Many of whom not only kept me sane with sports, food, and great conversation, but many also directly contributed to how I thought, analyzed, and wrote this

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While I am on the subject of thanking entities that will never be capable of reading this: I owe a lot of my sanity and equanimity to that pure, unadulterated affection that can only come from one's pets. So thank you Dude and Asia. (And you too Harley).

I also should thank someone who is not able to read this now but will be able to eventually: my daughter, Rosalina. You are everything your mother and I could have ever dreamed of and hoped for. You arrived as I wrapped up data collection and began the final stages of putting ink to page. Your presence provided a lightning bolt of clarity as to what was and was not important to pursue. I am forever changed by you. I have loved you since your first breath and I will love you until my last.

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TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

Figures page

Abstract of Dissertation Presented to the Graduate School
of the University of Florida in Partial Fulfillment of the
Requirements for the Degree of Doctor of Philosophy

PRESS B TO MARCH: THE EFFECTS OF VIDEO GAMES ON POLITICAL BEHAVIOR

By

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Video games are one of the most popular entertainment mediums in America. The average player racks up an average of 7 hours a week and the video game industry hauls-in billions of dollars a year. Despite decades of moral panic over the notion that video games corrupt the civic values of American youth, very little research has been done to actually see how games influence political behaviors: specifically, our attitudes and tendencies to participate in politics. This dissertation uses a mix of survey data, archival work, content analysis, and randomized controlled experimentation to present four main arguments.

First, like any other narrative medium, games tell stories to their consumers—stories that often concern or contain things that are relevant to our society at large. In certain contexts, stories are known to engender effects to our political behaviors. In this respect games are no different.

Second, unlike other media formats, games are primarily interactive. The player is acting upon their experiences in ways that they cannot with other media. The behaviors they and their avatars perform behind the screen can have ramifications beyond it.

Third, the effects of games are not limited to their content: video games have always been social experiences. They encouraging new relationships and strengthen those that already exist. We know that, generally, these behaviors lead to increased political action—and this dissertation argues that the networks established around games can do so also.

These effects are not haphazard. Game designers consciously put relevant content into their games and strive for their multiplayer experiences to create feelings of community. And both

sociopolitical issues and multiplayer experiences can be readily found in the vast majority of the most popular games released from 2007–2017. And the effects they engender are not rare or uncommon. Gaming is not just for the young, awkward, and/or antisocial. Nearly 2 out every 5 Americans play games that engage with sociopolitical issues—and more play games socially with friends.

Games, in short, matter—in a lot of ways and for a lot of people. This dissertation provides a preliminary look into how and why.

CHAPTER 1
INTRODUCTION

It was a rainy, cold, and grisly afternoon in the city of Arcadia Bay and Max Caufield was meandering her way back to her dorm at Blackwell academy. Despite the dreary weather (albeit typical for this town nestled in the Washington coast), it had been a pleasant day spent mostly catching up with her childhood best friend, Chloe. Max was thinking back on her day when a number of male students jostled her as they sprinted in the direction of the women's dorm. It was strange, but there was always some drama happening at Blackwell. She shook it off and kept going. Until more students rushed by. Then more. She realized something was different. Something was wrong. She picked up the pace.

She turned the corner and saw her friend and dorm neighbor, Kate Marsh, standing high atop the women's dorm, looking down at the students who had amassed to watch. She was nothing more than a stiff-breeze away from plunging to her death, but it was starkly obvious that Kate was not waiting for the permission of the wind. The gray of the rain made her look like a dark silhouette surveying the crowd gathering beneath. And in many respects, she was. Kate was normally an exuberant young woman, taking great joy in the deep connection she shared with friends like Max and that she felt with God. But that is not who Kate was now. She was now a shadow of her former self and inches away from what just days ago she would have considered an unforgivable sin.

Kate raised her foot towards the open air, more tired than tentative, and Max stared on in a horror that quickly bled into the surreal. She could practically see her friend jumping off the roof to her death, over and over and over again with no one capable of stopping it. The crowd bellow buzzed with anxiety, but no one was moving to try and stop her. Max did what came instinctively to her. She forced her way through the throng and rushed to the roof to try and save her friend.

She knew Kate was feeling troubled—but not this troubled. Kate had been retreating into herself for nearly a week and she had only just revealed why that very morning. She confided in Max that someone at a recent party had videotaped her kissing a number of boys and that the video had gone viral. She was being bullied mercilessly about it, especially given her religious proclivities. Not only was Kate embarrassed about the video, she was ashamed that she did not

remember anything about it. Not the video itself, not the kissing, not even the party. She remembered being offered a single drink and things getting hazy. Kate, Max realized, had been drugged. But that, unfortunately, was not the end of it.

As the details poured out from her friend, Max realized that the only memories she had were vague fragments of trying to ward off the advances of another student, Nathan Prescott. Trying, but ultimately failing. She had not only been drugged: She had been drugged, filmed, and sexually assaulted. And Kate did not know how to handle it all: the bullying, the conflict, and the shame. She was spiraling and did not know what to do. She asked Max if she should go to the police.

Max had struggled with her advice. Nathan came from a powerful family who literally controlled more than half the town if one looked at it by geographic area—more if they measured by economic clout. People owed his family, which, in their eyes, meant that they owned them. The Prescott's donations were keeping Blackwell and the whole town afloat. Nathan, ever aware of this, claimed he could get away with anything. And there was little reason to think he was wrong. Max had learned the hard way earlier in the year. She had reported him for brandishing a gun at another student in the women's bathroom, but *she* was the one who got in trouble in the end. For "slander."

Max gave Kate her recommendation but, police or no police, assured her that she would help get to the bottom of it. And although Kate was skeptical, she seemed committed to the plan. Now Max was wondering, as she rushed up the stairs, if she had really been silently committing herself to this instead.

All these thoughts and all the day's actions were rushing through her mind as Max burst out onto the rooftop. Kate looked back in shock. She did not expect anyone to be up there, did not expect anyone to be close enough to stop her. Did not expect anyone would actually care enough to want to try. That suspicion still held when she saw Max walk tentatively toward her, begging for her to step back onto the roof against the constant patter of the rain.

In rushing to her friend's aid, Max unwittingly accepted the incredible burden that only becomes obvious to someone once they are in the thick of her kind of situation. There was a chance that she could save Kate from a tragic fate. But there was a chance that she would fail—and that the tragedy would be on her hands. One wrong word and Kate would walk forward to her death. But now it would be her fault. She had to tread carefully…

Although this resonates with so many tragic stories of bullying, suicide, and sexual assault, this is a fictional account. This is an excerpt from *Life is Strange*, a science-fiction tale where Max Caufield, a senior at the prestigious Blackwell Academy, comes to realize that she has the ability to manipulate short segments of time. She uses this newfound power to navigate the several difficult choices that she is presented with over the course of the story, to try and find the best choices to help her and her friends. And she used them here, during Kate's suicide attempt. When I said that she saw Kate fall "over and over and over again," I was being literal. By virtue of her "gift" she kept watching Kate plunge to her death again and again and again while she turned back the clock and whittled away at the gap between her and the rooftop.

Life is Strange has spawned two sequels, received heaps of critical acclaim, and (judging by its sales numbers) has impacted lives of millions. It is a tale that weaves science fiction with all-too-real scenes of life spanning every angle: The drama of teenage rebellion, the anxiety of navigating childhood in the digital age, the obsessive grip of creativity, and the struggle against death and destiny. Nothing was left out.

But *Life is Strange* is not a movie. It is not a novel. It is not even a Netflix original series. *Life is Strange* is a video game.

It is not only Max who hears Kate's story. It is you. It is not only Max who witnesses her virtually endless falls. You do too. You, as the player, watch her try to take her own life repeatedly as you desperately struggle to stop it from happening. And it is not Max who makes the recommendation about contacting the police, who decides whether or not to report Nathan's gun, or struggles to find the right words to say to prevent Kate from ending her own life. It is you. The game is non-linear, without a fixed ending, and breaks the norms of narrative by refusing to

guarantee a happy resolution. In fact, from personal experience, *saving* Kate is one of the hardest things to successfully pull off in the entire game. It is just as common to fail and watch her die than it is to save her. And, whether you do or you do not, the game continues forward with the echoes of your choices playing out in the decisions to come.

You are the true denizen of this world; Max is merely your avatar. They are your choices and the game forces you to face them and take ownership time and time again.

Life is Strange is an exceptional game, but it is far from the exception in providing a meaningful, deeply striking experience. The *Mass Effect* series forced people to repeatedly make harrowing choices between utilitarianism and individual freedom in the context of trying to save the galaxy from an existential threat. *Gone Home* takes players on a gripping experience where they arrive to an eerily empty house and piece together that their beloved little sister is a lesbian and has run away to escape the harsh (and often hypocritical) judgments of their parents. *Detroit: Become Human* details the struggles of civil rights through the lens of androids gaining sapience. 2018's *The Amazing Spider-Man* features scathing commentary on how fast fascism can descend in the name of "security."[1] *Undertale* forces people to confront norms of violence as the primary means of progression in narrative, with the main character turning into a soulless husk should she slay too many innocent "monsters" on her journey.

Not only is it far from alone, it is far from the first. The *Final Fantasy* series burst onto the North American scene in 1990 and has presented an engaging story on the conflict of light and darkness ever since. *Metroid* surprised the entire world in 1986 by having its indomitable interstellar hero be a woman. And before games even entered the household, there were arcade experiences like *Missile Command* where players struggled to save their nation's cities from nuclear annihilation; the fact that there was no "winning" (the game progresses in difficulty until the cities are impossible to defend) was a deliberately designed feature, not a bug. It was intentionally included by the designer to reflect the worries of a nation embroiled in the Cold War.

[1] Looking on at a group of civilians detained without trial in central park, Spidey quips that the action "violates more than just a few constitutional amendments."

Games are not only being made that intersect salient moral and social issues. Games are also being made that deal with politics. There are a number of games that have been developed to instruct students on how American Politics "work." The developer iCivics has created an entire suite of games addressing how one wages a campaign for the White House, argues before the Supreme Court, or spends their time as a legislator. *The Redistricting Game* is well-used as a pedagogical tool to teach gerrymandering and redistricting. Politicians are well aware of the reach of games and have occasionally used them in their own campaigns to educate the voters about their ideals and positions. In 2006, the Bernie Sanders campaign had a flash game embedded in its website called *Bernie Arcade* where players took on the roll of the senator flying in an airplane, dodging literal "fat cats" and shooting them down with pieces of paper labeled "facts." And these experiences too date back to the nascent beginnings of the arcade era with the now-enigmatic *Watergate Break-In*, the gameplay of which was purportedly exactly as you would expect from the title.

There are other options for the politically interested aside from those that are explicitly educational or borderline propagandistic. In the *Democracy* series, you play as the leader of a nation who tries to secure re-election by enacting policies and managing the complex causal web between laws and outcomes. *SimCity* somehow manages to make residential and commercial zoning an engaging proposition as opposed to an absolute snooze-fest. Indeed, it has been doing so since 1989.

This is far from an exhaustive survey of games containing significant moral, social, and political elements. Indeed, it would be impossible to publish such a compendium without it becoming woefully out of date the second it hit the shelves. With the increased availability of game engines and the proliferation of gaming platforms (especially the explosion in mobile games), games are being cranked-out at rates that well exceed our ability to archive and document. In the midst of a debate on whether or not certain game mechanics ought to be classified as gambling, and whether or not said mechanics should face legal restrictions, several independent games came out satirizing both the regulatory impulse and the mechanic that had

spawned it. Less than a week after President Trump promised to erect a "big beautiful wall" during the 2016 presidential campaign, there came a dizzying deluge of mobile and flash games letting players do exactly that: Build a big beautiful wall for points. In 2018, the independent game developer Oddbrid released *Impeached!*, which lampooned both President Trump's rhetoric and the media's decisions on how to frame them. Not to mention the 2018 "fake news game" developed by social scientists at the University of Cambridge to "inoculate" people from falling for the kinds of entirely fabricated stories that sowed so much discord during the 2016 general election—or the push to action from Forbes writer Dave Thier when he provided "5 Video Games that Will Terrify You Into Voting" 2018.

Long gone are the days where the gaming world was defined by the likes of *Pong* and *Pac-Man*. While the industry as a whole has never abandoned its emphasis on fun and play, the medium has matured to allow for a more dynamic understanding of what "play" is and the kinds of topics that are worthy of being addressed and explored through it. Those topics still include what it might be like to be a plumber trying to rescue a princess in a magical kingdom and just how incredibly awesome it would be to use lightsabers to drum along to fast-paced techno songs. (Very). But they also include facing depression and mental illness, struggling to survive in a warzone, living under a dystopian regime, shepherding a city or state to success, helping loved ones find joy, and the importance of loyalty. And just as important as what we experience during play is who we are playing with. Video games can be played alone, with another, with an intimate group of friends and family, or with tens-of-thousands of strangers. Indeed, the *substance* of the content is oftentimes less important than the *purpose* it serves: To broaden and deepen the connections we have with others.

However, despite their relevance and increasing cultural clout, very little work in political science has investigated the ways that video games can influence political attitudes and political behaviors. What little work there is tends to focus on how games can act as pedagogical tools Kahn and Perez (2009); Kolson (1996); Woessner (2015)—but even less exists on how games played outside the bounds of the classroom or the lab (e.g., how the *vast* majority of people

actually play them) can influence political behavior. Work in political science is only just beginning to look at the tendency of gamers to engage in political participation as a consequence of the social connections made and maintained through gaming Bacovsky (2020); Lee (2019); Molyneux, Vasudevan, and Zúñiga (2015); Stokes and Williams (2015), although that tepid trickle almost dries up entirely when looking at participation and attitudes in the United States. The flow is dead entirely when considering the content of games instead. This dissertation exists to fill that gap. Politics clearly matter to video games. And it is my contention that video games matter to politics, too.

At this point, I think it is prudent to disentangle what this dissertation is specifically focusing on and emphasize what I mean when I say "video games matter" to politics. There has already been excellent research on the positive effects of so-called "serious games"—given this ostensibly oxymoronic moniker since the games in question are designed for educative purposes *first* with fun as a secondary consideration. Serious games are a thriving subset of the broader video game industry (Michael & Chen, 2006) and have been shown to be effective across numerous domains of knowledge (Backlund & Hendrix, 2013; Connolly, Boyle, MacArthur, Hainey, & Boyle, 2012). This includes the social sciences and, as evidence gathered by Melvin Kahn and Kathleen Perez 2009 suggests, may include political science specifically. Kahn and Perez demonstrated that using the simulation game *Game of Politics* in an undergraduate intro to American politics course improves student's knowledge and ability to integrate it.[2] Dannagal Young, Matthew Baum and Duncan Prettyman 2019 designed the serious videogame *vMOBilize* and demonstrated that it increased political engagement, participatory intent, and actual rates of political participation among student-players. Similarly, path-breaking research by those like Sarah-Kristin Thiel suggests that, in some contexts, it is possible to "gamify" elements of public life by introducing point systems, leader-boards, and other mainstays of online gaming in order to increase political participation (see Thiel, 2016; Thiel, Reisinger, Röderer, Fröhlich, & Fröhlich, 2016).

[2]See, also, LeCompte, Moore, and Blevins (2011) for a look at the effects the aforementioned iCivics series of games have on civic knowledge.

While incredibly important, this dissertation is about none of these things.

This dissertation is about the kinds of games people pick up off the store shelves (or drag into their electronic shopping carts) and play after a long day's work. Or they play them to connect with friends and loved ones, to immerse themselves in digital worlds, to pass the time—to do things *other* than learn and be serious. These are the games that people load-up just to have some fun. Games like *Animal Crossing: New Horizons*, *The Legend of Zelda*, *Among Us*, *World of Warcraft*, the many I mentioned above, and the multitudinous others that I did not have the space to list. These kinds of games, too, have been shown to improve cognitive skills and educational outcomes depending on the context deployed (Connolly et al., 2012). Because of their sheer number and cultural force, these are the games that have perhaps the best chance of inducing politically relevant effects. But, in this domain especially, they are under-researched, under-acknowledged, and generally assumed to be unimportant. It is my steadfast belief that these video games matter. That these experiences, designed primarily for entertainment and play, can influence civic attitudes and political participation. The purpose of this dissertation is to explicate how.

Before going any further, it is important to specify exactly what I mean by "civic attitudes" and "political participation." These concepts, after all, lie at the heart of this entire enterprise—but if you get three political scientists in a room and ask them to define either term, you will probably walk out with at least five definitions. None are *intrinsically* better than the others, but it is easier to avoid later misunderstandings if we are explicit about what we mean.

For my purposes, I consider "civic attitudes" to be the constellation of positions concerning the extent that one is interested in and/or wants to be engaged with civic life. A prototypical example that will pop up frequently throughout this dissertation is interest in politics—although it can also include the extent to which people believe that others should be involved in the social and civic issues in their community/state/nation. These are distinct from attitudes about particular policies, about the performance of individual politicians, and the importance of various social issues. (Although, I also have the opportunity to discuss the effects of video games on these kinds

of political attitudes as well in Chapter 5). I define "political participation" as engaging in actions directed towards both the formal and informal edifices of the United States' political system through both "new" and "traditional" means. This is a wide-ranging definition because political actions are themselves wide-ranging. They extend far beyond the ballot-box, the campaign rally, and the donations made to candidates and their PACs. People also engage in protests, sign petitions, talk with friends online, plaster their car with bumper-stickers, follow politicians on Twitter (or block them—depending on their disposition), donate their time to charitable initiatives, and make purchasing decisions on the basis of a variety of political controversies. It is my contention that many of the games we play purely for fun, alone and with our friends, have the potential to make our attitudes more civicly inclined and increase our rates of political participation.

But what underpins this belief? After all, the assertion that video games can be a civic boon of any kind sharply departs from the prevailing stereotypes of what games can offer and who tends to play them. Many see games as being unworthy of scholarly attention. Those who will grant the idea legitimacy seem fairly wed to a vision of games as a hedonistic treadmill, powered by socially subversive violence. The idea of the gamer is equally charitable. He (and the gendering is intentional) is seen as an aggressive loner who either abuses games as an analgesic for his increasingly self-imposed social alienation or is effectively programmed by gameplay to commit atrocious acts of violence–like the famous scene in *A Clockwork Orange*, only in reverse. What evidence exists to sustain the twin contentions that games not only matter but that their effects could be salubrious?

In 2008, a time when concerns about the social negatives of video games were at their cultural and intellectual zenith, the Pew Research Center conducted a survey of 1,102 American teenagers with the purpose of better appreciating the civic impact of video games. They asked those teens who indicated at least occasionally playing video games (a full 97 percent of the sample) if they had ever had what they labeled a "civic gaming experience." E.g., if they helped other players, if they thought about moral or ethical issues, learned about a problem in society,

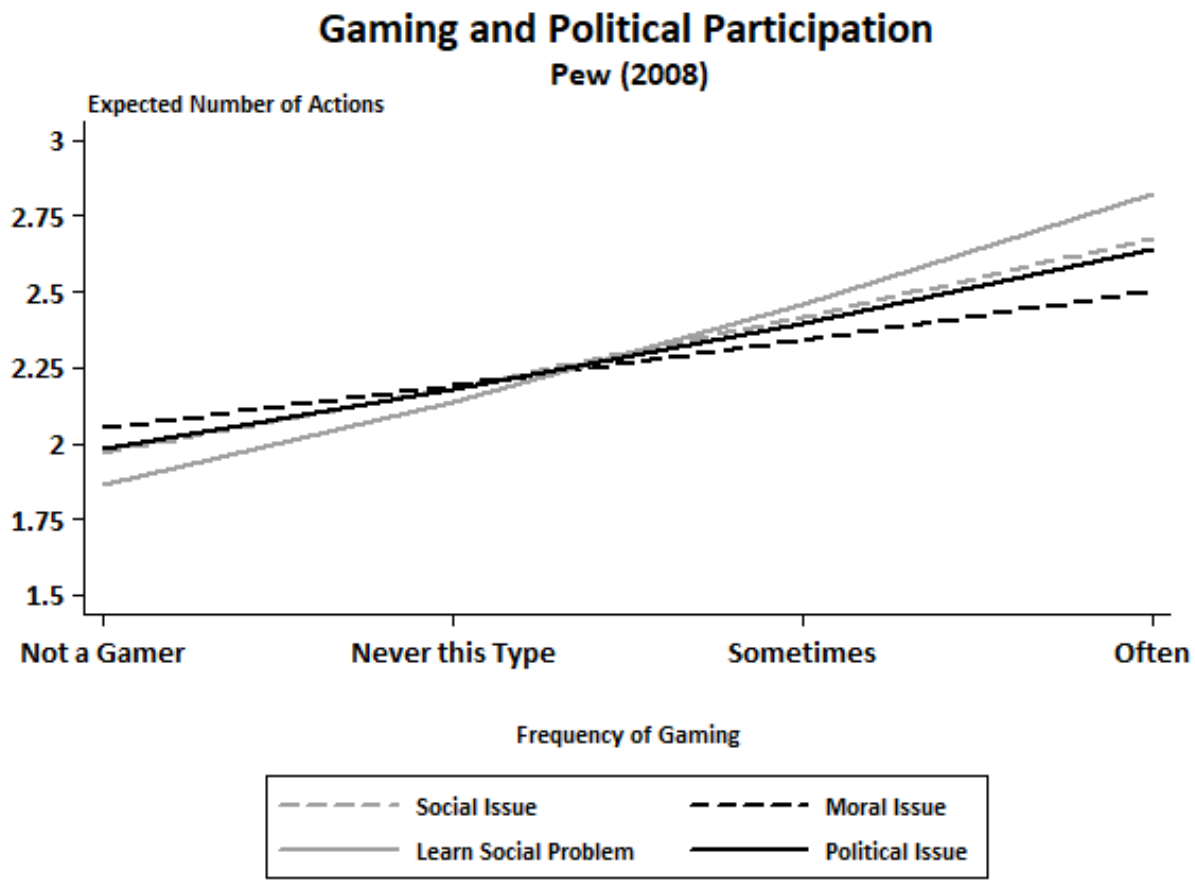

Figure 1-1. Gaming and political participation in the Pew (2008) data. The figure presents how the estimated number of political acts performed varies by frequency of politically-relevant gaming. These estimates come from four different negative binomial regression models with robust standard errors, varying frequency of gaming and holding all other factors at their means. See Table B-4 for the regression outputs.

learn about social issues, help make decisions about how a community/city/nation should be run, or organize game groups. Not only did their results show that many teens had these experiences "at least sometimes," but those who tended to have more exposure to civic gaming were significantly more politically engaged. For instance, those with the most civic gaming experiences were nearly 30 percent more likely to look up political information online than those with the least (70 vs 55 percent) and were over twice as likely to engage in a protest (15 versus 6 percent).

Although Pew's original analysis was excellent and forward-seeking, it was intended to give insight to the general public about something of immediate social concern, not to establish

scientific fact. Their analyses commensurately neglected common statistical controls to ensure that their findings were not spurious and to bolster the tacit contention that it was the civic gaming causing the participation and not the reverse. I used their original data, graciously made freely available to the public, to conduct a more statistically rigorous analysis. I will delve deeper into my methodology and into specific results as the dissertation progresses, but it is worth previewing the more compelling results here. Increased frequency of playing games where the players thought about social, moral, and political issues substantially (and significantly) increased rates of political participation among respondents. As seen in Figure 1-1, these results show that video games have the potential to inspire political participation by dint of the content that they offer.

The Pew Research data also contains findings that suggest that games can influence political attitudes as well. In addition to asking the teens if they had engaged in certain pro-social/political actions, interviewers also asked how strongly they (dis)agreed with statements such as "it is important to be involved," "I am interested in politics," and "I can learn from people of backgrounds different from my own." These different questions all tap into an underlying attitude dimension of "civic engagement." And accounting for many of the same factors as above, as seen in Figure1-2, civic gaming experiences are positively associated with greater affirmation of that subterranean sentiment.

That is not all. In 2011, 2013, and 2015 the Youth Political Participatory Survey Project (YPPSP) interviewed over 4,000 Americans aged 15-27 including a number of respondents who participated across multiple years. The surveys asked respondents about their tendency to engage in both digital and traditional forms of political participation, and their digital media habits—including how frequently they "participate in an online game community, guild, competition, etc." The frequency of social gaming was significantly associated with increased political activity across all three surveys. And the differences were not small either. Across all three surveys, those who played games daily were estimated to report performing at least 2 additional unique political acts compared to those who never played. The more that they played video games with others, the more they participated.

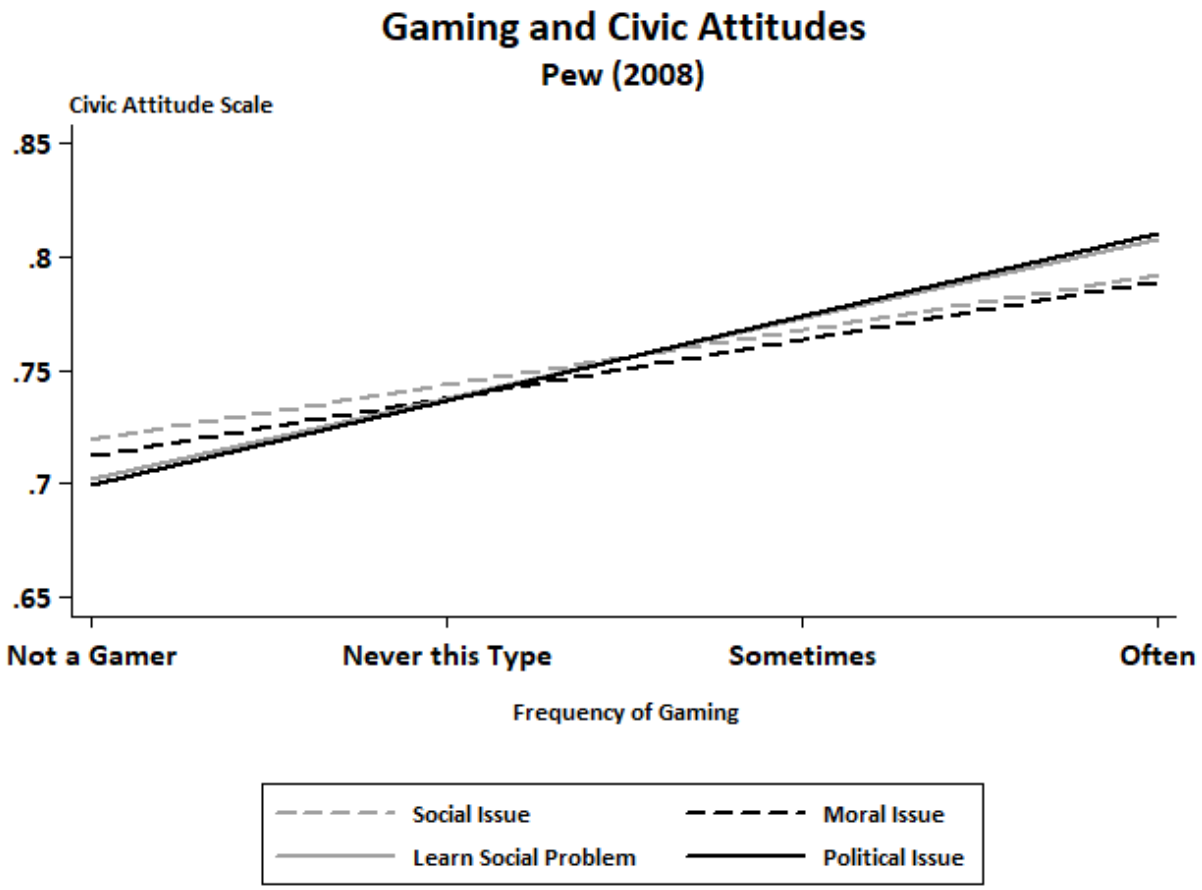

Figure 1-2. Gaming and civic attitudes in the Pew (2008) data. The figure presents how respondents' score on the [0-1] civic attitude scale varies with the frequency of politically-relevant gaming. These estimates come from four different OLS regression models with robust standard errors, varying frequency of gaming and holding all other factors at their means. For factor loadings and regression outputs, see Table B-1 and Table B-2, respectively, in the appendix.

Additionally, the fact that the YPPSP contained data on the same group of people over time enables us to investigate which way the causal arrow flies. Does gaming in groups encourage political participation or are more politically active people seeking out opportunities for group-based play. As I will detail later, the line of causality is not exactly straight (it might be more accurately described as "the squiggle of causality") but it does indicate that social gaming is a valid antecedent. That is, while the relationship does cut both ways, it can be said with a great deal of statistical certainty that people participate more as a consequence of playing in communities.

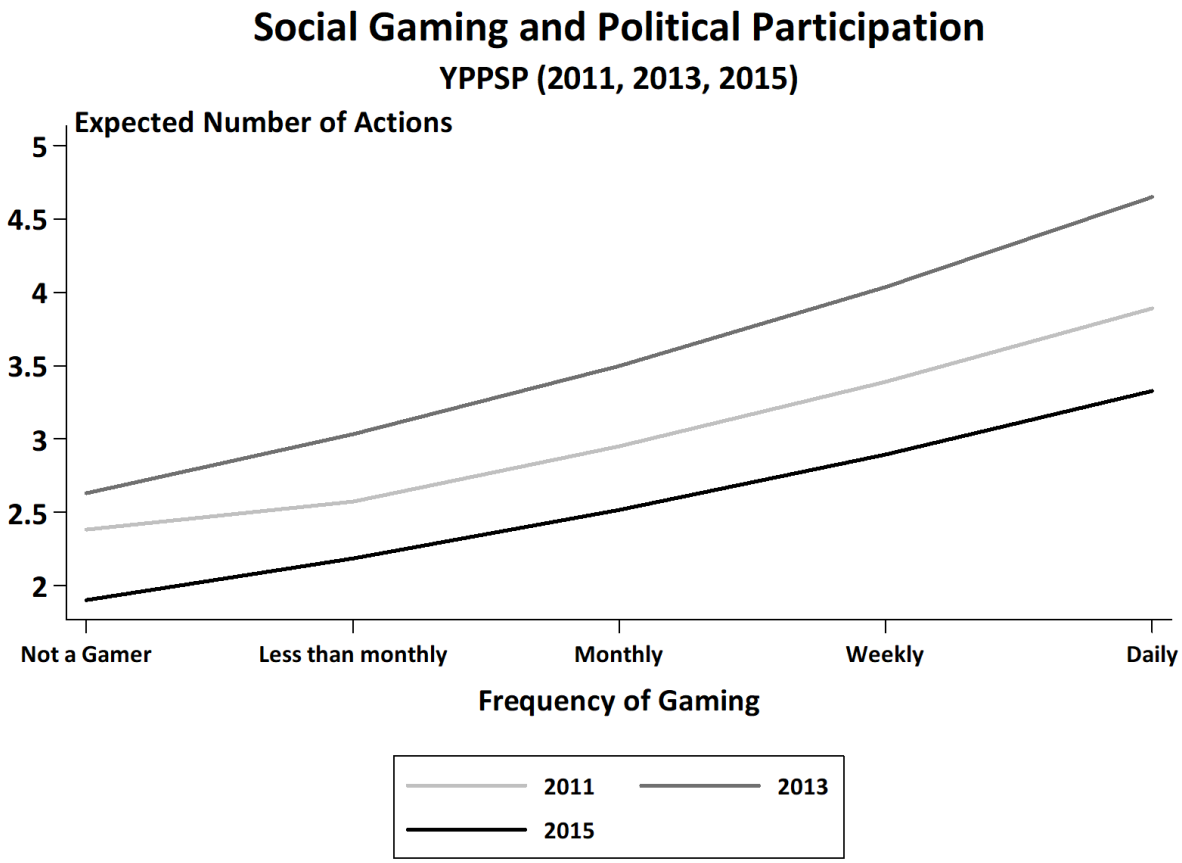

Figure 1-3. Gaming and participation in the YPPSP (2011–15) data. The figure presents how respondents' political participation increases as they engage in more social gaming. These estimates come from three different Poisson regression models with robust standard errors, varying frequency of gaming and holding all other factors at their means.

These findings strongly suggest that games have the potential to encourage political participation through two mechanisms: Exposure to pro-social content (as seen with the Pew data) and inclusion in game-oriented social groups (as seen with the YPPSP). But how often are players realistically exposed to these kinds of gaming experiences? The evidence suggests quite frequently. As will be described later in the dissertation, I conducted an analysis on 50 of the top-selling video games spanning the decade from 2007 to 2017. Over 65 percent of these games contained at least some socially relevant content and roughly 75 percent contain politically relevant and morally relevant content. Civic gameplay opportunities abound.

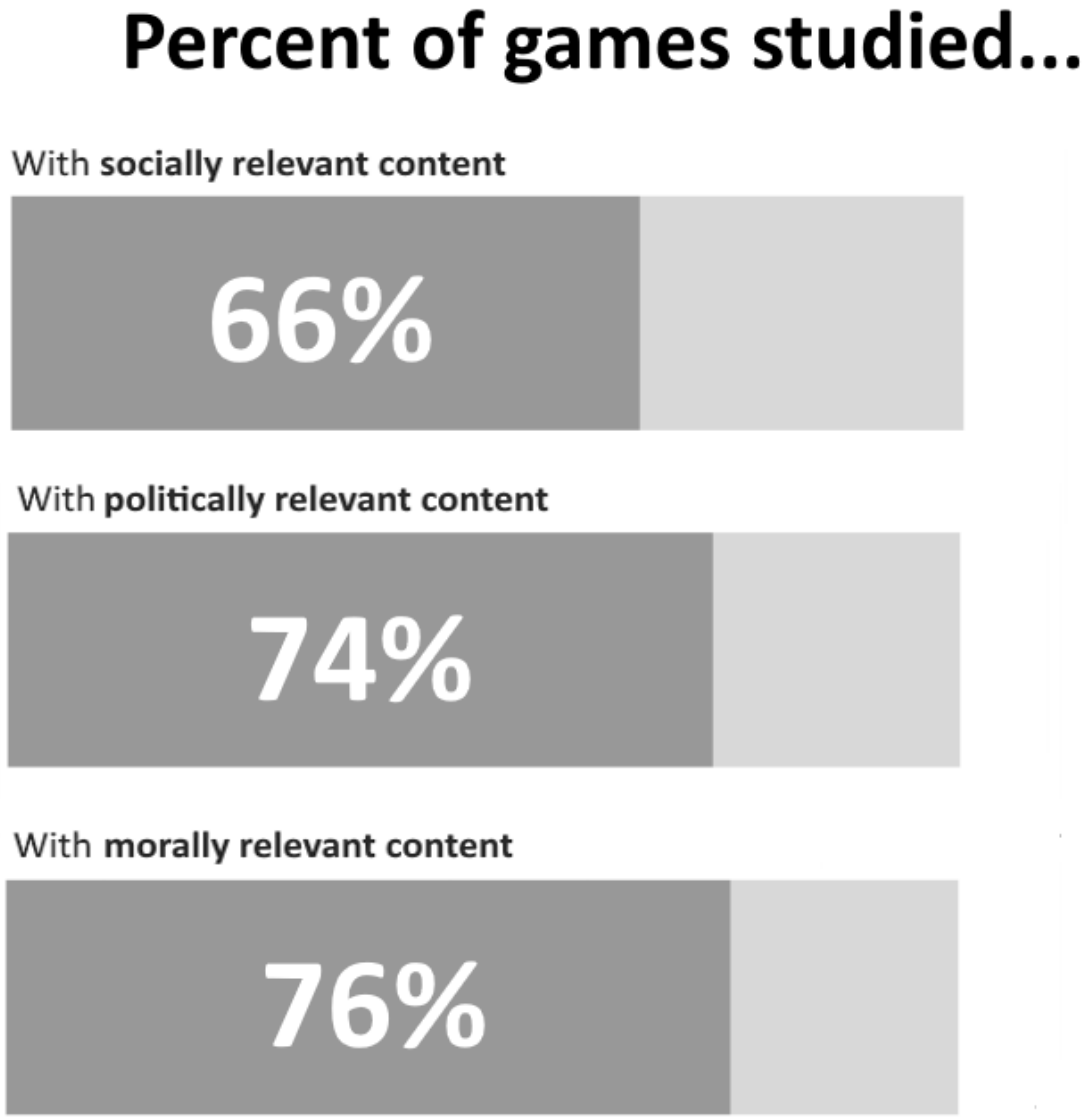

Figure 1-4. The prevalence of socially, morally, and politically-relevant content in games. This figure summarizes the percentage of popular games (based on an original content analysis of 50 best-sellers from 2007–2017) that touched on politically-relevant content and/or had politically-relevant experiences.

Players also have ample opportunities to be incorporated into a group. The same content analysis suggests that over 80 percent of these top-selling games of the last decade offer either online or offline multiplayer experiences. And survey evidence suggests that people take advantage of the option. 65 percent of teenage players in the 2008 Pew data reported playing games with others in the same room. Roughly 50 percent of respondents reported playing games

in a group at least once per month in the YPPSP.[3] More recent survey research suggests that these numbers have risen: 75 percent of teenagers played games online with others in 2015 (Lenhart, 2015). 67 percent of parents report playing games with their children at least once per week (ESA, 2018) and nearly 50 percent of US parents believe that games help their children build teamwork skills and keep in communication with each other (Nguyen, 2019).

In many respects, these exciting findings harmonize quite well with scholarly investigations of play. The idea that play, generally thought of as being frivolous, can affect complex behaviors is far from a new one. Indeed, the prevailing theories on the topic suggest that play evolved precisely to facilitate complex behaviors. Play while young is almost ubiquitous across mammals and is believed to have evolved to offer an opportunity to safely develop key survival and social skills—which can be seen in the rough-play among bear cubs, the cues signaling social status in monkeys, and play-fighting among rats (Brown & Vaughan, 2009; Pellis, Pellis, & Bell, 2010; Smith, 1982). That is, it acts as a safe way to simulate the trials to be faced and practice the skills needed to conquer them. And while play is less frequent among adults, it is still prevalent among many social mammals (Brown & Vaughan, 2009; Hall, 1998; Mancini & Palagi, 2009; Pellis & Iwaniuk, 2000). This, of course, includes humans.[4] Here, play is suspected of being an important social lubricant and source of mental arousal–aside from providing an intrinsic value of joy, that is (Brown & Vaughan, 2009).

But the line between video game play and political behaviors, specifically, is far less clear. Distilling the purpose of play into these bland, instrumental accounts may give us a vague sense of how video games can be important, but we are at a want for why. Even if we allow that video games can be sociopolitically relevant and present us with simulated realities and cognitive stimulation, why should this translate to things like more protesting and pro-civic attitudes? These results are not sufficient to begin approaching that question.

[3] 48.9 percent for the 2011 wave, 55.6 percent in 2013, and 49.6 percent in 2015.

[4] Skeptics of this claim should pause to consider the enormity of adult sport and recreation across the world. Whether it is football, chess, cross-word puzzles, acting, or flights of speculative fancy, human adults engage in play at remarkable frequency– and adult play has been repeatedly linked to happiness and satisfaction in a number of domains (Brown & Vaughan, 2009; Glynn & Webster, 1992)

These surveys are an important window into game-inspired political activity but they are just the tip of the iceberg. Over the course of the next few chapters, I will dive deeper into their findings as well as the results of a fifth, nationally representative survey, a laboratory experiment, numerous in-depth case studies, hours of film, and hundreds of archived pages from the Strong Museum of Play. They collectively provide the evidence for four core arguments of why video games matter to political behavior. The first three reflect modes through which I believe video games will impact political behaviors. They map features of games and gaming—what they contain and how they are played—onto existing social science theories and are tested in ways that are meant to evince evidence of a causal relationship. The fourth argument is about scope: Given that there is evidence supporting the first three (spoiler alert: there is), it focuses on how (in)frequently the conditions undergirding the relationships actually come to pass. In other words, the first three present causal links between games and behavior. The fourth looks at how often these links are wrought in reality.

First, games can influence political proclivities in the way that any other media format can. There is a great deal of evidence in political science and communication that physical and digital news can influence attitudes and behaviors. Less-well-known, however, is the ample evidence showing that the same effects can be found in compelling novels, movies, television shows, and other forms of fiction (see, as examples Glas & Taylor, 2018; Mulligan & Habel, 2011; Swigger, 2017). There is little reason to exclude video games on their face from this group. Many games offer insight and information about important issues in society through their stories. They can introduce players to new ideas and issues, or fresh perspectives on preexisting ones, and innervate civic-based thinking. They offer players ways to think and approach the world as well as examples of action that players may be able to generalize to reality.

Second, games matter by dint of the fact that they are deeply interactive experiences—meaning that people are not only witnessing politically relevant content but experiencing it and bringing it to pass themselves. With limited exception, the escapades we witness in movies, television, and books are static, with preordained outcomes. We are not

participants, we are simply observers. But that script is flipped with video games. Games are the only medium that is primarily defined by continued user interaction—interaction that actually appears to make a difference on the world behind the screen. Indeed, that is its primary appeal. Protagonists in games are not merely characters, they are *us*—our avatars in the digital landscape. We are not afforded the psychological distance offered other forms of fiction. From a psychological perspective, the actions we take reinforces the neuronal circuitry associated with them and invite a whole retinue of other cognitive processes to give meaning to what we have done. As I will discuss in the next chapter, ground-breaking research in neuroscience and psychology shows that these effects are not just limited to things we experience in real life (or "IRL", as some gamers might refer to it) but can also transpire with things we witness or even things that we *imagine* deeply. Remember, people are not idly watching Max try to find the words that will prevent Kate from stepping off the edge. *They* are choosing the words, trying to find the right things to say. And the game holds them to the consequences of their decisions.

Third, games matter because they are increasingly becoming nexus points of social interaction. As elucidated by video game and technology critic Owen Williams when talking about the 2018 smash-hit *Fortnite: Battle Royale*, "[w]hether we like it or not, *Fortnite* is the new hangout. The new living room, or the better 'third place.' It's like going to church, or the mall, except there's an entire universe to mess around in together, and it doesn't matter where in the world you are." With the concurrent promulgation of online multiplayer games and communication methods for them,[5] people have been establishing new interpersonal connections and deepening the ones they already have. There is an abundance of studies demonstrating that games can facilitate "social capital" and an even greater abundance demonstrating the importance of social capital—and social networks more generally—for political attitudes and behaviors. As of now, at least in the minds of many social scientists, these studies exist in two bifurcated universes and never the twain shall meet. Indeed, many familiar with one group of studies are

[5]These include in-game text or voice chat, co-opting popular extant communication services like Facebook Messenger, Slack, and Skype, and platforms specifically tailored to gamers such as Discord.

hardly even aware of the other group's existence. But there is little reason why there should not be connections between the two, and ample reasons why there should.

The fourth argument is that we do not need to scour the gaming ecosystem to find examples of politically relevant games. Currently, a lot of time, effort, and money is being invested in so-called "serious games" to teach people about politics and encourage them to engage with their society. While these efforts are important and not to be maligned,[6] it would be a mistake to think that they are the only way that people can use video games to learn about moral, social, and political issues. A substantial number of games—including a large percentage of best-sellers—incorporate important themes and events into their stories. Some games are even *entirely* based on what is going on in society. And it is not as if game developers accidentally create multiplayer experiences—someone does not just slip and push the "allow people to do this together" button while fiddling with the physics engine or the coffee-maker. Video game creators, like any other artist, are influenced by what they observe going on in the world around them; they pass along these impressions to the consumers of their art. They intentionally include social, moral, and politically relevant content and consciously curate and structure multiplayer experiences. These design choices are readily observable in their end-products—and people often report being inspired to think about sociopolitical issues as a consequence of playing them.

Outline of What is to Come: Having laid out my arguments and (hopefully) convinced you, the reader, that the topic deserves greater investigation, I will briefly give a lay of the land for the rest of this dissertation; outlining the chapters to come and what I intend to accomplish with them.

In the next chapter (Chapter 2), I review the efforts conducted by prior scholars that allow me to make the hypotheses I do—thanking the giants whose shoulders I stand on, so to speak and

[6] In fact, they are actually part of a long and storied history. Games have been designed for the purpose of education or instilling moral rectitude for centuries. The Game of Life was originally titled *The Mansion of Happiness* in the mid 19th century and was designed to instruct children on the benefice of Christian virtues (Lepore, 2013). *Monopoly* famously first started as The Landlord's Game and was meant as an invective against the greed of property owners. Even some of video games' most cherished titles were designed to teach and entertain simultaneously such as *The Oregon Trail*. These serious games are not the first medium for the mechanics of play to be concertedly leveraged for social good and I highly doubt they will be the last.

outlining their insights. Games are certainly a unique medium, but the basis for how they influence attitudes and behaviors can be seen in work that extends back decades. Part of what makes games politically relevant are same things that makes fiction, news, social media, habit, political talk, and social capital relevant. They combine this pantheon of known effects in ways that are totally novel. To understand the new, it helps to appreciate that which has come before.

To head-off one of the more obvious critiques, my arguments should not be mistaken as claiming that *every* game will impact people's political proclivities. That would simply be inane and insanely wrong. While it is clear that *Life is Strange* is relevant, it is equally clear that the 2014 smash-hit *Flappy Bird* (rivaled only in addictiveness and vacuity by pure sugar) is not. Or, at the very least, very, *very* few people will find it so. Much the same can be said for the educational *Win the White House* compared to the delightfully nonsensical *West of Loathing*. My argument is that playing games that make people think about social, moral, and political issues will increase pro-civic attitudes and political participation—and that far more games are capable of doing so than most people would otherwise think. Not that games that very clearly have no relevance to politics somehow marshal the player's mind towards greater civic engagement.

But why is it so clear? What is it about these games that make them more or less relevant? What makes them relevant at all? I spend Chapter 3 answering this question and developing a theory of what games matter politically and how. Doing so allows us to appreciate the many routes to relevancy and get a better understanding for *why* games are expected to engender these kinds of effects.

Chapter 4 is dedicated to expounding upon the methods I use to pursue my four core arguments. Throughout the dissertation, I use five separate surveys, one laboratory experiment, quantitative content analysis, qualitative case studies, and archival research. This may sound like a lot—and that is because it is. But they are all necessary. They are interlocking gears churning together to create something far more complex and fascinating than they could ever accomplish alone. What results is by no means perfect (no research endeavor ever is), but it is a more

complete look at the political ramifications of video games than could be done with a single kind of investigation—and it is, by far, the most comprehensive look to date.

However, I acknowledge that not every reader may be as enthusiastic about research design and methodology as I am. I am even willing to go as far as to admit that I am probably in the minority. My intent is to make this dissertation accessible to all who find the topic interesting–so I opt to restrict the nitty-gritty of my survey questions, experimental design, qualitative case selection, and remaining methodological minutiae to a single chapter. That way, interested readers have a chance to take a look under the hood while others can continue on to the results.

These results start in Chapter 5. There, I present the evidence for my first argument: That games have the ability to influence political attitudes and behavior by dint of their content. I dive deeper into the evidence provided by the 2008 Pew Research study of teens and civic behavior and into evidence provided by the GAmEPLS survey: an original, nationally representative survey I fielded through YouGov in February of 2019. I then investigate how games presented sociopolitically relevant content through an analysis of *Civilization V*, *Celeste*, and *Fallout: New Vegas*. To demonstrate that it really is video game play that causes these changes, I present the results of a laboratory experiment conducted in April of 2020. Games go about presenting sociopolitically relevant content in a myriad of ways but it appears that the games we play can directly influence our attitudes and behaviors.

Chapter 6 focuses on the effects of games stemming from the fact that we are the active party. I return to the experiment initially discussed in Chapter 5 and investigate whether the degree of interactivity mediates the relationship between the game experience and participants' attitudinal/behavioral outcomes. I then revisit *Civilization V*, *Celeste*, and *Fallout: New Vegas* to discuss the ways that these games engender the feeling that **we** are the active party as opposed to mere passive observers. Many of the best games try to diminish (if not outright eliminate) the perceived distance between "you" the player and "you" the avatar. And these design choices can increase the chances of political activity and/or attitude uptake in the "real world."

In Chapter 7, we turn away from viewing games as a solitary pursuit and focus on gaming's social side. From sitting on the same couch, playing video games with siblings (sometimes with the youngest's controller being unplugged to prevent them from "ruining" the play-through) to logging-on to an online community of millions, video games are often played with others. Using a case study of four popular games—*Destiny 2*, *Fortnite*, *Super Mario Party*, and *Quiplash*—I illustrate the numerous ways that games can help players forge and deepen politically relevant connections with each other. I then dive deeper into the three aforementioned YPPSP surveys and the 2019 GAmEPLS study to demonstrate that social gaming is associated with increases in many forms of political participation as well as political interest. I then leverage the longitudinal component of the YPPSP to show that, among those interviewed in 2013 and 2015, the aforementioned "squiggle" of causality includes an arrow starting at social gaming and ending at increased political behavior. I then look at the role that social capital and political talk play in the connection between social play and participation.

A question lurking behind the findings of the three empirical chapters is "so what?" So what if games with moral content can encourage activity? So what if games can host online communities where people can garner social capital? How widespread can these effects possibly be?

Very. And as Chapter 8 details, the answer to the "so what" question is that these experiences are taken up by a broad swath of the population. I use the aforementioned content analysis to show that political, social, and moral content is common in the decade's most popular games and that most of these games are designed to incorporate groups of participants. My archival and documentary evidence shows that these reflect the conscious decisions of game designers. Further, while previous surveys demonstrate that gaming is a popular American pastime, the results of my unique survey shows that a large proportion of the US engages in pro-social and group-based gameplay, specifically. The effects I explore are not just limited to the lab or to a handful of zealous survey respondents—meaning it is all the more pressing for political scientists to begin earnestly investigating the medium and its consequences.

Chapter 9 is my conclusion to the project. In it, I revisit the original arguments presented in this chapter and see how they stand in light of the evidence gathered. Not to jump too far ahead of the cart, but the evidence presented throughout the book leads to one conclusion: Video games have the capability to influence political activity and civic attitudes—and to do so in pro-social ways. This assertion is new in political science; this dissertation represents the first major foray into topic. But, as with many firsts, this is far from the final say. There are other possible ways that games can influence attitudes and participation. There are also factors that may constrain or amplify the relationships that I discuss. This is a new frontier marked by very few footprints. There are a lot of exciting discoveries to make. I spend a good part of this chapter talking about the moderating conditions, emerging frontiers, and opportunities for new discoveries.

I also take it as an opportunity to explore what these findings mean for video games: For players and developers; critics and fans alike. Do these findings mean that, contrary to the moral panic of the last few decades, games are unambiguously good? Do they mean that developers and players can look past the very real and problematic aspects of the pastime? Do they mean that video games have a social obligation? (To give a quick preview: "no," "no," and "it's complicated—but yes? Kind of?").

If there is one takeaway from this dissertation, it is this: Video games are an innovative and dynamic medium capable of influencing political attitudes and behaviors through a multitude of mechanisms. They, in short, matter—in ways that we are only beginning to understand.

CHAPTER 2
REVIEW OF THE EVIDENCE

At the end of the last chapter, I introduced three reasons why I suspect that video games have the potential to impact one's attitudes and increase political activity. First is the fact that video games are a story-telling medium and, in general, story-telling media are known to have these effects. If it walks like a duck, quacks like a duck, has feathers, webbed feet, and a special membrane that protects its eyes from water (like a duck), one might be reasonably tempted to suppose that it can also swim. Decades of research illustrates that various forms of narrative media can influence political attitudes and behaviors. Games may have the reputation of the ugly duckling among some, but it still fits the profile established by its kindred media. Second is the idea that video games involve continuous active participation in the politically relevant actions and concepts displayed. When we concertedly do something, such as thinking about a topic or performing an action, the associated neuronal circuitry activates and strengthens—even if these things are entirely imagined. The brain is constructed in a way that quite readily allows its attitudes and intents to be affected by fictitious things provided they are elaborated upon. Third, games are played by millions of people and many titles exist with the express purpose of being played with others. We often forget that it takes a certain amount of social skill to navigate even "informal" kinds of political participation; the more social connections we have, the more likely we are to know someone with those skills and attitudes—and to feel motivated enough to acquire them ourselves.

These arguments did not just spring fully-formed into being like Minerva from Zeus' skull. They may be "new," but as with most ideas, their novelty emerges from combining and transmogrifying things that already exist. My hypotheses stem from reams of work across various social science disciplines including political science, psychology, sociology, communications, and the emerging field of videogame studies. It is less "out with the old, in with the new" and more "in with the old to understand the new."

I am aware that these ideas cut against popular notions and concerns regarding video games. Thanks to decades of finger wagging, tut-tutting, and full-blown moral panic, video games have a complicated reputation. They are at once frivolous yet corrupting; they are seductive sirens

inciting violent action but also digital harbingers of sloth that utterly zap the desire to pry our eyes away from the screen. We as a society apparently cannot decide if they are a depressive or corrosive force—just that they are the cause of some form of social ill.

That is not to say that there are not serious social concerns regarding video games. Studies have shown that, in some contexts, violent video games have a limited but statistically discernible influence on violent affect (Greitemeyer & Mügge, 2014). Their potential for violent *action* is more contested, with some (perhaps most) saying that they have a limited capacity to induce violent activity (Greitemeyer & Mügge, 2014; Prescott, Sargent, & Hull, 2018). Others, though, suggest that they do not have this capacity at all (Ferguson, 2007). In either case, the fact that it cannot be unequivocally dismissed after decades of careful work leaves room for pause. Some games use techniques intended to hook players into coming back for more—techniques that are just as nefarious and underhanded as those used by casinos and tobacco companies, and are suspected to work through similar neurological channels (Drummond & Sauer, 2018). Indeed, video game addiction has been recognized as an actual disorder by the World Health Organization and excessive gaming as an unhealthy anodyne is a prevalent, legitimate worry for Japan and South Korea (Mak et al., 2014). People have actually **died** from gaming too much at the expense of their health (Hunt & Ng, 2015). To turn a blind eye to these things entirely would not only be dishonest and unscientific, it would be callous to genuine human suffering.

Oceans of ink have been spilled on these and many other subjects, arguing them from a dizzying array of positions; I am not going to dredge them all up and attempt to resolve them here. What I do want to argue, though, is that we have spent an outsized amount of time and attention on the downsides of excessive gaming compared their actual risk. Recent estimates of the proportion of gamers addicted to gaming (see, e.g., Saunders et al., 2017; Wittek et al., 2016) pins the figure at **under 2 percent**. Including "problematic gaming" (those who show some but not a sufficient number of the symptoms for addictive gaming) and "engaged gaming" (those showing even fewer symptoms than problematic gaming) bumps that up to roughly 10–15 percent. The other 85–90 percent of players are perfectly fine. Correlations between violent gaming and violent

affect are low: most meta-analyses place the value between 0.10 (Prescott et al., 2018) and 0.18 (Greitemeyer & Mügge, 2014). At most, this means that violent video gaming explains just under *4 percent* of the variance in violent affect and possibly as little as **1 percent.** The correlations between violent gaming and enacting violence is even smaller. The vast majority of people who play games, even those who partake in violent games, are able to do so without succumbing to harm or harming others. In zooming in on the negatives, we risk missing the rest of the picture.

I am not trying to claim that the positive effects that I argue for are totally indicative of "normal" play and "normal" people. Although, as I show in Chapter 8, these experiences do affect far more than the at-most-15 percent afflicted with video game addiction, I do not want to push the pendulum too far in the opposite direction. This research is in far too nascent a stage to make any strong claims of overwhelming representativeness. Instead, I will advance something a little more humble but far more honest: There are certain kinds of gaming experiences that can positively affect political attitudes and participation and a sizable proportion of the American public regularly engage with these kinds of experiences.

Over the course of this chapter, I am going to lay out the evidence that led me to my three core claims. I start by looking at the literature on media effects, then at effects relating to games' interactive nature, and conclude with games as sources of social capital and community. The intent is to show that these claims are less zany and "out-there" than they may appear on their face. To the contrary, thanks to the efforts of prior researchers, there is in fact a great deal of evidence supporting them.

2.1 Media Effects

To say that there has been a lot written about media effects in political science is like saying that whales are big. It is a technically accurate statement, but the statement severely underplays its defining enormity. One could literally write a multi-volume encyclopedia on the topic and still get panned as not being comprehensive enough. Fortunately, just as a map can cover a lot of ground but uses a compass in the corner to keep the readers on track, there are two core facts about political psychology and media that anchor this expedition: First, people's political

attitudes and propensities to act are not as set in stone as many may believe. The construction of attitudes is influenced by a myriad of mental biases and heuristics—and opportunities for expression are limited by awareness of what is going on in the world and what one can do about it. Second, media convey information and narratives in ways that activate these biases and heuristics, impelling people to think and to act. These effects are not isolated to a single format but are seen across many different kinds of media.

In 1964, Philip Converse provided what is perhaps the most famous tenet of modern public opinion and attitude research: Most of the American mass-public lack what we would think of as consistent ideologies (see also Kinder & Kalmoe, 2017). Indeed, many attitudes vary across time in a fashion that he determined "as if random" 1964. This insight was pushed further by John Zaller 1992 (see also J. Zaller & Feldman, 1992) when he argued that people do not have any "true" attitudes at all. Instead, they have a distribution of different possible opinions on any given subject subject and the one that is eventually called-forth depends on how the attitude is elicited. Not all scholars agree on this point; some instead subscribe to the belief that people do have true attitudes on a variety of topics—but that these stable positions carry emotions attached to them and that beliefs people express are a product of how all of the evoked emotions interact; that is, whether the valence of these combined, emotionally-laden concepts is positive or negative (Lodge & Taber, 2013; Taber & Lodge, 2006). Regardless of whether attitudes vary randomly, if they fluctuate based off of the emotions attached to certain cues, or whether they exist at all, the overwhelming consensus is that attitudes are not stable and can often be influenced by relatively small, transient factors.

As it is for political attitudes, so too it is for action. As much as we may think that our participation in politics stem from our choices alone, how we act, when we act, and whether or not we act is invariably shaped by things outside of our individual, conscious control. Perhaps the strongest predictor, internationally, of whether or not someone will vote is not an individual's education or wealth but whether or not their electoral system enforces compulsory voting (Singh, 2016). Systems also contain far more subtle "nudges" which can encourage—and

discourage—people from casting a vote: ease of ballot access (Gronke, Galanes-Rosenbaum, Miller, & Toffey, 2008; Southwell & Burchett, 2000), registration reminders (Koelle, Lane, Nosenzo, & Starmer, 2017; Mann & Bryant, 2020), and voter ID laws (Citrin, Green, & Levy, 2014; Hershey, 2009) are all examples. But even on a more basic, individual level, action is predicated by a sense of needing to act and awareness of how one can act.

This last fact is especially important in the discussion of media effects. More often than not, the knowledge that something requires action is not derived from people's own life experiences. Instead, they are made aware of an issue—and given examples of how other people are approaching them—through exposure to media.

As an example of the media's power in this area: In 2018, the Trump administration made a series of policy changes that drastically changed the way that children and families crossing the US-Mexico border are treated while they await asylum hearings. Reports of children cramped into cold, sparse cages sparked a national furor and inspired calls for protests, petitions, discussions, and floods of correspondence to public officials. And, by and large, these calls were answered—or at least addressed. Many politicians vociferously decried the conditions these children faced (and, at time of writing, are still facing). But this anger and mobilization was absent in 2014 when children were overcrowded in the exact same facilities during the Obama administration. A big reason for the discrepancy is that the press did not cover the events in 2014 anywhere near as much as they did in 2018. This is not intended as an accusation of bias in the press or to equivocate the policies of the Trump and Obama administrations and their humanitarian consequences. Indeed, the fact that the conditions in 2014 was an aberration of a much less controversial norm[1] probably explains why the alarm bells remained quiet. But the lack of noise meant that most people were unaware that there was an issue to begin with. People do not act unless they know what they are able to do—and if they are unaware of an issue in need of action in the first place.

[1]The policy of the Obama administration was to hold children for as brief a time as possible and release them to family and care-takers in the US while President Trump shifted it to a "zero-tolerance" policy where all children were to be separated from their families and held for longer periods of time. Instances of overcrowding in the former was largely tied to instances of large waves of migrant children fleeing violence in Central America.

This exemplifies the second point to understanding how video games can influence attitudes: Media plays a large role in helping people perceive the world and, consequently, influences their attitudes of it and participation in it.

Perhaps one of the most famous studies on media effects in political science is Shanto Iyengar and Donald Kinder's pioneering book *News that Matters* 1987. Iyengar and Kinder leveraged a series of rigorous experiments to demonstrate that television news carries the power to shape what people think about and how they judge political actors in light of these thoughts. Using custom-made film segments that plausibly mimicked a television news broadcast, they demonstrated TV news' power to prime viewer considerations and set the agenda.

Priming is the tendency of stimuli to trigger cognitively similar concepts and for these activated concepts to then play a part in the unfolding decision/action. One example from psychology includes a famous study where the physical warmth of holding a cup of coffee primed the experiment's participants to see a discussant partner as having a "warm" personality (L. E. Williams & Bargh, 2008). News programs were demonstrated to prime the considerations people constructed of notable public officials; when exposed to a news story talking about the environment, for example, respondents were more likely to judge the president's overall performance based off their perceptions of his performance on environmental issues. Agenda setting refers to the ability of mass media to not, to paraphrase Bernard Cohen 1963, "tell people how to think but what to think about." Since the media plays a large part in the construction of people's perceptions of the world, the tendency of the mind to equivocate "repeatedly observed" as "important"[2] means that the topics frequently promulgated by media tend to be near the forefront of thought. As noted by Dietram Scheufele and David Tewksbury 2007, media priming and agenda setting tend to travel as a pair in studies of TV news. Together, they represent some of the most well-studied affects in the study of how political media influences attitudes and behaviors.

[2]E.g., the availability heuristic (Tversky & Kahneman, 1974).

While this research may be some of the first that comes to mind when political scientists discuss media effects—and it is something that I investigate in the context of video games in chapter 5—more important to the overall message of this dissertation is in the observed effects that media has on civic attitudes, such as political interest. For decades, many researchers identified political interest as the antecedent factor; interest spurs media consumption and, from there, knowledge and participation (e.g., Atkin, Galloway, & Nayman, 1976; Strömbäck, Djerf-Pierre, & Shehata, 2013). Indeed, taking a more passive approach to consuming the news—feeling that "the news will find me" rather than being interested enough to seek it out actively—has been associated with lower levels of political interest and participation (Gil de Zúñiga & Diehl, 2019). On the other hand, ample research also points out how news media exposure can itself increase political interest through the presentation of new, pertinent information to mass audiences (Drew & Weaver, 2006). This effect even extends to when the political media is gathered actively or passively (Kruikemeier, van Noort, Vliegenthart, & de Vreese, 2014). The tension has been resolved in recent years through panel studies, tracing the same subjects over time, which show a reciprocal relationship between media consumption and interest in politics (Boulianne, 2011; Gastil & Xenos, 2010; Strömbäck et al., 2013). While scholars are still teasing out how the strength of this effect varies over different media formats (Boulianne, 2011, 2015, 2016; Shehata, 2010), the general consensus is that media has a tendency to increase interest in politics and civic life.

Of course, these are not the only ways that media can influence political attitudes. News media have the ability to *frame* information based on the words, images, and themes they employ to convey it—which affect people's perceptions of events and attitudes towards them. It's how the downing of a civilian aircraft by the United States military is a regrettable mistake, but a similar action by its then arch-nemesis, the USSR, is portrayed as indicative of their "moral bankruptcy" (Entman, 2004). Or, in a more recent yet still plane-related case, how US news was far more likely to articulate the 2013 crash of Asiana Airlines Flight 214 on its descent into San Francisco international airport as being the sole fault of the Korean pilot while news in South Korea made it

appear that responsibility fell on many shoulders (Yan & Kim, 2015). The tendency of the press to be biased towards negativity (Niven, 1999, 2001) can lead to negative affective judgments of members of Congress (Hibbing & Theiss-Morse, 1998). And even if the press is better at telling people what to think about versus how to think, that does not mean that they are totally unsuccessful at the latter. In domains where consumers tend to have limited knowledge (Jordan & Page, 1992, such as foreing policy, see), press coverage can have a limited, but appreciable, influence on attitudes directly.

The effects of news media extend beyond the space between people's ears; it can influence propensities to act. In testing whether the news encouraged or depressed turnout (the so-called "media malaise" hypothesis (Robinson, 1976)), Kenneth Newton 1999 demonstrated that news consumption is positively associated with turnout—even when controlling for *ex ante* political interest. This association, consumption and action, has been replicated across time, space, and modality of coverage (see, as examples, Aarts & Semetko, 2003; Boulianne, 2015; de Vreese & Boomgaarden, 2006; Druckman, 2005; Gastil & Xenos, 2010; Livingstone & Markham, 2008)—although it is evolving. Early evidence, for example, suggested that internet use led to depressed political engagement (Boulianne, 2009). Later work, however, suggests a "virtuous cycle" whereby digital media usage both encourages turnout and is flocked-to by those already interested (Oser & Boulianne, 2020). Although the current evidence suggests that the effect of "activity" to "media usage" is stronger and more consistent "media usage" to "activity," the general consensus is that those watching the news can be engaged by what they see and encouraged to act. This can be caused by the emotions the news inspires in us (Feldman Barrett, 2017; Hasell & Weeks, 2016; Valentino, Brader, Groendedyk, Gregorwicz, & Hutchings, 2011; Valenzuela, 2011), the fact that increased coverage signals important, high-quality contests (D. Hayes & Lawless, 2015), and the perception—largely caused by ingesting media that reinforces one's prior beliefs—that the world is open to the kinds of change we would like to see enacted (Dvir-Gvirsman, Garrett, & Tsfati, 2015). These are but a few mechanisms that have been

discovered and documented by researchers—but these findings and their kin all suggest that the news can mobilize people into action.

These findings, as with the majority of those in the study of political communications, are focused mainly on news media—which social scientists see as highest-quality sources of political information. But while watching, reading, and listening to the news delivers the strongest effects on political attitudes and participation, these impacts are not limited to outlets focused on informing the public. Rush Limbaugh and his entertainment-based talk radio show has been shown to have an effect on the political attitudes of his listeners (Barker & Knight, 2000). Watching satirical news programs, such as *The Daily Show* and the now-defunct *Colbert Report* (J. Baumgartner & Morris, 2006; J. C. Baumgartner & Lockerbie, 2018) and comedic analysis shows like *Last Week Tonight* (Bode & Becker, 2018) have been shown to increase certain forms of political participation. You can also add late-night comedy shows to this list as well. While their impact on participation varies, research has consistently found that shows like T*he Tonight Show* and *The Late Show* is correlated with increased political knowledge and attentiveness (Feldman & Young, 2008; M. A. Xenos & Becker, 2009; D. G. Young & Tisinger, 2006). Looking at popular TV airing while the sun is still out, day-time talk programs like *The View* and *Oprah* have been shown to aid otherwise low-information voters in making "correct" voting decisions (Baum & Jamison, 2006).

While these programs and genres are not traditionally considered news, they are broadcast through what we would now deem as "traditional" means: newspaper, radio, and television. Video games fall under the wide umbrella of "new media," a label that is currently understood as generally referring to formats facilitated by the rise of the internet. Early research (circa 2000-2010) looking to see if traditional relationships extended to these new formats was not very promising. Early studies of how people navigated the news online versus through a physical paper suggested that online readers were more likely to gloss-over or outright *ignore* stories on national, international, and political news (Tewksbury & Althaus, 2000). Markus Prior 2005 argued that the rise of the internet may actually result in a decreased predilection for participation and

political information seeking as only those who were interested before logging-on would benefit from the medium's "civic potential." A number of other scholars came to argue the same point: If the internet was going to provide any civic good, it would only be to those who are already civically inclined (Schlozman, Verba, & Brady, 2010; M. Xenos & Moy, 2007).

While these insights were certainly important when they came to print (or, in the ironic case of later works, when they were first posted online), the amount of weight we ought to place on their empirical findings should take into account the drastic evolution of the internet's role in our daily lives. Directly translating their results to today's environment would be like entirely basing the scientific discussion of bird flight on the imprints of down found on dinosaur fossils. By 2018, Pew (Shearer, 2018) reported that more people were often getting their news from social media (20 percent) than print newspapers (16 percent)—even more (33 percent) used dedicated news websites. Indeed, the so-called "king" of broadcast media, TV, was only ahead for those over the age of 50. Adults from 18-49 predominantly got their news from either social media or dedicated news sites. Indeed, as Michael Xenos and Patricia Moy wrote in their 2007 paper purporting an ambivalent relationship between internet use and political participation: "Certainly, as technology evolves...our results will likely take on more historic than scientific value in that the relationship will also likely continue to evolve" (713).

And evolved it has. Later research has shown that online news media has had a positive impact on traditional forms of participation (Bakker & de Vreese, 2011; Moeller, de Vreese, Esser, & Kunz, 2014) and on newly emerging "digital" forms of participation, like signing a petition online or sending digital correspondence to one's representative (Bakker & de Vreese, 2011; Kahne & Bowyer, 2018). Interestingly, work using the 2001, 2005, and 2010 waves of the British Election Study showed a positive relationship between digital media use and participation, but that the relationship between the two has been strengthening over time for some forms of action (Bimber, Cunill, Copeland, & Gibson, 2015). Furthermore, this relationship has been found in a number of different cultural and national contexts (Chan, Chen, & Lee, 2017; Gainous, Abbott, & Wagner, 2018; Valenzuela, 2013; Valenzuela, Arriagada, & Scherman, 2012). Far from

being too distracted to act by the internet, users are actively engaging with these platforms in the pursuit of politically relevant information (Gainous & Wagner, 2013). Even among those who are not deliberately seeking out that information, longitudinal evidence demonstrates that social media usage has significant indirect effects on participation for those using social media for purposes other than gathering news (Gil de Zúñiga, Molyneux, & Zheng, 2014; Settle, 2019). And there is reason to suggest that this relationship will continue to evolve as political figures—and the ways they communicate with the public—continue to shift to online platforms like Facebook and Twitter (Gainous & Wagner, 2013).[3]

One obvious objection to using all of this evidence to discuss video games is that games are fundamentally different than any of these media formats—regardless of whether they are "new" or "traditional." The very real concerns of fake news aside, the majority of information that people are considering on television and on their social media feeds reflect things happening in reality. Even subjects on the facetious *Daily Show* and the butts of late-night television's jokes are made in response to things happening in the real world. Video games, with very limited exemption, are works of fiction. They may be inspired by reality, but the stories they tell are ultimately fantastical.

There is a difference, though, between something *being real* and it having a *real* impact on our world. *Uncle Tom's Cabin* is a work of fiction but it is credited by historians for crystallizing sentiments against slavery in the North in the years leading up to the American Civil War (Green & Brock, 2005). *Harry Potter*, no matter how well actualized by Daniel Radcliffe, is not a real person—but his story has a real, positive impact on tolerance among the series' younger readers (Vezzali, Stathi, Giovannini, Capozza, & Trifiletti, 2015). Heavy viewers of the fictional *Grey's Anatomy* had very real increases in their satisfaction levels as patients, mediated by how credible they felt the show was (Quick, 2009). Fiction has proven time and time again to be capable of guiding perceptions of an issue's relevance (e.g., setting the agenda—see Strange & Leung, 1999), priming individual's attitudes towards topics (e.g, K. L. Young & Carpenter, 2018), and

[3]But see Lipinski 2004 for why traditional formats will continue to matter in this emerging equation.

persuasion more generally (Appel & Malečkar, 2012; Appel & Richter, 2007; Green & Brock, 2002). To be sure, not every piece of fiction is going to have this power (Sigelman & Sigelman, 1974), but the same can be said of *any* content through *any* media format. This sort of critique should not preclude us from considering video games as an entire genre. And based off of parallel evidence, we can expect that there will at least be some class of games that are able to deliver comparable effects.

While these findings may come as a surprise to many, including those versed in sociology, economics, and political science, it is actually rather old hat for those studying psychology and communications. In 1991, Richard Gerrig and Deobrah Prentice demonstrated that readers of short stories were likely to incorporate facts embedded in fictional accounts into their knowledge of the world, provided that the information at least cohered with reality on its face. Their work made explicit the processes suggested by Clayton Lewis and John Anderson in 1976. Lewis and Anderson found that providing laughably false information about true individuals (e.g., "George Washington wrote *Tom Sawyer*") slowed down the ability of subjects to verify actual facts ("George Washington crossed the Delaware"), suggesting that the false fact had been incorporated into the subject's concept of the true figure (see also Potts & Peterson, 1985; Potts, St. John, & Kirson, 1989). Later work showed that people incorporate information presented as fact from fictional narratives—and that they were consciously aware that they were doing so (Marsh, Balota, & Roediger III, 2005; Marsh, Meade, & Roediger III, 2003).

That is not to suggest that people always gather *correct* information from fiction. While research shows that this can lead to greater true knowledge (Marsh et al., 2005, 2003), it has also been shown that subjects can come away having learned incorrect facts (Butler, Zaromb, Lyle, & Roediger III, 2009; Fazio & Marsh, 2008; Green & Donahue, 2011; Marsh et al., 2005, 2003) and that these falsities are resistant to later attempts to correct them (Green & Donahue, 2011). Interestingly, it appears that people are receptive to the information embedded in narratives in general, regardless of if they are presented as fictitious or factual (Fazio & Marsh, 2008). Raymond Mar and Keith Oatley 2008 argue that this reflects the deeper purpose of narratives and

fiction: to serve as simulations of the social worlds for our brains to extract workable data, scripts, and scenarios. Our brains are hungry for information—and they do not appear to be particularly picky eaters.[4]

The effects of this informational omnivorousness can be found in the political realm as well. People often draw on fiction for both analogy and insight during their day-to-day political conversations (Delli Carpini & Williams, 1994). Anne Bartsch and Frank Schneider 2014 show that emotional involvement in fictional media prompts political interest regarding the content that they observed, interest in the general real-world issue it represented, and even action (in the form of information seeking) on the topic. Research suggests that the character Cliff Huxtable helped engender positive attitudes towards African Americans near the turn of the 21st century (Downing, 1988). Experimental evidence suggests that the gender norms found in sitcoms can alter viewers' attitudes on abortion—which is quite notable considering how salient an issue it is in the American political context (Mulligan & Habel, 2011; Swigger, 2017). Numerous works find that fiction can alter attitudes towards the criminal justice system (Dowler, 2003; Holbrook & Hill, 2005; Mutz & Nir, 2010) or the perception that the world is "just" (Appel, 2008) or the perceived believability of conspiracy theories (Mulligan & Habel, 2013). Others have found that movies have the ability to encourage the emergence of traits like (anti)authoritarianism (Glas & Taylor, 2018) and influence political attitudes (Adkins & Castle, 2014). Further, television shows have been shown to prime politically relevant judgments, such as attitudes against the USSR (Lenart & McGraw, 1989) or the institution of the Presidency (Holbrook & Hill, 2005).

If effects have been found across every form of mass story-telling, we should expect them to be found in games as well. Indeed, although the literature is less consolidated and developed, there are studies that suggest that video games can influence politically relevant attitudes. Research led by David Waddington (Waddington, Thomas, Venkatesh, Davidson, & Alexander,

[4]Interestingly, there has been some research to show that a respondents' need for cognition (which can analogously be thought of a measure of how voracious a mental eater one is) can effect how likely they are to incorporate fictional information (Green, Garst, & Brock, 2004). However, in these studies had an incentive for respondents to report correct information. There are no studies on how need for cognition affects the amount of subtext gleaned and incorporated absent an explicit incentive.

2013) suggests that the video game *Defcon*, which focuses on the enactment and fallout of nuclear war, can affect attitudes about nuclear weapons. As I previewed in the last chapter, research from Pew (see, as a follow-up, Kahne, Middaugh, & Evans, 2009) suggests a positive relationship between civic engagement and playing games that encourages players to think about moral issues, social issues, and how society ought to be run. Researchers in Turkey (Tanes & Cemalcilar, 2010) show that the ever-popular resource management game *SimCity* can alter the attitudes of participants on what an "ideal city" looks like. Indeed, many educators bank on their being some kind of effect, judging by the numerous articles suggesting the use of games as pedagogical tools (de Zamaróczy, 2017; Kahn & Perez, 2009; Squire, 2006; D. G. Young et al., 2019).

To be sure, I am not the first to suggest that video games could be leveraged towards awareness and/or persuasion on politically relevant issues. *The Sumerian Game* is the first documented attempt at concertedly creating a video game to do exactly that and it was released for play in 1966 (World Video Game Hall of Fame, 2018). The history of creating games *in general* that are deliberately persuasive and educative about politics and society goes back even further. *The Mansion of Happiness* (the first iteration of the popular board game *Life*) was meant to be an instructive tool to teach good morals to children and socialize them to contemporaneous ideas surrounding life and death—and it was first published in 1800 (Lepore, 2013). (Indeed, games without overtly political content have been leveraged towards political ends for millennia as can be seen with the ancient Olympic games in Greece.) I am not even the first to suggest that certain game experiences have the potential to increase rates of civic participation (Kahne et al., 2009; Umaschi Bers, 2010). While I may be carrying the torch of an idea already lit, my hope is to carry it further than my predecessors were able to. Because video games are seen as a child's hobby (and because those in the grips of moral panic have been imploring people to "think of the children" since Plato's invective against the written word in *Phaedrus*), most of the preexisting research about video games focuses on children and adolescents. Aside from problems of trying to generalize those conclusions to adults, this necessarily limits the kinds of questions about political participation that researchers have been able to ask. 13 year-olds cannot vote—nor are

they generally in a strong enough financial position to donate money to political campaigns. Additionally, the few extant studies on the effects of video games have zeroed in on one or two games in particular—provided that they are not reporting on wholly original games made with that intent in mind. My intention is to argue an account that is broader than those that have come before by addressing a broader swath of games among a broader (and more politically influential) swath of people: Games that US residents (including adults) play that could inculcate feelings of civic engagement and, ultimately, inspire political participation.

In short, there is ample evidence that media can influence political attitudes and behavioral propensities. The sorts of things being consumed, moreover, do not have to be broadcast through traditional channels, be explicitly informative, or even be *real*. Given this, it is plain to see how video games can be expected to provide another means of influencing political beliefs and actions. Previous research on media effects demonstrates that news media, movies, and television shows can raise the salience of issues in the mind, prime how people consider political information, and inspire action. Many experiences share the features that are understood to be driving these effects: they discuss a variety of issues in ways that, I argue, get people to deliberate and, ultimately, participate. Far from being handicapped by their fictional nature, many games use narrative to showcase important issues in compelling and meaningful ways. given the fact that they are an interactive medium, some game experiences may even be *more* compelling than other traditionally understood effects. Which, incidentally, brings us to the second argument.

2.2 Interactivity

More so than any other mass entertainment medium, video games are not consumed so much as they are *experienced*—and these experiences can be quite profound. While all forms of media require choice on the part of the consumer to make sense of what is being broadcast to them (Neuman, Just, & Crigler, 1992), video games are unique in the extent that choice is demanded from the participant—and the amount of leverage that these choices have on the world. As a consequence, what happens appears to be driven predominantly by the player's choices and inputs—and this can be leveraged to great, and profound, narrative effect. Consider some of the

examples I mentioned in the last chapter: Sapient machines deciding if their quest for civil rights should be a campaign of peaceful protests or violent rebellion; leaders wrestling over questions of individual liberty and utilitarianism in the face of an unavoidable existential threat; struggling to save a friend from ending her own life. The choices at the heart of these scenarios are not in the hands of the on-screen protagonist. They are in yours, the player's. The same can be said of the hundreds of more subtle, inconspicuous experiences and choices present in games: Figuring out how to best serve those who rely on you; witnessing expressions of interpersonal and structural prejudice; exploring the gradient of gray between good and evil—to name just a few common examples. We are the real inhabitants of these virtual worlds. Our actions may be cast in fantastical settings and scenarios, mediated by consoles, controllers, and touchscreens, but at the end of the day they are still ours. And when politics fashion our experiences, we are consequently experiencing the political.

To say that experiencing politics matters to one's political beliefs and behaviors is not going to win awards anytime soon; it is as about as self-evident a claim as one could present in political science. As obvious as it is, it bears repeating if only to allow me to explicate the aspects of that fact that I focus on here. First, action begets action. Prior activity effectively serves as both engagement in its own right but also, through a variety of mechanisms, makes it easier to act in the future. Second, the events of one's life have the potential to irrevocably shape their future actions and beliefs. Our brains are constantly drawing lessons from our day-to-day lives and environments, fashioning them into useful cognitive constructs that help us understand what is happening now, what will happen next, and what we want to do about it.

The idea that past political participation encourages future participation is far from new. Indeed, the evidence extends back (at least) over half a century. In their wide-ranging, perennial book *The American Voter* 1960, Angus Campbell, Philip Converse, Warren Miller, and Donald Stokes observed that people who voted in previous elections were more likely to vote again compared to prior non-voters. In the years since, numerous political scientists have added voluminous support to the idea (Aldrich, Montgomery, & Wood, 2011; Gerber, Green, & Shachar,

2003; Kanazawa, 2000; Plutzer, 2002; Valentino, Gregorowicz, & Groenendyk, 2009; Verba & Nie, 1972). This connection was given the force of causality through the innovative use of field experiments (e.g., Coppock & Green, 2016; Cutts, Fieldhouse, & John, 2009; Gerber et al., 2003), which conclusively show that participating in past elections is causally linked to participating in future elections.[5] There are a number of different theories for why voting becomes habitual—such as reduced informational costs, reinforced civic pride, increased efficacy, and stochastic learning to name a few—but the standalone fact that voting is habitual seems to be virtually beyond question. Longitudinal survey data strongly suggest that other forms of political participation, such as donating, protesting, and volunteering, are also habitual (Finkel, 1985; Valentino et al., 2009).

The notion of "action begetting action" is not just limited to things that we compel our bodies to do: It also extends to the enigmatic machinations of the mind. As I mentioned above, ample work in political psychology suggests that people do not have particularly stable political attitudes. John Zaller 1992 (see also J. Zaller & Feldman, 1992) suggests that people have a distribution of possible positions on any given topic from which they "sample" a single answer depending on the context of the question. If the distribution is large enough, and the conditions are right, people can give answers that flat-out contradict those they gave previously to the exact same question. But just as how repeated survey sampling causes the distribution of possible values to concentrate around the population mean, repeated sampling of our beliefs shrinks the variability of the attitudes professed. There is suggestive evidence that tapping into our political opinions vis-a-vis talking about politics increases attitude stability (Lalljee & Evans, 1998; Lalljee & Palmer-Canton, 2001). Similarly, those who frequently consume the news (especially highly polarized programming) tend to have more consistent political ideologies (J. Kim, Wyatt, & Katz, 1999). Indeed, Converse himself noted that there was a subgroup of the mass public with far more consistent and ideologically constrained positions than the rest. The consistency of these "elites" and "near elites" stemmed from the fact that they "'think about' elements involved in

[5] Although not all forms of engagement and participation in elections is equally likely to be habit-forming (see Shino & Smith, 2018).

political belief systems with a frequency far greater than that characteristic of mass publics" 1964, p. 6. And, as with voting and other embodied forms of participation, there is longitudinal evidence to suggest these actions are habitual as well (Boulianne, 2011; Kruikemeier & Shehata, 2017). Talking about politics, observing politics, even just *thinking deeply* about politics: Repetition of these more ordinary forms of activity encourages people to do them again, consequently affecting the beliefs they hold and express.

It is important to note, however, that just because people can be habituated into voting, participating, and deep political thought, it does not mean that forming one kind of habit will invariably lead to the others. Sidney Verba and Norman Nie 1972 (see also Verba, Nie, & Kim, 1971, 1978), analyzed national-level survey data to suggest that there are four distinct domains of participation that people fall into. Some will engage with the community, some will campaign, some will contribute money, but most will only engage with politics through their vote. While the number of dimensions has grown over the years thanks to new survey measures (Claggett & Philip H. Pollock, 2006) and to entirely new forms of participation engendered by the internet (R. Gibson & Cantijoch, 2013; Lilleker & Koc-Michalska, 2017), the general conclusion that there are different domains of activity remains intact. Thus, action *within a particular participatory domain* is likely to encourage future activity within said domain.

The upshot of this, though, is that if one can be encouraged to "practice" a variety of political acts, or to become interested in participating more generally, they may be more likely to become the kinds of people who dabble in a number of domains. Strands of evidentiary support for this assertion can be found in the consequences of degeneracy in neuroscience (Edelman & Gally, 2001; Feldman Barrett, 2017; Price & Friston, 2002). While many people think of activities and actions as having unique points of origin in the brain, most brain regions are implicated in a diverse array of complex phenomena—and the expressions of said phenomena do not always tap into the same regions.[6] Repeated action does not strengthen particularized neuronal "circuits" but larger, associated assemblages of circuits. Subsequently, repetition has the

[6] As an example, the hippocampus is traditionally associated with anger, but is also activated during aerobic exercise (Erickson et al., 2011) and is not always activated when people are angry (Feldman Barrett, 2017).

consequence of strengthening proclivities towards *related* activities as well (Feldman Barrett, 2017). If the aim is to increase political participation, it is not necessary to encourage people to perform every kind of political action under the sun. It is likely that people only need to perform actions within that participatory domain for them to be more likely to do the others. Thus, getting people minimally involved in a variety of domains may encourage activity across them.

Media can play a significant role in this process. As discussed above, media exposure has been repeatedly found to be positively associated with many different kinds of acts. It is reciprocally correlated with political interest (Boulianne, 2011; Shehata, 2010; Strömbäck et al., 2013; Strömbäck & Shehata, 2010)—which is known to be one of the most important predictors of participation (Prior, 2005). This interest can be rather wide-ranging: News media not only presents viewers with ways to think about and digest what they are seeing but also suggest, through example or recommendation, a number of possible ways they can do something about it. The concept of degeneracy suggests that this minimal amount of involvement, having an interest, has the potential to expand people's behavioral repertoire.

Obviously, this will not be the case for all consumers at all times— not everyone is inspired by what they see on the evening news. But it does leave open the possibility for video games to do something similar. After all, all other forms of mass media are far more passively enjoyed. In video games, interest is garnered, in part, through *action*—action which has the possibility to strengthen associated neural circuits in-and-of themselves. Indeed, as I show in chapter 8, many of the most popular video games released in the last ten years simulate an array of important social, moral, and political topics. These virtual experiences may offer players preparation and inspiration for involvement in ways that they otherwise would not get in their day-to-day lives. Virtual action may very well beget real world action.

Moving towards the second point, that one's experiences and environments shape their attitudinal and behavioral tendencies: This is also a pretty uncontentious point in political behavior and psychology. Profound negative events not only facilitate an immediate shift in favorability towards the President (the so-called "rally around the flag effect"— Hetherington &

Nelson, 2003), but effects can echo for years down the line. 9/11 provides an example; research finds that people who directly experienced the attacks were less likely to support foreign military intervention as a result of their heightened anxiety surrounding terrorism (Huddy & Feldman, 2011) and were more politically active than their non-affected peers even over a decade after the event (Hersh, 2013). To take another example, local unemployment conditions can negatively anchor attitudes towards incumbents for years into the future, decreasing their likelihood of holding on to office (Aytaç, 2018; Park, 2019).

Experiences do not have to be strictly negative either. The now-famous Bennington studies demonstrated that attendees to the eponymous all-female liberal arts college were more liberal than their peers—an effect that lasted throughout many of the women's lives (Alwin, Newcomb, & Cohen, 1992). The voting propensities of immigrants to the United states are strongly affected by the civic norms inculcated in their country of origin—or lack thereof (Bueker, 2005; Licari & McDonald, n.d.). Further, several studies have highlighted the importance of cohort effects on opinion; that is, that miasma of unique cultural experiences that broadly characterizes the sociopolitical environment where people came of age (Alwin & Krosnick, 1991; Brooks & Bolzendahl, 2004).

These events can stem from interpersonal factors, too. Major life events such as marriage (Stoker & Jennings, 1995) and divorce (Sances, 2013) has also been shown to influence rates of political participation. Studies in youth socialization show that party identification, religious, and racial attitudes are inherited from people's parents (and even grandparents!). Not because these complex positions are genetically heritable—the amount of the variance in complex behavior that genes can explain is often less than 10 percent (Cheesman et al., 2020; Sapolsky, 2017)—but because these values are instilled young and repeated often. Effects point the other direction too. Men who have daughters, for example, tend to be more conservative yet also more supportive of women's rights (McDevitt & Chaffee, 2002; Sharrow, Rhodes, Nteta, & Greenlee, 2018) and research shows that, in immigrant families, civic socialization tends to flow from the children up to the parents (Bloemraad & Trost, 2008).

One possible objection at this point is that the evidence pertains to experiences that are all noteworthy, intrinsically political, or both. Despite my earlier examples and the substantial evidence I present in chapter 8, decades of ingrained stereotypes about video games may lead some skeptics to assert that games are frivolous, inconsequential, and without much in terms of meaningful "political" content. It makes sense for *political* events and environments to affect attitudes and participation. The idea that *non-political* events do it though, however, is pushing the evidence further than it is capable of going.

This is an ostensibly serious concern for my claims—if the underlying assumption that games did not have political content was correct, that is. Taking the argument at its face, however, one can find ample research illustrating how the non-political can, in fact, effect political behavior. Chris Achen and Larry Bartels 2016 argue that things as seemingly random as shark attacks and hurricanes can influence an incumbent's electoral future. This presumably despite the fact that constituents understood that none of the candidates were Aquaman or Storm and thus had little input on the comings-and-goings of sharks and cyclonic storms. Furthermore, events do not even need to be serious or presented as such for them to be influential. The environment that people cast their ballots in (e.g., voting in a church as opposed to a school) can alter the policy initiatives that they support (Rutchick, 2010). In her excellent investigation into the polarizing effect of Facebook, Jaime Settle identifies how several ostensibly non-political preferences—like whether or not one enjoys Chick-fil-A—sends signals that people interpret, and act upon, in political ways (Settle, 2019). And higher quality football games have been shown to depress political participation (Potoski & Urbastch, 2017) and home-team losses have been shown to depress an incumbent's voteshare (Healy, Malhotra, & Mo, 2010)!

It is not as if voters are are thinking "how dare Senator Smith sic those sharks on us" or "Congresswoman Doe's policies are responsible for that game-saving interception last Sunday." Achen and Bartels 2016 argue that the strong feelings brought on by these events contaminate the electorate's political cognitions; considerations in one domain of life transude into another. This position is well-substantiated by research in psychology. Reams of evidence shows that our brains

are not as capable at compartmentalizing our affect and feelings as we would otherwise like to believe. Our "rational" judgements are partially constructed with input from our bodily and emotional sensations (Damasio, 2005; Feldman Barrett, 2017). Indeed, the neurological substrates most commonly implicated in "rational thinking" are also well populated by connections from the affect-producing lymbic system (Sapolsky, 2017). This is how experimentally manipulating disgust can cause subjects to elicit more/less prejudicial views towards homosexuals (Terrizzi, Shook, & Ventis, 2010) and why the attitudes on particular topics are biased by the emotions one felt as they were taking in the relevant information initially (Erisen, Lodge, & Taber, 2014). Even if every video game was totally vacant of *any* socially, morally, and politically relevant information, it would *still* be possible for them to affect political behavior. The fact that many do contain such information, however, means that the aforementioned "practice" players are receiving is intensified by the emotionally-laden narratives accompanying it.

Another concern mirrors the one addressed in the previous section. Video games by definition do not transpire in reality. At best, in the case of augmented reality games like *Pokémon Go* or games based on real-world events and locations, some may incorporate the outside world—but the compelling bits are the products of, well, bits. They are imagined by writers and designers and then manifested digitally. Most games, however, do not even have those tenuous connections with reality. At least football games and hurricanes are things that can be physically experienced.

Again, though, just because an event has not transpired in our shared reality it does not mean that it is any less meaningful for the person who experienced it. An experience's being "real" is not a necessary prerequisite for it to have real-world consequences.

Perhaps the most famous example of this comes from the notion of visualization training—specifically the conception originating in the master's thesis of Lori Ansbach Eckert in 1989 (Eckert, 1989). Eckert sought to determine how effective visualization, the deliberate, concerted imagining of events, can be as a tool to improve performance in a simple motor task: Shooting a basketball from the free-point line. After getting a baseline of their skills in this task

(by shooting free-throws), participants in her experiment were assigned to one of four conditions: They either practiced taking free-throws for a period of time, visualized themselves going through the proper technique and form of a free-throw without ever touching the ball, practicing and engaging in visualization, or doing nothing. After a period of time, members of all four conditions were instructed to take shots from the free-throw line again. Those who simply practiced saw a statistically indistinguishable amount of improvement as those who did nothing. However, those who practiced and used visualization, and those who *just used visualization* noticed significant improvements. While this was not the first study to note this kind of effect (research with similar conclusions could be found nearly a decade prior), it is one of the most heavily-cited phenomena in sports psychology and has inspired numerous papers demonstrating that physical performance could not only be influenced by practice but also by mental rehearsal (see, e.g., Ranganathan, Siemionow, Liu, Sahgal, & Yue, 2004).

These findings strikes similar notes to a broader literature about mental simulation. Our brains are constantly using sensory information originating from in and outside of our bodies to simulate the world. These simulations help our brains make predictions about the origin and consequences of these signals and directs a course of action (Feldman Barrett, 2017; Sapolsky, 2017). While fascinating in and of itself, the most important aspect of mental simulations here is the fact that it is the *same* circuits are triggered as would be activated if the action were to really take place. If one's brain simulates hand movement, for instance, there is noticeable activity in appropriate regions of the motor cortex.

But simulation is not just triggered by sensation but also by conceptual constructs. Words trigger cognitive circuits based on their meaning (Bergen, 2012) and culturally stereotypical displays of emotions do the same (Feldman Barrett, 2017). Research into so-called "mirror neurons" suggests that people witnessing recognizable actions performed by other people (say, another person moving their hand), the appropriate circuits in the *viewer's* mind activates (Iacoboni, 2009). While early work on mirror neurons were overenthusiastic about their potential (Sapolsky, 2017), research suggests that they play some role in empathy and imitative action

(Iacoboni, 2009). Simulation does not even need to be initiated by *real* people or events to have consequences on our minds. This is due, in part, to the fact that the part of the brain that determines whether what we are observing is "real" or "imagined"—generally thought to be housed in the prefrontal cortex—is also the parts that are implicated in self-referential thinking and cuing autobiographical memory (Abraham, 2013; Abraham & Cramon, 2009). Indeed, it is thought that our brains do not make discrete determinations of "real" and "fictive" but, instead, conditions the ensuing activation of neurons on how *personally* relevant it is. If a piece of fictitious information is especially resonant with someone, their brain is liable to act upon that information *as if it were actually happening to them*. This is thought to be central to the observed correlation between people's personal tendency to report frequently identifying with fictional characters and scenarios with denser cortical thickness and gray matter volume in the prefrontal cortex.

If we can be so deeply affected by vicarious, imagined actions, how implausible is it to suggest that players can be affected by what happens to their in-game avatars? To suggest that they can be affected by the characters they have spent hours coming to know and feel empathetic towards? Indeed, work by Ryan Rogers, Julia Woolley, Brett Sherrick, Nicholas Bowman, and Mary Beth Oliver 2017 shows that empathetic characters and resonant storytelling lie at the heart of what players deem impactful in video games—and that large proportions of game players readily report having such experiences. There is little reason to doubt that the same neurological patterns are not unfolding in their minds as does in other forms of fiction: that the fantastical experiences unfolding before them, impelled by the buttons they push and the joysticks they toggle, and not affecting their cognitions and ways of interacting with the world.

Indeed, one possibility is that games may have deep potential *because* they are fantastical. Research in political psychology, linguistics, and cognition attests to the fact that humans are naturally predisposed to narratives, often finding immense power in them (Adaval & Wyer, 1998; J. Campbell, 2008; Lakoff, 2008; Westen, 2007). Part of that power comes from the fact that larger-than-life stories often emphasize social, moral, and political norms and mores—but also

from the tendency for people to vividly imagine themselves as temporarily inhabiting the setting of the tale. Led by the pioneering work of Melanie Green and Timothy Brock (Green & Brock, 2000, 2002, 2005), work in narrative transportation theory argues that stories, fictional or otherwise, are capable of changing observers' beliefs and behaviors by virtue of how deeply they are "transported" into the narrative. As psychologist Richard Gerrig said in his book *Experiencing Narrative Worlds* 1993:

> Someone ("the traveler") is transported, by some means of transportation, as a result of performing certain actions. The traveler goes some distance from his or her world of origin, which makes some aspect of the world of origin inaccessible. The traveler returns to the world of origin, somewhat changed by the journey (p. 10-11).

The emphasis here is on the ending of the last sentence: "somewhat changed by the journey." Those who travel into fictional worlds often return to their day-to-day lives irrevocably changed by what they vicariously witnessed and/or experienced. The degree to which they relate to what they are witnessing depends on many things including the vividness of the imagery and the perceived degree of verisimilitude that the narrative has to what it is portraying (Busselle & Bilandzic, 2008; Green & Brock, 2000, 2002; Green et al., 2004). Those who identify strongly with the characters in a story temporarily take on traits that reflect that character's experience (Appel, 2008; Sestir & Green, 2010). These can have long-term influence on people's attitudes (Appel & Richter, 2007) and the effects of transportation are amplified with repeated dives into the story (Green et al., 2008).

These moderating factors suggest that video games would be capable of providing narrative transport. As mentioned earlier, games often take players on journeys that surpass the length of most novels, causing players to re-visit the game multiple times in order to complete it. Designers use a variety of artistic styles to make their products vivid and visually arresting. They also employ a number of techniques to heighten the extent that players identify with their in-game avatars with the understanding that interactivity and identification is deeply connected. People who interact with a space become more likely to identify with the entities embodying them in said space; at some point, the blurred line between *acting in the guise* of a character and assuming the

identity of the character is, albeit temporarily, crossed. Indeed, research has shown that video games can encourage the feeling of narrative presence (Boyle, Connolly, Hainey, & Boyle, 2012; Schneider, Lang, Shin, & Bradley, 2004) and invoke very real emotional responses (Kivikangas, 2015). As could be expected, this feeling is moderated by factors such as image quality (Bracken & Skalski, 2009) and the degree that players identify with their avatar (Christy & Fox, 2016).

In addition to the work on narrative transportation theory, there has also been work on the concept of flow (Csikszentmihalyi, 2009) and how it cultivates engagement with video games (Whitton, 2010). Flow can be understood as the degree to which one's affective state resonates with the task they are performing in a way that causes complete absorption in the activity (Salen, Tekinbaş, & Zimmerman, 2004; Whitton, 2010). As an idea, flow has found traction in everything from consumer psychology to self-help books. With regards to video games specifically, flow can be understood as deep engagement resulting from players mastering a game's rules and mechanics to meet its technical challenges (Cowley, Charles, Black, & Hickey, 2008). Altering the degree of challenge in educational games has been shown to increase learning outcomes (Hamari et al., 2016) and flow in games can increase empathy (Bachen, Hernández-Ramos, Raphael, & Waldron, 2016).

The fact that both narrative transportation theory and flow theory find bountiful opportunities with video games is not simply a case of the same phenomena getting rehashed under a different name. Narrative transportation theory deals with the way we are drawn in by the *story*, the fact that players witness an emotionally battered Kate Marsh prepare to take her own life. Flow theory deals with the way we are drawn in by the *mechanics*, the fact that we have to select the right combination of things to say in order to save her. Indeed, this divided attention to the story conveyed by a game (the narrative element) versus their rules and procedures (the ludic element) speaks to a deep tension in how people fundamentally understand the medium. (Although, from the player side, this tension seems to be readily resolved by thinking of the game as "fun" based off its mechanical properties and "engaging" based off of its narrative—see Rogers et al., 2017). I will explore this distinction more thoroughly in the next chapter when I develop

my theory on what games are going to matter and why. For now, what is important is what these two share. At the core of the research on both flow and narrative transportation theory is the fact that people feel immersed in the space and context presented by the games. Through transportation and engagement, well-designed games cultivate a feeling in players that they are not merely witnessing events but experiencing them. If we know that certain experiences can affect political attitudes and increase political participation, and that video games offer analogues to reality that our brains treat in a strikingly comparable manner to the real stuff, then there is good cause to suspect that games affect our attitudes and participatory tendencies, too.

There are empirical studies to support these claims. Games have been shown to activate the same cognitive circuitry in the players' minds as would have been activated should they have really performed the action—hence why video games are such an effective means of improving performance among surgeons (Rosser et al., 2007). Gaming has also been associated with changes to the physiology of the brain to reflect higher priorities on visiospacial awareness (Kühn, Gleich, Lorenz, Lindenberger, & Gallinat, 2014) and different reward structures (Kühn, Gallinat, & Mascherek, 2019). Changes caused by games are not only cognitive, they can also be behavioral. Games can help with weight loss (Baranowski, Buday, Thompson, & Baranowski, 2008; Biddiss & Irwin, 2010) and bias mitigation (Bessarabova et al., 2016). Indeed, meta-analyses suggest that games with pro-social content (that is content where the players are primarily helping others) are associated with pro-social behavior, affect, and cognition in reality (Ferguson, 2007; Gentile et al., 2009; Greitemeyer & Mügge, 2014).

Although there has not been any research regarding political activity and beliefs specifically, what is available is suggestive. The Proteus effect (Ratan, Beyea, Li, & Graciano, 2019; Yee & Bailenson, 2007; Yee, Bailenson, & Ducheneaut, 2009), for instance, demonstrates that people will come away from game experiences with changes in their attitudes as a consequence of the "physical" characteristics of their digital avatars. While the effect has been demonstrated for everything ranging from self-image to math performance (Ratan et al., 2019), the most politically relevant research on the effect so far pertains to race. Individuals playing games embodying a

Black avatar has been shown to affect the amount of implicit bias towards Black people that they feel afterwards. The direction depends on the overarching context of the game. Subjects had higher degrees of implicit bias if the games had narrative violence, less if narrative violence is absent (Ash, 2016; Aviles, 2017; Banakou, Hanumanthu, & Slater, 2016; Peña & Kim, 2014; Peck, Seinfeld, Aglioti, & Slater, 2013). While racial attitudes are undeniably politically relevant, there is still a need to see if these generalize to other types of political attitudes—and whether or not it can extend to political activity as well. Nevertheless, these findings do suggest that the foundation of my assertion is sound: Even ostensibly non-political video-games has the potential to affect players by virtue of the fact that the players are directly experiencing it.

In short, video games have the potential to influence political attitudes and behaviors by dint of the fact that they demand audience interaction. Decades of work in political science has shown that many experiences, including ostensibly non-political experiences, can influence people's political behavior. That said, political experiences tend to deliver the strongest and most consistent effects; engaging in prior political behaviors increases the likelihood that people will participate again. Participation appears to be habitual. This intimates that parts of the brain's core circuitry have a more important role than generally appreciated—specifically, the gloriously plastic and messy parts that process and encode our actions. But research in psychology demonstrates that we do not need to physically do something for our minds to act like we have. Witnessed actions or even *virtual* actions, deliberately imagined, activate and strengthen the neural networks associated with undertaking them. Games not only encourage people to partake in this imagining through politically relevant narratives, they also require that participants play a role (pun intended) in what transpires. The events do not just unfold in their heads but before their eyes—as a consequence of the interactions within the game-world that they perform with their controllers and bodies. In many cases, they begin to identify with the avatar and are affected by its characteristics and experiences. When they perform politically relevant actions (such as rebelling against a brutal autocrat and deciding the ensuing balance of power, as featured in *Far Cry 4*), we can expect that much of the brain is acting like the experience is not just limited to the screen.

While it would be naive to think that the effect of in-game experiences will be as powerful as actually experiencing the events, it is equally naive to think said effects will be unappreciable. People undertake real cognitive actions in these virtual worlds. And these actions have behavioral consequences.

The past two sections have made their arguments from the vantage point of games influencing us as individuals: They look at how games affect the gray matter behind one set of eyes alone, encouraging us to see them as things people experience by themselves. This, however, is only part of the story. From its conception and the early days of the corner arcade, games have been just as much about the social experience as the solitary pursuit. The last argument looks at games from that social perspective, incorporating what we know about social networks, communities, and social capital. Many of the elements correlated with political outcomes in these more well-researched networks are present in games as well.

2.3 Networks and Social Capital

One common stereotype about video games is that, at its core, it is a lonely medium. People who play games are often thought as being socially isolated; outcasts relegated to the dingy underworld of their parents' basements. Charitable adherents to this perspective see games as a digital opiate, a virtual escape from a painful reality. Others see gaming as the fundamental cause of this isolation. They see players as willfully neglecting worthwhile relationships with "real" people in favor of some shallow fantasy. There is no doubt that there are people fitting both of these descriptions. However, research into the motivations behind video game play show that both conceptions are divorced from the reality of most players. Work on youth (Yee, 2006) and adults alike (see, e.g., Dalisay, Kushin, Yamamoto, Liu, & Skalski, 2015; Johnson, Gardner, & Sweetser, 2016; Osmanovic & Pecchioni, 2015; D. Williams, Yee, & Caplan, 2008) show that social connection is one of the most common motivations underlying video game play.[7]

One may be tempted to point to the rise of the internet (and, consequently, online multiplayer) as the underlying cause of gaming's social dimension. While the internet is

[7]Not to discount the importance of intrinsic factors such as reward and exploration as well.

undoubtedly responsible for the fact that more people play video games together now than have ever done in the past, the internet did not make games social. For one, that assertion neglects the broad appeal of games like *Mario Party* and *Super Smash Brothers*, which tend to be enjoyed by groups of players sitting in the same room—no online connection required. But, more fundamentally, it ignores the fact that games have always been social. Historical and ethnographic research on arcades in the 1970's and 80's show that there were strong social aspects to their appeal (Braun & Giroux, 1989). People came together to compete for high scores, to swap knowledge, to conquer games that were too challenging to win alone, and to socialize more generally. And where social groups are possible, so too is social capital.

Political and social scientists have long known that social activity can be a boon to political participation and have offered a number of theoretical accounts for why. Groups and discussion networks can lower the costs of participation by providing needed information (Huckfeldt, Mendez, & Osborn, 2004; Ikeda & Boase, 2011; La Due Lake & Huckfeldt, 1998; McClurg, 2003; Popkin, 1991) or by reducing the likelihood that people will be individually punished.[8] The opinions of group members can act as a signal for candidate quality; the position of trusted friends and family acting as a form of social proof (Beck, 2002; Liu, 2006). When these members are not sharing their opinions, they could be suggesting opportunities to get involved or solicit various kinds of participation (Verba, Schlozman, & Brady, 1995). Groups can encourage a sense of belonging and, from that, engender a drive to act on their behalf (Anderson, 2009; Ocampo, Dana, & Barreto, 2018; Talò, Mannarini, & Rochira, 2014). Exposure to political talk can increase political interest (Kwak, Williams, Wang, & Lee, 2005; McClurg, 2003; Verba et al., 1995)—which, as I touched on briefly in the first section, can spur on activity in multifarious ways. To some extent, I believe that all of these will matter when considering the way that social video game play can increase political participation. But the theoretical lens that I believe to be the most illuminating at the present moment is that of social capital.

[8] E.g., increasing the size of the crowd at a protest, see Oberschall 1994.

The term "social capital" can trace two credible, independent origins. First to theorist Pierre Bourdieu 1985, where it originated as an analogue to economic capital, the tools and technologies through which things of value are made. Second to economist Glenn Loury 1979, later notably expanded by James Coleman 1988, in generating human capital (the skills and capacities people possess to accomplish their social and economic goals). In both cases, social capital was theorized as a means for social groups to generate individual-level outcomes they deemed valuable (Portes, 1998). The most common conceptualizations stemming from these beginnings hold that social capital is generated by the interactions between people in the same group. These interactions are characterized by a general trust between co-members as other facilitated by norms, identity, and/or reciprocity (Newton, 1997; Portes, 1998; Torche & Valenzuela, 2011). The outcomes of these interactions include information (Chiu, Hsu, & Wang, 2006; Coleman, 1988), norms (Coleman, 1988), social and economic opportunities (Coleman, 1988; Granovetter, 1973; Son & Lin, 2008), and social action commensurate with the group's values (Coleman, 1986; Greeley, 1997). Economic capital allows for the production of widgets; human capital for the design of the widgets; and social capital for the norms that encourage people to think the widget was worth designing and purchasing in the first place (Frenzen & Davis, 1990).

Political science has had a tense relationship with this term. Robert Putnam largely introduced it to the field with his books *Making Democracy Work* 1993 and *Bowling Alone* 2001. As the first title suggests, he did so as part of a larger argument: Social capital not only inculcates norms and values into people, it is actually necessary for democracies to be functional. In *Bowling Alone*, Putnam argued that the United States was experiencing a downturn in social capital (which he conceived of as participation in social organizations like churches and bowling leagues) due to technological distractions such as television. This, he argued, has led to decreases in citizen health, education, and civic engagement overall.

To be sure, Putnam is not the only one to suggest that certain norms are important for democratic health. In fact, that claim is relatively uncontroversial among political scientists (see, for example Dahl, 2006). But that is not all that he meant. While he acknowledged that certain

forms of social capital enabled the activities of hate groups, he argued that, on the whole, it was a salubrious force in the United States. He, and others, linked social capital to beneficial *policy outcomes*, shifting the discourse from social capital as a process or mechanism into social capital as a desirable social good.

This conceptualization has received substantial push-back. S. Karthick Ramakrishnan 2007 showed that participation in the kinds of groups Putnam emphasized is largely biased towards native-born citizens, White people, and those with greater proficiency in English. Rodney Hero 2003 argued that Putnam's assertions did not consider race. After doing so, Hero finds that increased social capital leads to *decreased* health and social outcomes for African Americans (see also Hawes & Rocha, 2011). The positive correlation between social capital and citizen wellness was really a correlation between Putnam's conceptualization of social capital and Whiteness. Social capital, these arguments show, is not universally good. Claiming so ignores important racial disparities in how the construct was conceptualized and who it benefits.

For what it is worth, my position is that these critiques are well-founded. *Nothing* is universally salutary or otherwise sans consequence. Even water can be deadly in unkind circumstances, as attested by the diseases and poisons it is allowed to harbor in impoverished communities, the destruction wreaked by tempestuous storms, and the dozens of people who have died from over-hydration. And nothing with as many actors, factors, and moving parts as "good" democratic governance can rest on a single concept.

To be fair, since he acknowledged the role of bridging and bonding social capital in facilitating hate groups like the KKK, I think Putnam would be sympathetic to this position as well. But, as with many academic debates, subtlety and nuance tends to be cleaved off and the original positions are mutated by acolytes and detractors alike. This debate is important, but it arises from extending social capital well beyond its initial theoretical intent. I leave the questions of whether social capital equates to good/bad health and policy outcomes (and for whom) to those who are more interested in that application of the term. This project is interested more in its initial meaning, focused more on the level of groups and less of governments.

To this end, it is helpful to specifically state what *I* mean when I use the words "social capital." My definition relies heavily on the definitions established by Coleman 1994 and Bourdieu 1985 and further observations and clarifications offered by Alejandro Portes 1998. I define social capital as the intangible means by which those embedded in a social network can influence the actions and outcomes of other members of the network and can, themselves, be influenced. Insofar as this capital is "earned," it is accumulated through members' repeated interactions (e.g., conversation) as a consequence of cooperative and/or reciprocal actions. Insofar as it can be "spent," members can marshal it to gain assistance, knowledge, and access.[9] The connections between members are maintained by mutual trust, which is both an outcome of repeated cooperative interaction as well as a mechanism facilitating cooperative interaction in the first place.

Fortunately, not all of the work on social capital in political science has focused on the variant concerned with democratic good. There are also a number of studies focusing on the kind of social capital I am interested in and its effects on political participation. Ronald La Due Lake and Robert Huckfeldt were among the earliest to investigate if social networks increased political participation. Writing in 1998, they showed that the number of political discussant groups one belonged to, the frequency of political talk, and membership in various organizations is significantly associated with political participation. This link between social capital and political participation has been solidified by dozens of papers in the decades since (as examples, see Klofstad, 2007; McClurg, 2003; Ostrom & Ahn, 2011; Rojas, Shah, & Friedland, 2011; Teney & Hanquinet, 2012). The link is present for ethnoracial minorities (Farris & Holman, 2014; Ocampo et al., 2018; Santoro, Vélez, & Keogh, 2012) and in contexts outside of the United States (Atkinson & Fowler, 2014; S.-H. Kim, 2007; Schmitt-Beck & Mackenrodt, 2010). In short, the connection between this conceptualization of social capital and political participation is highly robust.

[9] To be more precise, they gain knowledge and assistance *from* other members and access *to* other members or to formal/informal institutions that are available to some subset of the group's membership.

In addition to those explicitly dealing with social capital in its entirety, there are a number of studies that examine the connection between one of the four social capital components (social networks, communication, cooperation, and trust) and political participation. Participation in social networks increase the likelihood of participation (Scheufele, Nisbet, & Brossard, 2003), as does the size of one's network (Eveland Jr, Hutchens, & Morey, 2013) and how proximal they are to the actual people running for office (Pietryka & Debats, 2017). Friendships, those social bastions of reciprocity, help people digest political information (Kertzer & Zeitzoff, 2017), can encourage future participation (Settle, Bond, & Levitt, 2011), and help us return to participating more quickly after personal tragedy (Hobbs, Christakis, & Fowler, 2014). And a dizzying number of articles have found relationships between political discussion and participation (see Gil de Zúñiga, Valenzuela, & Weeks, 2016; Klofstad, 2015; Pattie & Johnston, 2007) as well as trust and participation (Uslaner & Brown, 2016). Included in this assortment are also many of the studies mentioned at the start of the section; many of them also touch on networking, communication, cooperation, and trust even if they do not explicitly frame their pieces as "social capital." This is a core reason why I use social capital as the theoretical framework for this argument: It manages to parsimoniously incorporate a variety of results throughout political science and structure their insights in a way that has the most leverage in understanding how video games encourage participation.

But these findings discuss real networks of real people, often talking and interacting face-to-face. As many Millenials and Gen Zers are frequently reminded, there are substantial qualitative differences between those kinds of networks and those propagated thanks to the internet. Can we reasonably expect these effects to translate to the world-wide-web, let alone video games? After all, some of the biggest criticisms of social capital in digital spaces come from none other than Robert Putnam. In *Bowling Alone* 2001, he dedicated a significant amount of space to new media and general and the internet specifically. And while he acknowledged the promise of the space, he was more convinced that it would not ameliorate the erosion of social capital he spent much of the book lamenting. He argued that the internet's substantial adoption

gap easily lends itself to splintering into isolated communities. Instead of talking to new people or expanding groups, it would largely be insular cliques of people not engaging with the rest of the digital world.

It is not necessarily that Putnam was wrong about the limits and insularity of the early web. Instead, he is simply no longer right. Putnam was accurately sizing-up the state of the internet given the time that he was writing. Back then, at-home internet was limited to those who tended to be wealthy, White, and well-educated. But times have changed. By 2019, only 10 percent of Americans report not using the internet on a daily basis (Perrin & Kumar, 2019). 70 percent of Americans are online either "almost constantly" or "several times a day" and 85 percent are involved with at least one social media platform (Perrin & Kumar, 2019; Shearer, 2018). These sort of numbers would have been unfathomable in 2000; at the time, only 1 percent of U.S. adults had broadband internet in their homes. That number now is 73 percent—not including the additional 17 percent who do not have home internet access but who otherwise have a smartphone (Pew Research, 2020). We now live a substantial portion of our lives online. Many of our day-to-day connections, for better or worse, are made manifest through a screen.

Although that may make these relationships appear ephemeral and cheap, they have a substantial impact on our lives. Research shows significant, positive relationships between social media usage and social capital development (Gil de Zúñiga, Jung, & Valenzuela, 2012; Phua, Jin, & Kim, 2017; Skoric, Zhu, Goh, & Pang, 2016). Being active on social media has been repeatedly linked to political participation (Bode, 2012; Bond et al., 2012; Pasek, More, & Romer, 2009) and online social capital has been shown to transude into offline political participation (Gainous, Marlowe, & Wagner, 2013; R. K. Gibson & McAllister, 2013; Kahne & Bowyer, 2018; Pasek et al., 2009). Online or off, social capital influences participation.

One might then wonder whether or not these effects should translate to video games. I believe that the answer is quite well intimated by the title of the book that catalyzed much of this work: ***Bowling*** *Alone*. Putnam did not title it "attending PTA meetings alone" or "attending union functions alone." He recognized the importance of social groups that did not have an *ex ante*

political purpose in engendering social capital. It is an understanding that has found repeated empirical validation both online (Gil de Zúñiga et al., 2012; Phua et al., 2017; Skoric et al., 2016) and off (Kwak et al., 2005; La Due Lake & Huckfeldt, 1998; McClurg, 2003; Settle et al., 2011). Games are not just narrative experiences to be digested alone. Many are recreational and intended to be navigated with others. Indeed, in one of the best strokes of irony I have yet to witness, in the process of writing this dissertation, I learned that there are entire global leagues dedicated to the pursuit of *Wii Bowling*. It turns out people have not been bowling alone. *Wii* bowl together, just from the comfort of our own living rooms.

Fortunately, my argument does not solely rest on my ability to wrest bad puns out of singular anecdotes. An abundance of research over the last ten years has shown that games can facilitate friendships, establish/strengthen social bonds, and increase social capital. Studies find that games can facilitate increased social support among players (Trepte, Reinecke, & Juechems, 2012) and raise empathy (Martin et al., 2015). Gamers tend to have just as many friends as non-gamers (Domahidi, Breuer, Kowert, Festl, & Quandt, 2016) and these in-game friendships are qualitatively similar to the ones that people navigate in reality (Ramirez 2018). Indeed, often players are participating with friends they know in real life (Domahidi et al., 2016; Pew Research, 2008; Snodgrass, Lacy, Francois Dengah, & Fagan, 2011) and use games to strengthen the bonds they share. These effects have been found across diverse game types (Meng, Williams, & Shen, 2015; Ramirez, 2018; Reer & Krämer, 2014; Trepte et al., 2012) suggesting that it is less about the specific experiences encased within each game and more about the experience of belonging to groups that game together (Badatala, Leddo, Islam, Patel, & Surapeneni, 2016). Indeed, numerous researchers have sought—and found—social capital among those who play games together (Huvila, Holmberg, Ek, & Widén-Wulff, 2010; Meng et al., 2015; Steinkuehler & Williams, 2006; Trepte et al., 2012; Zhang & Kaufman, 2015; Zhong, 2011). Just as it was for bowling, people who play together develop social capital as a consequence. The difference is that the games are no longer bound by geographic space and allow players to explore entirely different worlds altogether.

In addition to these latter works, there have been some preliminary work in disciplines outside of political science to investigate the connection between multiplayer video gaming, social capital, and civic participation. Logan Molyneux, Krisnan Vasudevan, and Homero Gil de Zúñiga 2015 determine that social gaming is strongly linked to gaming social capital—which, in turn, is strongly associated with offline social capital and political participation. Research by Francis Dalisay and colleagues (Dalisay, Kushin, Yamamoto, Liu, & Skalski, 2014) used a convenience sample of college-age gamers to show positive associations between certain kinds of gameplay motivations, the development of social capital, and civic participation. Yu-Hao Lee 2019 demonstrates the persistence of these associations in specifically older gamers while also clarifying the different roles of bonding versus bridging social capital in these relationships. And Benjamin Stokes and Dimitri Williams 2015 use a convenience sample of *League of Legends* players to show that players of this particular title are comparable to their non-gaming peers in terms of participation with the exception that the gamers were far more likely to engage in peaceful protests.[10]

If these works have already demonstrated the relationship that I am arguing, why am I making the case? For one, these efforts are lamentably under-acknowledged in political science despite their clear applicability. Sometimes, it takes demonstrating an effect a few times for the message to (hopefully) stick. More substantively, though, as laudable and interesting as these works are, the evidence they present is not sufficiently capable of making a conclusive case linking social gaming and participation. Most notably, only one of these works are able to get at the question of causality in behavior—the article by Molyneux, Vasudavan, and Gil de Zúñiga 2015. While an excellent piece, as with all first efforts, there is ample room for substantive and methodological expansions.[11] In this case, most of these efforts did not look at respondents who

[10]To date, there has been only one work that looks at the effects of social gaming on important civic attitudes (Bacovsky, 2020). While this work is situated to make a causal claim, it is focused on Swedish youth whereas I am interested in the American context.

[11]There are three specific places where my work advances on Molyneux et al. 2015: First, their efforts are solely on civic actions and not actions that involve interactions with more official parts of the political system (e.g., voting, signing petitions, writing members of congress, etc.). I look at both civic actions and these more explicitly political actions. Second, their longitudinal analysis demonstrates that a relationship between social gaming and civic participation can last a period of two months. I look to see if it endure over two years. Third, I use a different methodological

were representative of American adults. How games are able to facilitate social capital remains an open question as well, the processes through which their rules and structures actually help it emerge among gamers, remains an open question as well. As I discuss in Chapter 4, answering these important causal questions is at the core of my research strategy for this topic. However, while my work here is designed to complement and further these initial steps, they demonstrate that there is very good reason to believe that social gaming not only encourages social capital but political participation as well.

2.4 Summary

Over the last chapter, we have reviewed research in disciplines as disparate as management and neurobiology. We have seen work by scientists in psychology, political science, communications, economics, and sociology—among many other fields. In doing so, I have marshaled the evidence necessary to demonstrate why we can expect video games to influence political attitudes and rates of participation. Here, and throughout this dissertation, I argue that we can expect three main causal pathways.

First, video games will have an effect because they—like all other forms of mass media—deliver information to the consumer. Traditionally-studied sources of information prod people to think about particular issues, can foster important civic attitudes such as political interest, and encourage political action. However, more recent research on programming such as satire, comedy shows, and day-time talk suggests that the information does not have to be delivered in a serious way to garner effects. In fact, it does not have to be real at all. Fiction is the way mankind uses fantasy to deliver truth—or at least truths as they perceive it. Encoded in the stories we tell are lessons about the world and its social, moral, and political issues. And there is no reason to suspect that these lessons cannot also be encoded, literally, in the games we play.

Second, video games will have an effect because the degree of interactivity intrinsic to them is so unlike other forms of mass media. We as players do not merely witness what transpires, we

test for causality. My argument is not that their specific methodology was incorrect or somehow inferior to mine—both of our methods carry shortfalls and biases. However, given these independent boons and shortfalls, if we are both able to find the same effect, it is a strong indication that social gaming can indeed cause civic (and political) participation.

often cause it to come to pass. We know from prior work that action begets action: prior patterns of behavior strongly biases later outcomes. We also know that these actions do not have to have transpired in reality to impact our cognitive wiring and future performances. But we also know that events do not have to be explicitly political for them to have affects. People do not have to consciously approach games as political products to be affected by their content. And the fact that they are not real in a corporeal or strictly factual sense does not mean we are unaffected either. In fact, in many regards, the brain treats these experiences as if they were real. Consequently, we can expect that games making people experience social, moral, and political events are going to impact their attitudes and actions in the real world.

Third, video games will have an effect on participation because they engender social capital. Decades of research demonstrate that our relationships with others influence how readily we engage with politics. Generally, the more social capital people have ("social capital" being interpersonal relationships built around reciprocity, cooperation, and trust), the more likely they are to participate. Most games are not designed to be played alone. They are often social experiences—and have been repeatedly shown to develop social capital. If we know that social capital increases political participation, and we know that gaming can increase social capital, there is good reason to suspect that gaming can consequently increase political participation.

This chapter reviewed the evidence leading me to my three core assertions. However, it is invariably true that not all games are going to influence political attitudes or participatory proclivities. It seems pretty straight-forward that *Life is Strange* or *Detroit: Become Human* will, but it is also seems equally straightforward that *Candy Crush* and *Asteroids* will not. But there are also many games where the answer is less obvious: *Madden NFL*, *Super Mario Party*, *The Amazing Spider-Man*, and *Halo*, to name a few. What is it about these games structurally and thematically that makes them (ir)relevant for political behavior? Constructing a theory of what games matter and why is of obvious importance. It is also the purpose of the next chapter.

CHAPTER 3
GAMES THAT MATTER: THE THEORY

Throughout this dissertation, I have highlighted a number of games that very clearly have the potential to affect people's political behavior. I have discussed the moral dilemmas of *Mass Effect*, the exploration of pertinent social issues in *Home Alone* and *Detroit: Become Human*, and the emotional intensity of *Life is Strange*. I have been using these and others as examples of games that matter—of titles that exemplify the potential of video games to impact our attitudes and participation. This way of thinking about games frames them as being akin to how social scientists understand the news: an obviously politically relevant source of entertainment whose effects on political behavior comes as a consequence of certain shared characteristics. In the case of the news, they include informing people of politically relevant information, interrogating "the powers that be," contextualizing and framing the events to help readers make sense of the world, and attempting to strain out any hint of bias as if it were pulp in a glass of fresh-squeezed objectivity. That is, it is seen as a coherent genre of entertainment defined by certain congruences and commitments—and it "matters" because adhering to these congruences and commitments evince politically pertinent effects. Likewise, this framing of games sees them as a cohesive, politically relevant genre of entertainment homogeneous enough to be appropriately described in such sweeping terms as "games will have an effect." But although I owe a great intellectual debt to this means of seeing media, perhaps most visibly embodied by Iyengar and Kinder's *News that Matters* 1987, there is a wrinkle in conceptualizing games this way. It simply does not work.

The issue, obviously, is not that games are not politically relevant. Clearly many games are—and the list extends far beyond what a single book-length project can afford. The issue is that many games **do not matter**, as well. You can even ask the people that play them. A 2015 study by Pew Research shows that over 35 percent of adult gamers think that "some games" are a "waste of time" while less than 20 percent feel that is the case with "most games" (Duggan, 2015).[1] Similarly, 48 percent of adult gamers think that "some games" promote teamwork while others do not. Contrary to news, video games are not a single genre and cannot be discussed as if

[1]For what it is worth, non gamers are slightly less likely to think that "some games" are a waste of time (29 percent) compared to gamers (37 percent) but only because so many more of them (33 percent) think that is true of "most games" compared to gamers (18 percent).

they all follow some shared format or convention. There are games where the player embodies one character, many, or none at all; where they are given the freedom of an infinite, procedurally generated space or constrained to a single room; where they are a valiant warrior, an intrepid explorer, or an octopus that has inexplicably fathered two human children. The medium contains multitudes.

I spent most of the last chapter carving out a comfortable little niche in our current scientific knowledge; a space where this dissertation can fit. In addressing the most damning possible objections, the intent is for readers to walk away at least thinking "sure, why not?" But now I want to shift the conversation—make it not about "why not" but about "why." Why do the games that I list seem to intuitively suggest that they are politically relevant? Why do others seem just as obviously politically *irrelevant*, like the above-referenced *Octodad*? What is it about their worlds and experiences that enable them to affect the actions we undertake in our own? After all, apparently even gamers themselves acknowledge that effects are only going to be present in a subset of games. What are the elements of that subset and what elements allow them to be there? Why, in short, do they matter—and what insights can we draw to help anticipate what other games will (or will not) matter as well?

In this chapter, I dissect the elements that determines whether a game's content matters. I identify three broad ways that it can do so.

The first is through what I call circumscribed mattering—which probably accounts for the vast majority of game-content that matters. These experiences get around to being politically relevant even if the point is not to perfectly reflect the political world. As I will discuss in Chapter 8, in the process of designing something they feel is entertaining, game developers will frequently include additional details to give the experience greater depth, or to narratively justify a mechanic that they see as fun. These extra details often concern things that are often at the heart of politics, such as social issues or questions of morality. They may also often refer to politics and political arrangements without dwelling on it, such as being asked to perform a quest by a ruler in some distant land or observing political upheaval en route to the main objective.

Life is Strange incorporates cyberbullying, teen suicide, and sexual assault into the narrative, but it is not accurate to say that it is a story *about* cyberbullying, teen suicide, and sexual assault. It is about choice, loss, and how choice invariably leads to loss. These, and the myriad of other social issues that come up during the game, are intended to make this point more poignant. Similarly, *Mass Effect* is not about moral choices, per se. The game is about banding disparate peoples together to deal with a universal threat. The moral choices are a vehicle allowing the player choice and freedom in how they approach this premise. Sometimes games make these inclusions in subtle ways, like how some of the newly-sapient (yet still forcibly subservient) androids in *Detroit: Become Human* try to escape to Canada through a secretive network of people sympathetic to their desire to be free. Sometimes they are more obvious, such as the presence of a violent separatist group threatening the integrity of Soviet-esque states in *Paper's Please*.[2] If it can be said that the games have a point, then the inclusion of socially, morally, and politically relevant experiences can be understood as rhetorical arguments trying to make that point stand.[3] We can expect that a prominent mechanism underlying the effects of these games will be related to those seen in psychological studies of persuasive fiction since these narratives are often fantastical. Specifically, we can understand this by extending Elaboration Likelihood Model (ELM) to account for the kinds of fictional narratives experienced in video games. For these games, the more that the players elaborate on the experience, the more likely their behaviors and attitudes are to be affected by it.

Other content, though, matters because the core objectives presented are synonymous with politics and political processes. I call this explicit mattering: These games matter because their purpose is to address and gamify things that are unquestionably politically relevant such as war

[2]Or, to continue using *Detroit: Become Human* as an example, when the black-skinned protagonist can lead androids in protest while they all hold up their arms in the now-famous "hands-up, don't shoot" pose—or when they can vandalize the city square with digital graffiti reading "We have a dream." This example is important because it illustrates that games can incorporate both circumscribed and explicit elements.

[3]The term "rhetoric" may seem out of place here; the word tends to connote somber associations with written texts or spoken words meant to persuade people of serious things. But, over the course of the 20th century, the notion of what persuasion is and what can be used to do so expanded dramatically. Most contemporary rhetoricians sustain that virtually anything can be used to sustain or advance an argument (Lunsford & Ruzkiewicz, 2012). This, as can probably be inferred, includes video games (Bogost, 2007; Paul, 2010, 2012)

(e.g. *Call of Duty* and *Battlefield*), statecraft (e.g. *Tropico* and *Civilization*), and policy (e.g. *Sort the Court* and *Democracy*). Other games are less about "politics" in general and are inspired by political issues and events. *Not Tonight* was released soon after the United Kingdom's "Brexit" referendum to leave the EU and takes the perspective of an immigrant from another European country living in a post-Brexit British ethnostate. *Not For Broadcast* investigates the ways that news media can frame complex topics, affecting public opinion, who is in power, and the consequences of domestic policy.

While games such as these deal with "serious" topics, these are not serious games—their ultimate aim is to entertain, not educate. After all, the very existence of political science as a discipline demonstrates that some people are just wired to get a kick out of interacting with politics. Others are perhaps less interested in the content itself and more curious about how the mechanics articulate and explore prominent issues. But, intentions notwithstanding, these games ask participants to interact with emphatically political concepts through the mechanism of play.

For understanding game content that explicitly matters, another theoretical model is more fruitful than the ELM: Namely, the Receive, Accept, and Sample (RAS) model (J. R. Zaller, 1992). In contrast to games exhibiting circumscribed mattering (which tend to present fictional worlds that resonate with ours), games with explicit mattering present information that is meant to more authentically address political processes, events, and issues. The RAS model was developed to understand how opinion shifts in response to news media, a genre that is generally expected to provide information that closely adheres to reality. While elaboration will still undoubtedly play a role in the process, the RAS model is an easier way to get a handle on the way games explicitly matter. This model enfolds the insights of elaboration—it can be seen as a factor encouraging people to "accept" the game's argument—while also providing a parsimonious way to account for the different mechanisms underlying their behavioral impact since they deal with more "real" circumstances.

A third means of mattering relies less on the topics of the game's experiences and more on the fact that they are played together. I call this social mattering. As described in the previous

chapter, many games feature modes where multiple people play together. It is difficult to witness friends in a *Minecraft* server or *Halo 4* private lobby, with all of the mutual communication and creative play involved, and conclude that socially important bonds are not being created and strengthened. However, not all social games are going to have the same effect. The games that do matter socially are going to be those that encourage interpersonal communication and social capital. This encouragement is not passive; rather, it actively emerges out of the gameplay and underlying mechanics.

This last sentence actually touches on an important tension in the study of video games. Games exhibit a unique duality: Video games present players with narratives to more passively soak in, but also choices that appear to have leverage over the state of these stories—choices embodying rules and (dis)incentives embedded in the space. In many respects their narrative experiences are as passive as the other media formats that came before—but they are, also, fundamentally more interactive. But which part houses the game's meaning?

In order to develop a theory of why games will matter, politically, it is imperative that we first acquaint ourselves with game studies' prevailing theoretical division: that between the importance of narrative versus the importance of the mechanics and rules. The portrait that follows is painted with a very broad brush and gives only an impression of a very rich debate (think Monet's *Water Lillies* over Michelangelo's work in the *Sistine Chapel*). However, it will clarify where I believe the meaning lies in video games, allowing me to expound on when and why that meaning translates to mattering.

3.1 Where Does Meaning Arise in Games?

The division in game studies manifests as two theoretical paradigms. On the one side are those who emphasize the narrative aspects of the gaming experience. Appropriately enough, this is referred to as "narrativism," and focuses on the story, characters, environment, and other means of conveying a story. On the other side are those emphasizing the fact that people are active participants in the game's world and their play is ultimately bound by the rules coded into those

worlds. This is called "ludology" from the Latin *ludus*, meaning structured play. Despite their union in the medium, opinions are hardly unified on the end of those theorizing about games.

Those arguing that video games are narratives rest atop centuries of critical works studying the importance of story-telling. To them, video games can be thought of as being a new kind of novel. Just as books use pages to present a fictional tale, video games structure stories through the use of visual, audio, and/or textual stimuli. Meaning can be extracted from these stimuli by studying that structure and dissecting their content. Since games are created in some social context or another, the things they present can be seen as reinforcing/repudiating aspects of society writ large. As examples, research could look at how *The Legend of Zelda* coheres with Joseph Campbell's famous "monomyth" or "hero's journey" (Wrisinger, 2014), or the ways that female characters are often presented (e.g., scantily clad and hyper-sexualized) reflect broader misogynistic tendencies in our culture (Lynch, Tompkins, van Driel, & Fritz, 2016). Games, in this account, are fundamentally stories—the structure and content of which make implicit arguments about who we are and what we value.

Ludology, in contrast, contends that video games are fundamentally different from other narratives. Irreconcilably so. *Unlike* a novel (or other forms of mass media), games grant far greater degrees of audience choice and participation. Ludologists criticize narrativists by insisting that the interactivity of the medium erases the ability to meaningfully talk about how experiences are "structured." If you sit five players in front of the same game, you will often have five totally different experiences—more if you allow participants to play the games over gain. For instance, while many playing *The Legend of Zelda: Breath of the Wild* will find themselves tracing the path of Campbell's ubiquitous hero, it is also possible for players to eschew virtually all of it by just charging ahead, story be damned, and still successfully defeat the game's final boss. It is not an easy route, but it has been done.[4] In fact, the internet is replete with videos and accounts of

[4]The speedrunner who goes by the name of Limcube posted a video on YouTube where he completed the game in 35 minutes (https://www.youtube.com/watch?v=r-a02ko4RQ0). As a point of comparison, it took me over 50 hours to do the same thing.

people complicating already difficult games simply because they have the patience to master it.[5] The introduction of choice enables individual action and prohibits the existence of single narrative structure in most games. What ludologists instead insist on are the rules that govern how players interact with the space (what I will also refer to as the game's "mechanics"). This includes, but is not limited to, the ways that players are permitted/prohibited from navigating the space within the game, when and how various stimuli are prompted, the presence of adversarial/friendly elements, the sequence of objectives, the presence and efficacy of (dis)incentives to pursue said objectives, and the conditions to be satisfied in order to win or fail. Ludologists insist that these are what, fundamentally, make video games ***games*** as opposed to visual novels. Proponents largely hold that players derive their own meaning in the pursuit of mastering these mechanics (Frasca, 1999, 2003; Juul, 2001).

It is not as if those involved in these debates cannot understand their rivals' perspectives. Notable ludologist Gonzalo Frasca insists that "ludology does not disdain this [story-telling] dimension of games but claims that [games] are not held together by a narrative structure 2003, p. 222" while narratologist and noted game writer Tom Bissell admits "the way that games best tell stories have almost nothing to do with traditional narrative 2011, p. 3." The division between the two largely appears to what ought to be *the* defining feature of the medium—and, consequently, what makes them matter as a form of human expression.

Since I have frequently emphasized the interactive nature of games, I suspect readers probably assume that my loyalties lie entirely with ludology. This is not the case. There is a lot that advocates of the ludology paradigm get correct: Games are interactive environments that, by virtue of being actualized by computer software, are ultimately reliant on the rules established by code. But in many games, this ostensibly severe and mechanical language is used to tell a story. The ludic account holds that games are formalized interactions structured around some form of incentive. In many games, that incentive is uncovering more information about the unfolding

[5] My favorite example comes from a player wiring up a number of bananas and using them as controls to beat *Dark Souls III*, notoriously one of the most difficult mainstream games ever made (Grayson, 2017).

narrative. The rules guide players to encoded outcomes with the aim of inspiring self-reflection—just as many novels, comics, and films do.

But I have a hard time fully buying into what the narrativists are selling, too. One does not have to look long at the contention that "games are always stories" (Murray, 2004, p. 2) to find it specious. The fact of the matter is that the realization of a narrative is highly variable in games. Many, such as *Madden*, *Goat Simulator*, and *Minecraft*, have beautiful, lovingly rendered environments—but little-to-no story to accompany it. They instead provide the rules and digital space for people to explore and/or create their own stories. Others still *try* to tell a story but, frankly, are bad at it. Really bad. The dialogue is often laughably unlike anything one would hear escaping the mouth of a living, breathing human, the plots are paper-thin and riddled with self-contradiction, and the lessons to be learned have the effectiveness and authenticity of a *DARE* lecture.[6] But such games are still played and adored, often because of the how engaging the mechanics are and the drive to master them—decidedly ludic features if their ever was one.

In academic writing, it is often the case that people will laboriously detail the things that are appealing and troublesome in two conflicting theoretical accounts and use it as a springboard to some sort of "last word" that ultimately advances one view over the other—or proposes a novel, third way. I want to make clear that I am not about to do either of these things. History shows that this would be a pretty futile exercise. The earliest "last word" that I could find on the debate between the ludology and narratology was 1999 (Frasca, 1999). The most recent I could find was 2014 (Vidakis, Christinaki, Serafimidis, & Triantafyllidis, 2014). The fact that articles from 2019 still reference it (Vargas-Iglesias & Navarrete-Cardero, 2019) suggests that people trying to reconcile these competing camps have something in common with the doomsday prophets insisting that the world will *really* end this time.[7]

Instead of forcing a choice, I opt to take a page out of the physicists' book. In the late 19th and early 20th centuries, physicists were vexed with a similar dichotomy. Light appeared to be

[6] *DARE* being the (in)famous anti-drug program common in schools throughout the 1980s, 1990s, and the early 200s that has been shown to be ineffective (at best) at reducing levels of drug abuse in children (Lynam et al., 1999).

[7] Although, as I revisit this sentence in 2020, I have to admit that maybe the soothsayers were on to something.

either a wave or a particle, depending on how one measured it. In the latter half of the 20th century, the quandary of light was finally resolved. Light was *both* a particle and wave and it was also *neither* a particle or a wave. Our notions of "particles" and "waves" are built off of macroscopic objects that we can interact with and easily visualize. Light is a fundamentally different class of object, existing on a different scale and under radically different rules. It contains elements that we recognize from the macroscopic analogues of waves and particles, but combined into a totally unique thing all its own.

I would argue that games are the same. They have elements that we would recognize from traditional story telling as well as elements that we would recognize from ludic experiences (e.g., board games such as *Monopoly* and *Life*), but these are combined in a way that makes them a unique class of experience all their own. While this may not be the best choice for every research program concerning video games, for my purposes it is most fruitful to emphasize both the narrative and ludic elements of games to truly appreciate the medium's novel effects.[8]

Why not just focus on ludology? The fact is, no game mechanic can explore a social issue or inculcate participatory predilections alone. Abstract rules can only perform these tasks when they are embedded in the right context. Compare the first boss fight in *Donkey Kong Country* and a popular win-condition for *Civilization V*. These games are odd bedfellows; they could not be more different in terms of objective, environment, user interface, story, character design—virtually all of the things that matter in playing a video game. Yet, both situations can be said to have the same abstract rule: Score 5 to win. In *Civilization V*, that is five captured capital cities. This requires waging war on five other civilizations and dethroning their ruler, a process that often takes several hours of activity and is not even the only pathway to victory. In *Donkey Kong* Country, the five is how many times you jump on the head of an oversized green gopher. The fight has no sociopolitical relevance whatsoever, there is no other way to clear it, and the whole ordeal can easily be finished in less than a minute. Both situations employ the same abstract win-condition but it is only socially relevant in one of them. While this is obviously

[8] After all the wind-up, I admit that this decision is about as theoretically dissatisfying as it is wholly unoriginal (e.g., Aarseth, 2012; McManus & Feinstein, 2014).

oversimplified, the same logic can be applied to other ludic elements such as movement mechanics, dialogue progression, status bars, and inventory acquisition. Rules and mechanics can only be politically meaningful in the proper context.

At the same time, the mechanics in games are critical to the deliverance of that meaning. Narratives certainly have the potential to influence political behavior all their own; the last chapter offers plenty of academic studies that support this fact. However, in games, the deliverance of these narratives often come after something mechanical is achieved—such as pressing a specific sequence of buttons, beating a level, or not dithering too far from a predetermined path. In most cases, the narrative will not progress if the player sits idly, thumbs twiddling rather than fiddling with the joysticks. Even when the story is not directly dependent on the mechanics, the way the game forces us to explore worlds and their stories can amplify what the narrative is pointing to. I have already alluded to one way that this happens: the presence of choice. Forcing *us* to make the decision over where the story goes (or at least granting us a convincing illusion of choice) erodes away the psychic gap which keeps us comfortably distant from the outcomes in other mediums. But choice is not the only means to do so. As Ian Bogost explores in his book *Persuasive Games* 2007, game mechanics can be made such that they encourage actions that reinforce what the game designers are trying to convey (see also Paul, 2012). An example of this, as I explore more in Chapters 5 and 6, comes from *Celeste*, which emphasizes the difficulty of struggling with mental illness by making the movements one has to perform to succeed extraordinarily difficult. Another example comes from the fact that unbridled aggression will cause all other nations to denounce and/or go to war with you in *Civilization V*; a design decision that reinforces the norm that stability and peace are desirable.

Additionally, as I explore in Chapter 7, the mechanics can be politically relevant even when the stories are paper thin and/or non-existent. In such cases, they are not amplifying the intended narrative meaning but facilitating relationships between the players. There may occasionally be narrative elements that prompts political talk in multiplayer games, but the fact that talk is even allowed represents a conscious choice from the game's developers. The mechanics and rules grant

the opportunity for reciprocity to play out, for trust to be built, and for non-game related conversation to take place (see Meng et al., 2015). They, in short, facilitate the social side of gaming.

My theoretical analysis thus stems from this more holistic view of narrative and ludology. For the remainder of this chapter, I will investigate my specific modes of mattering. I will first detail the theoretical mechanism that allow each mean to effect political attitudes and, subsequently, behavior. I will then detail what narrative and ludic requirements these theories impose on games in order for them to matter, providing some cursory examples of games that do and do not matter under these criteria. My intention here is not to dive too deeply into the specifics of how these are manifested in particular games—I leave that to my in-depth case studies in Chapters 5, 6, and 7. Instead, I aim to provide a theoretical framework combining the narrative and ludic aspects that can be applied to as broad a domain of games as possible.

3.2 Circumscribed Mattering

3.2.1 Theoretical Mechanisms

Circumscribed mattering occurs when games incorporate politically, socially, and morally relevant phenomena but the experience is not designed to model and portray real-world politics. They are not usually included for their own sake but to deepen a story, make players feel a certain way about a character, or justify a mechanic that the designers found to be entertaining. Even when such elements are the main focus, they are part of the shroud of allegory or are themselves the object of symbolic attention. There is a noticeable, often deliberate distance between the "truth" of our world and what is represented in these games. Theirs is instead the artist's truth—the selective, subjective emphases intended to make the audience feel something for a vision otherwise limited to the artist's own mind.

Many games make no pretense about their lack of objective accuracy. They are works of fiction crafted for amusement and play. This does not make them **frivolous**, but it does mean that players are not going to treat them the same as games asserting some degree of realism. In contrast with the games I discuss in the next section, they are not explicit arguments about how

politics works but *encoded* ones. These arguments still will (or will not be) incorporated into one's relevant mental constructs depending on the degree of relevance that the players perceive, but the fact that they are unmoored from reality means that we need a theory that proposes attitudinal change through indirect means rather than overt appeals.

One contender is the Extended Elaboration Likelihood Model of Persuasion or E-ELM advanced by Michael Slater and Donna Rouner (Slater & Rouner, 2002). The E-ELM looks to, as the name suggests, extend the insights of the Elaboration Likelihood Model of Persuasion (ELM) originally proposed by Richard Petty and John Cacioppo 1984; 1986. In brief, the ELM posits that people are more likely to change their position on an attitude if they are more likely to pay attention and seriously contemplate new information. Although Petty and Cacioppo insisted that this likelihood of contemplation works as a continuum from low to high, they also argued that there were two primary cognitive routes to attitude change. The first is known as the central route, which is characterized by more careful, deliberate consideration of the information. They consciously *elaborate* on the argument (hence the model's name), weighing its points until it is dismissed or until it changes their attitudes. But people have to be motivated to take the central route because deliberate cognition is hard and our brains are notoriously lazy (see Kahneman, 2011; Thaler, 2016; Tversky & Kahneman, 1974). Instead, most information is processed through the peripheral route, where recipients use mental shortcuts and heuristics to judge information. These less effortful processes can either persuade viewers to pay more attention, shifting the argument onto the central route, or they can inspire minor attitudinal changes. Because the information is generally seen as unimportant, however, the persuasive power of arguments pushed through the peripheral route is fairly weak—and what force is there decays quickly. Arguments would have to go through the peripheral network multiple times before there is any feelings crystallize in the respondent's internal attitude structure.

However, while the ELM has been used when constructing serious games intended to cause attitude change (see, e.g., Thompson et al., 2010), empirical analyses suggest that the ELM's predictive and explanatory power is limited when applied to fictional accounts and narratives

(Slater & Rouner, 2002). This makes sense on deeper reflection: Concerted elaboration on information derived from a *fictional* source of information should cause people to dismiss the arguments out of hand. Fictional sources should have very weak credibility since the information presented explicitly departs from what is seen in the "real" world. Why should people trust the words of something intentionally made to be false?

But, as the evidence in Chapter 2 shows, people **do** learn from fictional sources; consumers can in fact be persuaded by things that they know to not exist. In order to address this, Slater and Rouner reemphasized that the likelihood of engagement is continuous rather than split into the discrete dual processes of "direct" and "indirect." And, with fiction, the extent of one's elaboration can be articulated by the degree to which people are absorbed by the narrative. People who are more absorbed by the narrative are more likely to experience attitudinal and behavioral changes. Those who are unabsorbed by the narrative are subsequently less likely to experience these effects. While the degree of absorption will undoubtedly be influenced by the characteristics of the person receiving the story, there are elements of the tale itself which make absorption more likely. These include the quality of the writing/production, how similar the characters are with the observer, how "unobtrusive" the subtext is (people do not ingest fiction to be preached to), and if the story has engaging narrative elements, such as romance, interesting conflict, or a noteworthy premise (p. 178). Absorption leads to attitude and behavioral change when people respond favorably to the persuasive stimuli and when the lesson is reinforced through discussion or when the story is explicitly tied to the real world (p. 178). As with the original ELM, the Extended ELM (or E-ELM) argues that people are more likely to be persuaded by an argument if they are more engaged with it. Except here, engagement is driven by creators successfully executing the elements of their craft—enrapturing the audience's attention—rather than said audience pondering over the logical merits of a claim.

Although the framework is designed for film and the written word, these factors can easily be applied to video games. Quality writing and production can be expanded to also include the quality of the artistic style, the responsiveness of the controls, and how polished the mechanics

are. Homophily between the player and the protagonist is still a factor, although that value may not be fixed as players may relate more to the protagonist as they spend more time being embodied by them. Likewise, engaging elements can be expanded to not only include the aforementioned narrative aspects (which are certainly present in many games), but also mechanical ones. *Portal 2* drew many players in not with the promise of a good story but because of the novel premise of solving puzzles by teleporting through portals—and the wonky physics that accompany that premise. Indeed, many games draw people in with promises of what they will be able to accomplish once plugged in to the new world. Most people do not spend time consciously ruminating over *Portal*'s rhetorical arguments that technological advancement solely for advancement's sake is socially corrosive and makes solipsistic Sisyphuses of us all. Their conscious attention is focused on solving the puzzles. But the rhetorical arguments embedded in the story are able to slip-in as well, since they are what contextualize and motivate the mechanical challenges. Finally, current controversies in the video game industry suggest that even *fewer* people want to be openly pontificated at by their games than book-readers and movie-goers do; so while it is important for the subtext to be visible, it should not crowd out the game's core elements.

If there is one place that the E-ELM needs to be extended for video games (which could perhaps be called the EE-ELM or E^2-ELM), it is that many scholarly works apply it to fiction crafted to look like it could have reasonably taken place in our world (see, e.g., Consoli, 2018; Dahlstrom, 2014; Green & Donahue, 2009) The settings are relatable, the conflicts recognizable, and the characters often given realistic names and motivations. The world may be new, but it and our own are close neighbors. While some games like *L.A. Noire* and *Heavy Rain* do something similar, many others take place in worlds that only tangentially relate to ours—if they even do at all. Does that mean that people's attitudes are guaranteed to be unchanged? Of course not. People playing *Skyrim* are often struck by the profundity of a question posed to them in the late game: "What is better? To be born good, or to overcome one's evil nature through great effort?" The fact that this question literally comes from the mouth of a virtual dragon does little to dampen the

impact. Less than 10 percent of *Mass Effect*'s story takes place on Earth, but it does not need to be grounded here to introduce substantial moral and social choices to the player. In fact, the series often uses the purported alienness of these settings and characters to enhance the effect. What matters in these and other cases is not that the world exhibits verisimilitude, that the events could conceivably happen in this reality, but that they **resonate** with this reality.

While the specifics of how to incorporate resonance into the existing theoretical structure of the E-ELM are best saved for a different project, it is worth sketching out the general premise here. With resonance, what matters less are the specific interactions between fictional characters, their environments, and/or their sources of conflict. Instead, the emphasis is on whether the structure of this interaction (e.g., incentives, costs, and power dynamics) resembles that of a salient issue in the real world, whether the values and motivations embedded in these structures are recognizable and relatable, and if actors proceed through the interaction in a realistic way—and with realistic consequences. If done correctly, as suggested by the scientific literature on fiction-effects reviewed in the last chapter, these events will not be encoded by the brain as specific, idiosyncratic instances but as additional examples of more general processes and phenomena that they are already familiar with.

Resonance can be facilitated by a myriad of factors including, but not limited to, dialogue, character and world design, objective structures, reward systems, and reference to salient shibboleths and cultural touchstones. It can also be heightened through Ian Bogost's 2007 notion of "procedural rhetoric," which is when the mechanics of the game are explicitly designed to reinforce the narrative message.[9] In games where the characters and worlds are ostensibly unlike anything ever before explored by humans, resonance acts as the mechanism that yolks its fictional (yet relevant) content to players' mental constructs—paving the way for attitudinal and behavioral effects.

[9] An example of procedural rhetoric comes from the online Bernie Sanders flash game, where the player controls a small avatar in the likeness of Vermont Senator Bernie Sanders as he jumps around *Mario*-style to stomp out "fat cats." The action and objectives reinforce the narrative that Sanders is opposed to Wall Street and large-corporate interests.

3.2.2 Game Requirements for Circumscribed Mattering

The most obvious requirement for circumscribed mattering is that the games need to contain content that relates to moral issues, political issues, or issues in society. However, these inclusions do not need to profess any kind of narrative or procedural fidelity to real life. The issues can be highly simplified, act in service to the plot rather than the focus itself, and be literally not of this world. So long as this content is simply there, it is possible for it to be encoded in the fictional narratives and elaborated upon in a way that can cause behavioral changes.

Aside from this requirement, though, it is difficult to suggest specific criteria that games need to meet in order to matter in this way. All of the pertinent factors are more like a continuous scale rather than a binary switch. The concepts of resonance, identification, quality, and engagement defy the easy demarcation between yes and no, between mattering and not. Their values are presumably never zero as people would not be playing the game otherwise—but our understanding of them is far too nascent to propose some firm, arbitrary cut-off between mattering and not-mattering on the spectrum. Consequently, it may make more sense to discuss when things matter *more* and *less* rather than if they matter at all—and to note the general practices that tend to tip the scale in either direction. Keeping with my extension of the E-ELM, I will briefly touch on such practices concerning technical quality, engagement, character identification, and resonance.

High technical quality begins by appreciating that most games are multi-sensory experiences tapping into sight, sound, and touch. Sight includes character and environmental design, sound includes sound effects and musical score, and touch includes mapping controller inputs to in-game actions as well as the consistency and responsiveness of those actions. The better developers can do on these fronts, the higher the game's technical quality.

It is important to note, though, that "better" does not necessarily mean "high-fidelity" or "more complicated." It can get quite comical when developers bite off more than they can chew: avatars spontaneously floating or getting flung into walls, audio cues getting terribly mistimed, players unable to complete a quest line because a necessary item failed to load—the list goes on. The more photo- and aural-realistic designers try to make the games (and the more interactions

they encode into the controls), the more technical work needs to be done "behind the scenes" to make sure everything functions. The more technical work that needs to be done, the more that can go wrong. Indeed, many games deliberately simplify certain elements to emphasize others that are more critical to the designers' aim. *Undertale*, for example, generally uses pixelated graphics so that player's attention would be drawn more towards the characters, narrative, and subtle moral choices. A large part of technical quality comes in the developers meeting or exceeding expectations generated from company/individual prestige, marketing hype, as well as those established by the designers themselves in the opening moments of gameplay.

Once that gauntlet is crossed, they still have to consider the quality of their narrative experience. Are the characters multidimensional with realistic motivations? Does the environment help with story-telling or is it just a set-piece? Does the plot flow logically or is it inconsistent and riddled with holes? Does the story progress in a way that is consistent with the procedural avenues the player has decided to follow? Many of these are the same kinds of issues faced by any writer, but the last question points to a deep complication unique to game writers: Crafting a tale that progresses in a believable way given the player's prior choices.

One game that balanced this well is *Skyrim*. During the game, when not preoccupied with forestalling an end-times prophecy evinced by a menacing dragon king, players are given the opportunity to align themselves with the pro-regime Imperials or with the rebellious Stormcloaks. Once they have made their decision, many of the game's non-playable characters begin to treat them differently—especially characters belonging to the opposing factions. The story not only follows a general plot structure, it was designed to adjust to the player's choices.[10] Provided that normal criteria for good writing is met (which is *far* from guaranteed), the marker of quality in game writing is the degree to which the story responds given the players' prior actions. In

[10]Choice does not necessarily need to be the end-all-be-all for narrative experiences in games. For example, players have no choice over how the story in *Assassin's Creed* unfolds, but how easily they progress through it can depend on the interactions they have with the broader world. The *Halo* series features even less choice; there is a certain set of rigid, predetermined conditions that must be satisfied before the player can take the one and only narrative (and mechanical) path to the next level. But, because the players are performing the actions that unlock the next narrative sequence, the game can still be said to be responding to the player's choices—albeit deliberately constrained choices.

general, higher quality games will result in greater elaboration and, thus, a greater probability for attitudinal and behavioral change.

While technical quality certainly goes a long way towards making an engaging experience (a well-developed narrative arc will be more engaging than an inchoate one), engagement is primarily driven by learning. Although many would insist that they play games to disengage their brain, they are actually putting it to work. They are, in fact, learning. It is not kind of work typically associated with the word "learning:" The kind people receive in school—the kind cuing flashbacks to math tests long past revealing stresses that still echo. Instead, they are learning about this new world and its denizens, how it works, what its rules are, what it means to win and lose, and how to master it all. Indeed, many theorists have argued that games are only fun because they challenge their players to learn how to navigate these trials successfully, given the constraints imposed upon them by the game (Bogost, 2016). As with all learning though, a critical part of the engagement formula is the presence of rewards. Something has to be given to the players to reward them for developing the skills needed to overcome the last challenge and encourage them to move onward to the next one.

These challenges and rewards can be mechanical, narrative, or some combination of both. Examples of narrative challenges can be seen in *Life is Strange*, *The Walking Dead*, and *Detroit: Become Human*. Navigating these games from a technical perspective is very straightforward; most of the actions come from pressing one or two buttons and the game actually flashes on-screen which button it wants you to press in order to advance. Navigating the narratives, with all of their social, moral, and interpersonal drama, is substantially more difficult. Mechanical challenges, in contrast, can require complex button sequences, resource management, and strategy to overcome.

Likewise, rewards can also be narrative or mechanical. Narrative rewards can come in the form of favorable outcomes, advancement of the game's plot, the availability of new places to explore and new characters to do so with, and/or additional information about said world and its inhabitants. Mechanical rewards can be new skills, increased character capacity for

health/endurance/manna, materials to use in future fights, or simply points towards a new high score. Ideally, the rewards ought to provide the players with a sense of satisfaction and a feeling that something new was gained. However, this satisfaction should not be so high that players no longer feel interested in beating the rest of the game, nor should the thing gained be so valuable that it makes finishing trivially easy. Similarly, the challenges should be difficult but progress should still appear possible. Games that can be solved with zero effort are hardly engaging; those that are too difficult will deter players from progressing far enough to learn. Even in games like *Missile Command* where there is no outright winning (try as you might, it is impossible to save all the cities from nuclear destruction), it should still be possible for players to *feel* like they can at least prolong losing. Further, the game should require more of the players as it progresses, either narratively, mechanically, or both. Otherwise, the difficulty level stays stable and learning stagnates. The game ceases to capture the player's attention.

It may be tempting to conclude at this point that games are more likely to matter when they are more engaging. However, many games are engaging but do not offer a shred of social, moral, or political relevance. Millions if not billions of collective human-hours have gone into playing arcade games like *Asteroids*, *Donkey Kong*, *Pac-Man*, *Breakout*, and *Galaga*—they are incredibly engaging, but they hardly matter from a political standpoint. The things that players are learning in these games are not likely to impact the way they see and interact with the political world. If engagement is functionally learning, what matters is not just *how much* learning is transpiring but **what players are learning about**. The challenges and rewards need to be tied to something socially, morally, and politically relevant for the ensuing elaboration to have a significant attitudinal and behavioral effect. Thus the more that players are encouraged to engage with these kinds of issues, the more that they are required to learn to achieve master over these issues' in-game representations, the more likely the games are to matter.

Character identification is a particularly important aspect of the application of the E-ELM to video gaming. Players can identify with video game characters in ways that they are unable to in other media. After all, identification in those cases is entirely based upon how much consumers

are able to empathize with the characters they can only see or read about. No matter how vividly they are portrayed, there will always be an insurmountable psychological gap. But that distance substantially shrinks in games. Not only are players able to empathize with the characters, they are embodied by them. The connection they have is not merely imagined, it is physically mediated through the controls they hold in their hands. The power of this connection is the reason why it gets such special emphasis in the form of this dissertation's second core argument.

Identification will partially be a function on both the quality of the technical elements (games with more relatable, easily guided, and well-written characters will be more readily identified with) and how engaging the experience is (games that are more engaging will encourage greater amounts of flow and/or transportation, which will also increase identification). However, there are a number of additional mechanical techniques that developers employ to increase players' identification with their avatars. One of the oldest techniques, reaching back to the medium's roots in tabletop games like *Dungeons and Dragons*, is the ability to customize characters on the basis of a handful of attributes—and for the experience to be shaped by the choices made during the process. As games became more advanced, it became possible to adjust more than just the classic "dexterity," "charisma," and "wisdom" stats. Many games also allow players to customize their character's physical attributes including height, weight, sex, gender, and even species—and research has shown that increased likeness to a preferred physical state heightens player engagement (Turkay & Kinzer, 2014). Other common techniques include partial customization (such as the ability to change character costumes without affecting the core gameplay), incorporating a first-person viewpoint (where one sees the world as they presumably would if they were magically teleported into the world), referring to the player by a chosen name, and including narrative scenarios that, while specific, can readily translate to the lived experience of most players (e.g., having the player's character lose coordination and dexterity if they imbibe too much in-game alcohol). As before, increased experience will matter most when that is applied to characters and scenarios that accompany social, moral, and politically relevant material.

Finally, in extending the E-ELM to the sort of fantastical settings found in many video games, it is important that the experience resonates with reality. After all, not all games that matter strive to portray a world immediately like the one we inhabit. While the developers behind the *Assassin's Creed* series take great pains to portray elements of the world as they actually appeared in the game's setting,[11] *Detroit: Become Human* takes place in the year 2038 and cannot, by definition, be "realistic." Yet major parts of its story serves as a clear parallel to the continued struggle for civil rights experienced by minority groups in the US—most notably members of the LGBTQIA community and African Americans. The fact that it did not attempt to exclusively portray the world as it exists today does not erase the substance from these parallels. If allegory was incapable of being a vehicle for meaning, Aesop's fables would have flopped and we would presumably have far fewer myths, fairy-tales, and nursery rhymes.

It is useful to approach the concept of resonance by borrowing from the idea of "many worlds" interpretation of quantum mechanics, originally proposed by Hugh Everett in his 1957 doctoral thesis and popularized by Bryce DeWitt throughout the 1960s and 70s (Vaidman, 2018). The idea traces its intellectual heritage back to the German polymath Gottfried Leibniz, who argued for God's benevolence by claiming that our world, with all its sin and evil, was really "the best of all possible worlds" (Leibniz, 1710, p.228). (Leave it to the co-inventor of calculus to construct a theological argument predicated on deriving a global minima.) Everett's argument was decidedly secular but no less controversial. It was long known that quantum particles contain a few characteristics that are not fixed but extend over a probabilistic range. It is impossible for these properties to be discerned until the particle is directly interacted with, which randomly collapses the probabilities into a single, certain state. Everett argued that when one of these probabilities collapsed, reality itself bifurcated into distinct branches based on whether the outcome happened one way or if it happened another; the divisions growing only more numerous and distinct with the passage of time. The difference introduced by each individual split is trivial.

[11] In fact, the game's developers, Ubisoft, offered to help with the reconstruction of Paris' Notre Dame cathedral after its tragic fire in 2019 based on the extensive historical research and modeling done to complete *Assassin's Creed: Unity*. (Although Ubisoft is getting panned, at time of writing, for the latest installment in the series for its uncharacteristic lack of accuracy: *Assassin's Creed: Valhalla*).

The universe is hardly rocked by the choice of spin in one of the near-googol[12] of quarks. But a thousand such changes, concentrated at just the right points in time and space, would compound into a miniscule–but measurable–difference; the kind of minuscule difference that chaos and complexity theorists have shown to be capable of snowballing into *drastic* ones in the mid and long term: The prototypical butterfly flapping its wing and unleashing a hurricane half a world away (Gleick, 1996). But philosophers and creatives alike have been inspired to contemplate the consequence of this compounding divergence. As noted in the game *Injustice: Gods Among Us*, and attributed to comic book villain Lex Luthor, "I can say without a doubt that there are an infinite number of universes. Some are just like our own...but for one or two significant events, exactly the same." The game proceeds to illustrate one such significant event, where a grieving, enraged Superman kills the Joker and begins a despotic regime as "High Councilor of Earth" to stamp out all crime, deviance, and dissent.

The concept of resonance is motivated by imagining, for a moment, that these games are portrayals of one of Everett's infinitely many worlds. That what we are experiencing may not be our reality but it is a reality—or at least a stylized representation of one. And the degree to which it resonates with ours is based on how proximate its characteristics are to those of our reality: Its inhabitants, their environments, and the ways they interact.

Of course, it is not as if people are actually running the calculations on all possible comparisons between our world and the game to see how much it resonates. That would be a distance minimization problem as thorny as the one purportedly tackled by God when optimizing the amount of allowable suffering. Then again, we do not have to do so. Remember: our brains are particularly well-equipped to generate counterfactuals and evaluate how well they map on to previous experience (Feldman Barrett, 2017; Kahneman, 2011; Sapolsky, 2017). It is easy to imagine a world where an android other is ostracized due to ignorance and economic anxiety or a world populated by adorable, anthropomorphic animals trying to run their own little township.

[12] A googol is 10 followed by 100 zeros, or 10^{100}. The number of elementary particles in existence is approximately 10^{80}. There is no specific name for 10^{80}; "googol" is the closest term available despite the fact that the gap between it and 10^{80} is larger than that between a penny and a quadrillion dollars.

Once the words were read, the process of envisioning proceeds automatically (Bergen, 2012). Just as automatically, we appreciate that the first (*Detroit: Become Human*) resonates more with our world than the second (*Animal Crossing*)—although both are clearly more proximate than whatever psychedelic dystopia is portrayed in *Pac-Man*. Games whose social, moral, and political content resonates most strongly with the experiences of this world (e.g., those that are more proximate), are more likely to offer applicable information and courses of action.

Although these four aspects touch on distinct (albeit overlapping) considerations, the core thing uniting them is that they are intended to encourage players to mentally elaborate more on the experience. Because many games do not claim that they are explicitly applicable to understanding the outside world, those containing relevant material rely on the players to take the time—and undergo the effort—to make the connections themselves. The hope is that the message then carries enough impact to inspire attitude and behavioral change. Excelling in a couple or even just one of the four aspects (it is a rare game that delivers on all of them) reduces the amount of work players need to do. Few need to strenuously mull over how Life is Strange poses serious questions thanks to the efforts of the developers to deliver a product that is relatable, relevant, and technically exemplary. Further, developing these facets raises the impact of whatever lesson is drawn. The reason players struggle so valiantly to prevent Kate's suicide in *Life is Strange* is because the developers poured a lot of effort into making her relatable (Barbet & Koch, 2016). These games take a circumscribed route to mattering; a route that can be smooth and deliberately planned or pockmarked and haphazard depending on its development. People can navigate both, but one will certainly make it easier to go farther than the other.

In short, there are games that do not put social and political issues front-and-center but still use them to flesh out the world, situations, and characters they present. In these cases, players should still feel, upon reflection, that they experienced something sociopolitically relevant—and their civic attitudes and political behaviors should be effected as they cognitively elaborate upon these relevant elements as presented in the broader ludonarrative context. These reflections can be helped and hindered by various design decisions; higher quality products are more likely to lead

to deeper deliberation than lower quality products. All in all, though, this reflects a process by which games can impact political behaviors while only obliquely touching on political issues in their narratives.

3.3 Explicit Mattering

3.3.1 Theoretical Mechanisms

Games with explicit mattering are those that portray events, issues, and processes that exist in reality—albeit often still through a stylized lens. Unlike games with circumscribed mattering, which invoke relevant topics to buoy a separate artistic intent, exploring such events, issues, and processes is the intent. Many authors, directors, and artists create works that are based on things that they witness happening in the real world; their hope is to provide a window that at once looks out at what is happening but that also offers a reflection should the recipient feel motivated to shift their perspective slightly.

Since the viewer must be motivated to find the reflection, and since the worlds of the games could only at best resonate with our own (at least until someone manages to break modern physics in a way that lets something smaller than the universe simulate the universe), it appears that the E^2-ELM ought to be the primary theoretical model for explicit mattering as well. But the fact that the experience insists upon its own veracity complicates things.

The E^2-ELM suggests that people have to be sufficiently involved with the stimulus to have their attitudes and behaviors affected by it. The information encoded in the gameplay is incorporated into people's mental structures as a consequence of the cognitive effort the games encourage players to expend. But we know from empirical research on this topic, outlined in the last chapter, that the brain applies less scrutiny to information that is ostensibly factual: Things that are presented as unambiguously correct are readily soaked up by the brain and are quickly incorporated in people's models of the world. And that information tends to stick too—even if it is later shown to be undeniably false. When games decide to tackle relevant topics that explicitly, and unambiguously, link to issues in the real world (like warfare, drug addiction, and how to service one's constituents), they are in effect making an argument that *this is how reality really is*.

We ought to expect that the brain treats this information less in the ponderous way suggested by the E^2-ELM and more like the panoptic sponge that it is: Soaking-up both fact and falsehood quickly and, all too often, uncritically. We need to use a theoretical model that better works with our empirical knowledge in mind.

For games that explicitly tackle events, issues, and processes seen in reality, we can instead look to theories of how other reality-facing media impact viewers' attitudes and behaviors. Although there is no single, definitive account of political attitude formation, John Zaller's 1992 **Receive, Accept, Sample** (RAS) model is both well-regarded and well-suited for this application for two reasons. First, the account was originally made in the context of how news media constructs opinions in the mass public. This original emphasis on media effects—especially factual media—makes it particularly applicable here. Second, as I will explore in a bit more depth soon, the account easily enfolds the insights of the E^2-ELM. The experiences designers included to induce elaboration get a second life as factors that give the games' arguments credibility and make them more believable. After all, even the best crafted game can only model reality. "All models are wrong, but some are useful" as the saying goes—and the games have to persuade the players that they are, in fact, useful. But, given that they do so, the RAS model is a parsimonious way of understanding how games with explicit mattering can cause attitudinal and behavioral change. The rest of this subsection is focused on describing the model and situating it so that it serves that purpose.

Classic accounts of political attitudes present them as being solid, firmly entrenched positions emerging from some combination of individual predilections, issue-based knowledge, and life experience. When poll respondents say that they are fearful over climate change, the classic account takes them at their word; it is assumed that this position is stable and acutely felt. Behaviors, commensurately, are what flows when people try to enact their beliefs—or at least act in a way that is consistent with them. While the classic account is still the public's go-to assumption, and often implicitly baked-in to the practice of survey research, it was thoroughly dismantled in the 1960's by Philip Converse who showed that people's opinions on many issues

are unstable over time and ideologically inconsistent 1964. Far from being steady and consistent, as one would expect if attitudes emerged from obdurate properties of the self, actual political attitudes exhibit patterns of fluctuations that are more consistent with randomness than any discernible rhyme or reason.

In the decades since, numerous political scientists have attempted to determine what truly drives our attitudes or even what our attitudes are in the first place. In the early 1990's, Zaller proposed a fairly radical theory that has since maintained a great deal of support due to how well it has been substantiated, empirically. He (see also J. Zaller & Feldman, 1992), believes that people do not actually *have* a single, stable opinion regarding any particular issue of note. Instead, people possess a range of possible opinions; the one that gets proclaimed to the interviewer gets queued-up based on the distribution of positions and the contextual clues embedded in the question.

Before any opinions are actually given from that distribution, Zaller holds that a few things must happen. First, people must actually be exposed to that position—or at least something similar enough to it that they can conjure it on their own. No one is going to express an attitude that is totally alien to them; they must **receive** the belief in question. Upon receipt, they have to feel that the belief is legitimate and/or admissable. Millions of people receive the argument that vaccines are a healthy, effective means of staving off dire infections. The fact that this argument is not universally endorsed explains why the US has seen outbreaks of diseases like mumps and measles in recent years. This means that the belief must be **accepted** for it to be included in the range of positions people have. The process of subconsciously constructing one's positions in response to being prompted—contingent on the way the question was asked—is the **sampling** part of the theory. Respondents sample from the array of opinions they have accepted on the topic and construct an answer that reflects what was picked. In order for respondents to present something as their earnest opinion they must have sampled it from those positions that have been both accepted and received. After all, people cannot present a position that they have never considered nor can they endorse something that they have never accepted. (While important in

understanding how people respond to public opinion surveys, sampling does not play much of a role in the process of attitude construction itself. I choose limit my discussion to reception and acceptance, or the RA parts of the RAS model).

In Zaller's original account, reception was the biggest bottleneck in the process. There is a well-known tendency for people to seek out information that coheres with the beliefs they already have (Iyengar, Hahn, Krosnick, & Walker, 2015; Kunda, 1990; Westen, 2007). In the case of news, where the theory got its start, it is relatively easy to avoid dissonant sources of information. All people have to do is not purchase certain newspapers and be cautious while channel surfing. Receiving narratives that already comport with one's worldview makes acceptance pretty trivial. However, despite our best subconscious efforts, sometimes dissident information manages to squeak through. In these cases, those who are most familiar with the kinds of frames, themes, and information employed in the argument are most likely to reject it. Those who are less knowledgeable on the subject are most likely to accept it and incorporate it into their attitudinal range.

Reception also plays a substantial role in applying the RAS model to video games. Because games are seen as an entertainment medium without many political commitments, games draw players from across the ideological spectrum. While different games might draw in certain crowds over others (conservatives are purportedly slightly more likely to play *Call of Duty*, for example (Anton, 2020)), these differences are generally small. Mainstream games have mainstream appeal.

The wrinkle with reception in this context is that there must be something substantive for players to receive. It is effectively a given that news broadcasts will contain information that is socially pertinent, that is baked in to what it means to be **news**. The same guarantee cannot be made for video games. Indeed, as I discussed a little earlier, there are plenty of games that very clearly do not pretend to resemble reality. To be sure, games do not have to be a simulacrum for the players to receive socially-relevant information—but they do have to offer some visible analogue to events, actors, and/or processes happening in reality and proffer sort of insight.

However important reception is though, it no longer weeds out most of the possible positions that people incorporate into their attitude distributions. In the context of games, that now falls to acceptance. Before, acceptance was largely modulated by one's prior beliefs and knowledge on the topic. But these factors can take center stage in the case of news because it is implicitly assumed that the broadcasts contain at least a kernel of truth; audiences do not have to interrogate whether every story was cut from whole cloth.

Games do not have the luxury of this tacit trust. Before players can even deliberate, the games have to assert (and provide evidence of) their authority on the matter. Such factors might include if the game exhibits high technical and narrative quality or if the experience is especially resonant. To use an analogue: Websites with higher quality design and site structure convey more source credibility (Warnick, 2004). People might not take much out of eight-bit browser games that look slipshod and thrown together on a whim at a hackathon. But they might if its content and appearance imply that a good deal of effort and research went in to making it reflective of reality. One could expect that people are more likely to feel something is true if it is presented in a context that, overall, strongly comports with the world as they understand it. If successful, players would then weigh the information as they did with news: Things consistent with their extant beliefs are incorporated and *ex ante* knowledge drives whether contradictory arguments get included as well.

But the more active role consumers take in games can also enhance the extent to which they accept arguments. Games often present players with a set of conditions that they need to satisfy before being allowed to move forward. Consequently, they may be asked to direct whatever process ostensibly generates the information they are considering. If they already agree with similar information, or if they do not know enough to care or object, then there is no conflict. But, if they happen to disagree, they are not spared a special route that allows them to remain epistemologically comfortable. If they want to beat the game, they have to suck it up and soldier on. This is not without consequence. Forcing players to perform actions that are incongruous with their beliefs can induce cognitive dissonance (Festinger, 1957). Fortunately for gamers, psychological studies show that we are equipped with a variety of ways to reconcile the

discomfort. One prominent way is to rationalize that, perhaps, we do not disagree as strongly as we once thought or accept that there are exceptions that we had not previously considered (Tavris & Aronson, 2007).

Cognitive discomfort is not the only way that people may be more inclined to accept arguments that go against the grain of their current attitudes. Both the ELM and E-ELM (and, consequently, the E^2-ELM) suggest that enjoyment is associated with persuasion (see Borum Chattoo & Feldman, 2017). Things that are enjoyable tend to cause us to elaborate more on them, meaning that we are more likely to be persuaded. Even if we elect not to consider them deeper, "enjoyment" works as a heuristic (Kahneman, 2011), which can at least cause short-lived effects. Indeed, there is ample research in political communications showing that humor reduces the amount of effort people put into scrutinizing arguments (Nabi, Moyer-Gusé, & Byrne, 2007; D. G. Young, 2008, 2019). Indeed, particularly enjoyable arguments can exhibit a "sleeper" effect, where the attitude change is not immediate but instead takes a significant amount of time to manifest as people revisit the original stimulus (Jensen, Bernat, Wilson, & Goonewardene, 2011; Nabi et al., 2007). The old saying "one attracts more flies with honey than with vinegar" comes to mind—except this time it is actually true.[13]

In any event, though, video games must provide players with some motivation to accept that the information is credible enough to be considered in the same epistemic category as things like the news. Once that is established, games could persuade through the force of their rhetorical argument, by the amount of enjoyment accompanying the message, or, unique to games, by dint of the fact that the argument is made to pass by the player's own hand.

In sum, the RAS model suggests that people must first receive an argument and then accept it before it has a chance to incur behavioral effects. By and large, people playing games are likely to receive a variety of different messages that they may not otherwise come into contact with. However, work has to be done (by both the designers and the players) to feel that the lessons gleaned from the experience are transferable to similar situations in reality.

[13]Despite the phrase's prevalence, it has actually been repeatedly shown that flies prefer vinegar over honey (Jouandet & Gallio, 2015). Flies do prefer sweetened water over sour water, for what it is worth (Rimal et al., 2019).

3.3.2 Game Requirements for Explicit Mattering

Zaller's RAS framework highlights a number of requirements for games to matter explicitly. First and foremost, the game must actually contain information mirroring real-world politics, issues, and information. This single requirement already dramatically reduces the total number of games that can matter in this way. Industry juggernauts like *Pokémon* and *Mario* are out. So too are many of the games I have used as examples so far: *Mass Effect*, *Life is Strange*, and *Detroit: Become Human*, to name a few. These games may include nods to political structures (the Mushroom Kingdom in *Mario* or the Citadel Council in *Mass Effect*) but they do not try to portray real nations. Similarly, their depictions of politics is highly stylized to fit narrative tropes and conventions rather than shine a light on real-world decision making. There are also a wide array of games that do not concern themselves at all with political matters, such as *2048*, *Candy Crush*, *Dirt Bike Racer*, *Rocket League*, and *Madden Football*. But, of course, there are plenty of games that manage to attain this first requirement. Examples include *Fate of the World*, which explores the consequences of climate change, *1979 Revolution: Black Friday*, which explores the Iranian revolution, and the aforementioned *Democracy* series of games, which positions the player as the leader of a modern democracy tasked with balancing complex issues while pursuing reelection.

However, games do not have to represent real nations and political figures to matter explicitly. They can also portray politically relevant actions and processes. War is eminently political. Games do not have to render real theaters of war to deliver commentary on the nature of war as we know it (although, many installments in the *Battlefield*, *Call of Duty*, and *Tom Clancy* games do exactly this). Mahatma Gandhi never raised an army against Shaka Zulu. Gandhi's famous pacifism notwithstanding, that would have been an impressive feat considering that Shaka died 40 years before Gandhi was even born. But this is not an implausible match-up in the *Civilization* series; nor is it impossible for Teddy Roosevelt to square off with Katherine de' Medici or Gilgamesh. What the game loses in historical accuracy, it maintains in exploring international diplomacy as a process: Casting strategic denunciations, seeking and securing allies, navigating the resource trade-off of maintaining an army versus advancing soft-power projects,

and the balancing the costs of warfare to a nation's population and infrastructure. These force players to consider the multifarious trade-offs that waging war unavoidably incurs, even if the actors are a tad far-fetched.

Another example is the *Headliner* series, where the player manages a nation's state media and determines what news the people see and do not. The name of the newspaper that the player manages, as well as the state that it reports on, is fictional; many of the issues are only cheeky caricatures of those faced in reality. But what it does attempt to portray accurately is the extent to which media frames and biases can have deleterious effects on society and how the press can be used to solidify the power of the state. In both cases, the games' mattering is less in the specifics of the narrative content and in what the players must consider to attain their goals.

It is also important to note that the processes do not have to be perfectly faithful to their real-world counterparts to matter explicitly. Many social and political processes are too complex and multifaceted to be successfully gamified if every detail was crammed in. (In point of fact, a lot of these events are too complex and multifaceted to even be fully understood in the first place). Even ostensibly simple questions like "how can networks of friends propagate a message?" mask devilishly difficult details that can preoccupy scientists for decades (Watts, 2004). In these cases, it would be fruitless to try and make something with perfect fidelity because we do not know what it would even begin to look like.

Just as social scientists present models and other abstractions of reality, so too can video games. An excellent example comes from Will Wright's *SimCity* franchise, the famous series of games where players work to design and manage their own cities. When developing the game, Wright knew it would be too difficult to program a perfect simulacrum of a working city—especially if he wanted players to be able to tinker and manipulate its elements to see how it works (Will Wright Collection, c. 1990). His solution was not to focus on making all the individual parts of the city work as they "truly" do, but on allowing these parts to interact in ways such that the *emergent whole* is a surprisingly good model of a working city. If one were to try and track the path of a single element, it would appear bizarre, erratic, and not too terribly

realistic. However, the actions of various bizarre elements come together to form a product with many of the same procedural challenges that come with running a city—such as zoning, infrastructure, tax policy, and the availability of public education. Some level of detail is deliberately pruned back so that a broader truth has room to breath.

What can allow games to satisfy this first criteria? The most obvious route would be through the narrative. That is, the game can be designed such that the story, setting, characters, and dialogue of games will explicitly dwell on events and processes that are known to exist in reality. However, the ludic aspects of the game can help satisfy it as well. Rules can be made such that players develop a general sense of how a more complicated process works (such as *SimCity*) and can illustrate the benefits and costs inherent to political processes (such as *Civilization* and *Headliner*).

For the acceptance step, though, the games have to convince the players that the information contained does, in fact, reflect reality. If they fail to do so, players will not accept it into their attitudinal constructs or, even if they do, trivialize the insights as "just" coming from a game.

The degree to which any particular title or series is able to do so probably determines as much (if not more) on the characteristics of the person playing the game as it does on the game itself. Some players, for instance, may readily accept *Civilization*'s treatment of international relations as providing valuable insight. Others might find it shallow and trite. Others still may not dwell on it at all. This might depend on one's knowledge on the subject, their willingness to suspend disbelief, their need for cognition, their ideological commitments, and a variety of other factors. However, there are general practices that developers can employ that can encourage players to see the experiences as offering valuable information on reality.

One way is to incorporate stimuli that is true-to-life. *Call of Duty: World at War* includes actual historical footage from World War 2 as part of the narrative interludes between missions. This grants the game a degree of historicity that would have been absent if the archival footage was nixed. Others can include quotes, stories, and diary entries attributed to real-life people and organizations to tie it to what it is trying to depict. Attributing quotes to real people like Maya

Angelou, Abraham Lincoln, Queen Elizabeth, or James Connoly can make it seem like the game reflects events that transpired first in reality. Designers can also digitally render places that actually exist and use realistic graphics to make the setting appear lifelike. In conjunction, many provide an accurate sonic-scape, investing arduous effort to ensure that the sounds included in the game seem correct as well: From the distinctive, pitch-shifting roar of a jet engine to the concussive rattle of semi-automatic gunfire, the developers consult with former members of the military to ensure that it delivers an immersive experience (Chris Kohler Fanzine Collection, c. 2001). In short, games can try to add legitimacy to its messages by signaling that its developers have done enough research to deliver an experience that at least tracks with the truth.

Not all games have the resources to leverage archival footage, hyper-realistic graphics, or extensive sound libraries. Nor would every game want to go in this particular artistic direction even if they could afford it. Civilization and *SimCity*, for example, are cartoonishly rendered. Headliner is heavily pixelated with chirpy audio reminiscent of 1980's computers. *Democracy 3* is really just a series of charts, graphs, and network diagrams with a handful of generic, officious-looking mannequins tossed into the mix for good measure. These games, instead, stake their claims to realism through authenticity (see Ribbens & Malliet, 2015).

Authenticity is a notoriously tricky feeling to pin down—and even more difficult to mass produce. For the purpose of sketching out a general theory, though, we can say that something in a video game is authentic if it unfolds in a way that is consistent with both the internal logic of the game and the logic driving its real-world analogue. If a game narratively established, through its own internal logic, that immigration is a boon for society, the game should not send you to a "game over" screen for eliminating annual caps on the number of people permitted to enter. A game trying to authentically convey the power of the press would probably fall flat if the player was dictating orders through a rusted ham radio or if the game simply prompted "press X to make everyone believe in UFOs." Narratively, it makes much more sense if the manipulation was done through cable television, the newspaper, or even social media. Instead of simply pressing a button, it would be more sensible mechanically if publishing too many alien abduction stories

decreased your credibility and total audience size. In short, it would require effort that is at least proportional to what people imagine it would take if the task were to be attempted in reality.

Before a game can change players' beliefs about the world, it must, to some extent, meet them. Designing an authentic experience is more of an art than a science. However, those that deliver on authenticity can also deliver on explicit mattering without going all-in on verisimilitude. We would expect, then, that games with aims, characters, and environments that are more explicitly politically relevant will also cause changes in political attitudes and behavior. However, in this case, these changes are driven to the extent that people receive the rhetorical arguments embedded in the game's mechanics and narrative and the degree to which they accept these arguments.

3.4 Social Mattering

3.4.1 Theoretical Mechanisms

As I discussed in Chapter 2, video games are not a solipsistic or solitary enterprise. Many participants play with family and friends both in the same room or over the internet, the latter also enabling them to interact with legions of others whom they would otherwise never meet. Evidence gathered over the last decade or so strongly suggests that these sorts of bonds encourage the development of social capital—and decades of research in the social sciences demonstrate a strong connection between social capital and political participation.

It seems like an ironclad link on the surface. But not all social games are going to matter. In the online game *Slither.io*, players log-in and play as cartoonish snakes in the aims of becoming the largest on the server. They gain mass in two ways: either eating procedurally-generating pods or by eating other, smaller players. There is no way for players to communicate, no way for a rag-tag groups of smaller snakes to gang-up and take down the biggest one around. It is literally eat or be eaten.

Some games, despite involving multiple participants, are not going to engender political behavior through social mattering because they do not encourage social capital or communication.

Even in those that do, the ways that this translates to mattering will depend in large part on the context of play: where it happens, with whom, and with what structures and end-goals in mind?

In order to get a handle on the point where people merely playing together sublimates into social capital, it helps to revisit my definition of the term from the last chapter: Social capital is the intangible means by which those embedded in a social network can influence the actions and outcomes of other members of the network and can, themselves, be influenced. Insofar as this capital is "earned," it is accumulated through members' repeated interactions (e.g., conversation) as a consequence of cooperative and/or reciprocal actions. Insofar as it can be "spent," members can marshal it to gain assistance, knowledge, and access. The connections between members are maintained by mutual trust, which is both an outcome of repeated cooperative interaction as well as a mechanism facilitating cooperative interaction in the first place.

There are four different ways that one can play video games at home and these have differences in the amount of relative social capital we can expect to develop: People can play alone, with known acquaintances in the same room, with known acquaintances over the internet, and with strangers over the internet. (As a general rule, people tend to avoid having strangers in their homes, let alone play a round of *Super Smash Brothers* with them).

Because games played alone do not involve social networks, these can hardly be expected to generate social capital.[14] When playing with known acquaintances over the internet, though, we can expect that video game play will promote substantial amounts of social capital. Many acquaintances who interact online do so predominantly or exclusively; most of the opportunities that they have for cooperative and reciprocal action comes from playing games together. The amount of social capital developed through this kind of play relative to their baseline (i.e., that developed through other means) is relatively high. The social capital engendered here develops relationships. In contrast, we can expect that those playing with known acquaintances in the same

[14]It should be noted here that many single-player games have thriving clubs and communities dedicated to them. The subreddit dedicated to *Undertale* (r/undertale) has over 150,000 members at time of writing. Future research would benefit from looking into how these entities foster social capital development around single-player games. However, only a minority of players seek out such organizations—probably to satisfy an individual-level need for social connection that preceded playing the game. The games alone probably do not encourage people to develop social capital in and of themselves.

room will produce relatively lower amounts of social capital. This may seem counter-intuitive on its face, but it is not because the games magically lose effectiveness when players are forced to sit next to each other. The gross amount of social capital produced in both exchanges (pretending for a moment that it could be perfectly quantified) is probably pretty comparable. The difference is that people playing closely together in a physically proximate sense are already close in a relationship sense. If one feels comfortable inviting another person into their home to play games, they probably have ample opportunities outside the game for cooperation and reciprocity—not to mention that the very act demonstrates a background level of trust. The interpersonal baseline levels of social capital is much higher, so the *relative* effects of play (while positive) are far lower. Social capital engendered here is not about *developing* relationships but *maintaining* relationships.[15]

But is social capital the best way to approach the fourth kind of social gaming (playing with strangers online)? On the one hand, social capital does seem to be theoretically equipped to consider more tenuous relationships. Social capital can be developed by shared interests and identities as is commonly seen among members of the same church, family, or long-standing friend group (Putnam, 2001). This is called "bonding" social capital. The tie between individuals could also be superficial, such as a shared participation in a sports league. All kinds of folk like soccer (and *Fifa*, for that matter); organizations capitalizing on that fact may increase the diversity of participants' interpersonal networks. This is called "bridging" social capital (Putnam, 2001).

The mechanics of many social games seem to encourage bridging social capital. In *Overwatch*, players have to select between one of three broad classes of "heroes" with teams of six comprised of two players per class. Each class, and each hero within the class, offers highly

[15]Of course, it's important to note that not all social interactions that involve trust in games are necessarily going to end *well*. People renege on promises, groups break apart, players cheat, lie, and betray. It is possible that such instances can end with deleterious interpersonal consequences—consequences that can bleed into players' political behaviors. But there is nothing about games that inherently make these outcomes more likely; these things happen in reality too. They arise as a consequence of social interaction; and if games host social interactions, they are going to host instances such as these as well. However, for multiplayer gaming to be the vibrant and inclusive industry that it is, it must be the case that these antisocial instances are exceedingly rare occurrences. Indeed, empirical work done by game designers suggest that in-game toxicity is limited to a very slim minority of players and that nearly 99 percent of all in-game interactions are either positive or neutral (Lin, 2015).

specialized skills that cannot hope to be sufficient for victory unless they are balanced out by other heroes and classes. As a consequence, players often specialize with one or two heroes and will strive to be part of a team that allows them to play their preferred part. This allows people to connect with a wide array of others, establishing potentially long-lasting relationships that otherwise would never have been forged if the game did not exist.

But while this is the case for *Overwatch*, and while large percentages of gamers have made friends through games that they have never even met in real life, one has to question whether or not this is the normal way that interactions among strangers play out. *Overwatch*, and other games like it, place a high premium on skill specialization, stability, and team performance. Their mechanics are more encouraging to the establishment of long-term connections. In most other online games however, players' interactions with each-other are short-lived: the path of their lives touch tangentially for a brief five-to-ten minute match before peeling off in opposite directions, never to rejoin again. It is possible for long-lasting relationships to get their start from single matches, and most gamers can claim to have at least one friend that they have made doing so, but it is an exceptional occurrence. Players may communicate, they may cooperate, and the mechanics of the game may encourage them to have a modicum of faith, but the experience is so brief that it is difficult to claim that they are able to affect each others' political actions and attitudes. Their relationships far are too brief to develop social capital.

Does this mean that these interactions are politically inconsequential? Hardly. Embedded within the social capital paradigm is a factor that is known to independently affect political behavior. In fact, it is perhaps the core prerequisite to the development of social capital in the first place: political talk. Political talk signals to conversants the kinds of issues that are currently important, provides them with the information needed to navigate political decision making, augment political knowledge, and increase participation. In the case of social gaming, the fact that this information comes from people who are cooperating towards the same ends may amplify the effectiveness of the message.

In the case of gaming with strangers online, in the most common kinds of games currently on the market, it may be that political talk plays a stronger role in encouraging political behavior than social capital; although, the effect of talk may be increased by the fact that said games contain mechanical elements that *would* develop bridging social capital were only the relationship less fleeting.

3.4.2 Game Requirements for Social Mattering

Unlike explicit and circumscribed mattering, games that matter socially do not need to place as high a premium on visibly considering things linked with issues in the real world. Indeed, narratives take more of a back seat to mechanics for this kind of mattering. It is less important if people are relinquishing the seven lords of Hell or if they are sprinting across the grid-iron—what matters is that they are doing so together. Ultimately, it is the rules of the world that shape these interactions and even allow them in the first place.

To understand the kinds of mechanics needed to facilitate social interaction and capital, it helps to break down my definition into four main components: A social component, a communication component, a cooperation component, and a trust component.

First, the social component: Social capital must be social; it can only be generated in groups of individuals who are at least somewhat acquainted. Consequently, the games must allow for multiple people to play at once. In order for the games to also allow players to develop bonds with one another, it must be possible for people who already know each other to play together or for people to be given ways to make friends out of strangers. But this is merely a necessary, not sufficient, condition. After all, as with *slither.io*, some games will allow many players but also allow for zero social capital development.

This is where the second component, communication, comes in. Members must have the ability to communicate and interact with each other. The big reason why *slither.io* is not expected to have political consequences is because players are not able to reliably exchange information. The only way they can interact is by trying to eat each other—or by frantically trying to avoid getting eaten. Players will not be able to receive political information and/or develop deeper ties if

the games offer no way to extract meaning from their interactions with one another. Additionally, it does not hurt if the narrative elements present opportunities to discuss explicitly social, moral, and political topics—or provides players with enough freedom that they can talk about anything more generally, as such issues often crop up given enough time. However, the most important aspect is that players are given the means and opportunity to exchange meaningful information.

Third, the cooperation component: The aforementioned interactions must at least sometimes include some form of cooperation and reciprocity. While there is often camaraderie in competitive pursuits, games that are too competitive are not going to foster connections between players that will allow them to influence one another. Relationships often rely on some form of *quid pro quo*, tacit or otherwise. Games have to not only offer mechanical means for players to interact, but also interact in ways that allow them to help each other in pursuit of the same goal. As before, it certainly does not hurt if said goal touches on a social, moral, or political issue (such as the aforementioned exorcising of primordial evils), and its effect hinges on the overall context of play, but the key element is the mechanical encouragement for players to help each other for a common goal.

Fourth, the trust component. Trust is both an outcome of cooperative actions and a facilitator. After all, people who do not trust each other at all are unlikely to perform actions for each other. Games can encourage trust through their mechanics by presenting challenges that requires players to put faith in the abilities and intent of others. It is not enough that players are encouraged to cooperate, it is that it is impossible to accomplish the desired task without delegating responsibilities to others, entrusting them to perform their tasks.

Games encouraging these four components are going to facilitate increased political behavior. The more social capital one has, the more likely they are to participate in politics or be interested in it—even if that social capital is forged or maintained through video games.

3.5 A Fourth Kind of Mattering?

There is the possibility of a fourth kind of mattering—distinct from the circumscribed, explicit, and social modes described above. These three place a large emphasis on the actions and

intentions of game designers. Whether they include content explicitly tied to processes in the outside world, whether they encourage players to elaborate on their experiences, or whether they include mechanics that allows social capital to flourish—the focus is on how deliberately designed components elicit an effect. While not incorrect, this focus on authorial intent and execution neglects an important truth inherent to producing creative works for public consumption: once it is out in the world, it is owned by the world. People create meaning in highly subjective ways—and when this process of meaning generation takes place in the chaotic systems driving the popular agenda, who can honestly say that they know what is going to happen?

In his hilarious and insightful *But What if We're Wrong* 2017, critic and essayist Chuck Klosterman discusses how there is really no way of predicting, in the moment, the sorts of things that people will gravitate to and find meaningful in the future. It was only years after Herman Melville died destitute that *Moby Dick* was recognized as a quintessential example of the modern novel. Physicists publicly asserted that we had learned all that we needed to know about the world just before Max Planck helped usher in the age of quantum mechanics. Portraits sketched throughout the 20th century imagining what life would look like in the year 2000 are more quaint than prescient: Chrome spires shoot up into the sky, people soar around in jetpacks and flying cars, mundane chores are eagerly completed by servile robots. Most of what laypeople and experts imagined ended up being completely wrong. The often comical gap between what was portrayed and what was really actualized illustrates how our predictions of the future are constrained by the values and cultural fixations of the present. Time marches to a beat that we can never quite pick-up. For all that I know, the highly anticipated sequel to the cute and cuddly physics simulator *Kerbell Space Program* will somehow catalyze our first manned trip to Mars. Sometimes things can matter by pure accident—their meaning imbued by the way that the game interacts with the vicissitudes of culture.

While the pathway between *KSP2* and bootprints in the rusted Martian soil is incredibly narrow, there is actually a no-less improbable example of the principle playing out as I write this. In June of 2019, citizens of Hong Kong began a months-long series of protests intended to bolster

democracy in the city and repel the encroachment of authoritarianism from mainland China. On October 6th, as the protests continued almost nightly, a professional *Hearthstone* player living in Hong Kong was being interviewed after a match. At the end of the interview, he donned ski goggles and a gas mask and cried out "Liberate Hong Kong! Revolution of our age!" before the camera was hastily cut out. The company who developed *Hearthstone* and put on the event, Blizzard Entertainment, banned the player for violating a rule against "[bringing] the company into public disrepute, offend[ing] a portion of the public, or otherwise damag[ing] Blizzard (sic) image" (Statt, 2019). Blizzard's ban came just after the NBA rebuked a general manager's criticism of the Chinese state in a baldfaced attempt to maintain the organization's access to the nation's profitable markets. Blizzard's action, taking place in this cultural moment, was seen as similarly motivated by the bottom line.

This led to an uproar in the gaming community. People began canceling their membership to Blizzard's flagship title *World of Warcraft* and demanding refunds for their other games. Many of those who continued playing began talking about the Hong Kong protests in-game at every conceivable opportunity, both to raise awareness but also to bite their thumb at Blizzard's perceived censorship. One notable act of *en masse* defiance came when people began appropriating Blizzard's own material to voice their support for the protesters. One of the playable heroes in *Overwatch*, another Blizzard property, is a Chinese climate scientist named Mei. People around the world have taken to Photoshop to reimagine her as a fellow fighter for Hong Kongese democracy: she has been given gas masks, protest signs, and been rendered in all black (sans periodic gray imprints of the Hong Kong orchid) to symbolize "her" support for the cause. She has been given new life as a symbol of antagonism to the company that made her and to the autocratic country from which she was inspired. Incredibly, these altered likenesses have been found on some of the signs carried by the protesters (E. Kent, 2019). The situation continues to evolve. No one quite knows what will happen next—just as no one could have foreseen it happening as it has.

The point of offering this possible means of mattering is not to cast the previous three sections into doubt. I am not throwing up my hands in surrender to the chaotic procession of culture. Weather is a chaotic system; it is virtually impossible to predict further than three weeks in advance, but meteorologists have gotten quite adept at predicting weather up to three days (Spiegelhalter, 2019). Similarly, we can be confident in the immediate and mid-term effects resulting from the thorough work of game designers while acknowledging that we have no idea how things will play out in the long term. It is only intellectually honest for a theory of what games will matter admits that there will be a broad group whose importance will only be fully appreciated the moment it actually becomes important. And, similarly, the ways that these will affect political behavior and civic attitudes will be contingent upon the conditions surrounding their emergence.

3.6 Summary

Throughout this chapter, I have tried to motivate a theory that allows us to get a handle on what games will matter, when, and why. First, I examine research derived from Slater and Rouner's Extended Elaboration Likelihood Model (Slater & Rouner, 2002) to show how games will leverage factors such as engagement, identification, and resonance can encourage attitude change from games presenting socially, morally, and politically relevant information. Second, leveraging Zaller's 1992 RAS model, I show that some games will matter because they explicitly consider political events, actors, and/or processes. Information presented in these sorts of games are basked in a factual light, but how likely it is for that information to be received by the player and accepted into their overarching distribution of attitudes will depend on the game's developers. Third, I expand on the definition I gave of social capital in Chapter 2 to explore the contexts of when we can expect it to emerge and the mechanical requirements needed to encourage it. Finally, I discussed a fourth form of mattering that is difficult (if not impossible) to fully encapsulate if only for the fact that its emergence is dependent on the chaos of culture.

These are not **exclusive** categories. *Civilization* explicitly represents abstracted versions of political processes and can be played with friends. *Battlefield 3* explicitly concerns war but also,

tangentially, government ineptitude. And, as illustrated earlier, *Overwatch* has managed to matter both socially and accidentally. It is possible that games which manage to cross multiple modes of mattering, such as multiplayer games that touch on explicit political issues, might confer effects greater than the sum of its parts—but this study is far too nascent to conclude anything more certain than the fact that it is possible. Games can matter in multiple ways; what is important is that they matter in at least one.

In a similar vein, we should not try to establish a one-to-one correspondence between the three core arguments discussed in the last chapter and the three main modes of mattering discussed in this one. They pertain to two different parts of the overall question. The three core arguments (that games can influence us through media effects, interactivity effects, and through social capital) concern the different causal paths that meaningful game experiences can take to engender behavioral outcomes. This theory deals with what makes the games meaningful in the first place, proposing the elements needed to impart that meaning given the prevailing theories in political psychology and sociology. This chapter deepens our understanding of the games themselves, of the media precipitating the expected behavioral effects. With this greater understanding in hand, we are better equipped to pursue the question at the heart of this work: How can video games increase participation and affect civic attitudes?

The methods I use to get a first stab at this question is where I turn to next.

CHAPTER 4
METHODS

Three blind men approach an elephant with the hope of understanding its defining characteristics. One man touches the elephant's trunk, another its side, and the third its ear. The man touching its trunk observes that the animal is long and muscular and concludes that elephants are like scaleless pythons. The second man touching the side observes that the animal is leathery and broad, concluding that elephants are effectively giant cows. The man who touches the elephant's ear concludes that it is thin and flexible. He reasons that it is similar to the membrane of a bat's wing and concludes that elephants are giant, flightless bats. They all confidently announce their findings. When they realize they have such different views they each laugh at the foolishness of the other—and presumably try to expound on why they and only they are irrefutably correct by writing up their observations for an academic journal. (Ideally one with a high impact factor.)

This popular story, adapted from an Indian parable, usually elicits a laugh—or maybe a tired chuckle depending on how many times one has heard it. However, we only find the explorers' predicament funny because we know what an elephant actually looks like. Knowing the truth before the fact makes it easier to integrate individual observations to come to the right conclusion. The story is often framed so that the lesson to be learned is something like "you need to sometimes take a step back to get a good look at the whole phenomenon." While valuable, this takeaway belies the fact that it would not matter how many steps the explorers took backwards; their blindness precludes them from getting "a good look" or any comprehensive "look" at all. In the absence of foreknowledge, can anyone really blame them for relating their observations to what they know from before? It is why rhinoceros horns were once evidence of unicorns, dinosaur skeletons evidence of dragons, and, fittingly, elephant skulls evidence of cyclopes—the forward-facing hole from their prolonged proboscis being understandably mistaken for an eye socket. It was only when additional evidence was gathered did we learn that rhinos are a tad too pudgy and gray to be unicorns, that dinosaurs were long extinct and could not breath fire or take flight, and that elephants spent more time grazing in the savanna than harassing ancient Greek adventurers. The tragedy of the blind explorers was that there were multiple observations, they were just unwilling to accept that approaching the question from different angles could yield

disparate but equally valid observations. Their folly did not come from focusing on individual elements—all research project necessarily involves narrowing one's scope. Their folly was in not making a concerted effort from the start to coordinate their observations in the pursuit of understanding the singular thing before them.

Fortunately, this dissertation is in a much more favorable position than the metaphorical explorers. Thanks to the works of prior investigators examined in Chapter 2, there is ample reason to suspect that video games effects on political participation and attitudes exist. We may not be 100 percent certain about what the elephant looks like, or totally certain that it exists at all, but there is at least good reason to believe in its existence and to appreciate that it is not a cyclops. Nevertheless, I do find myself in an appreciably similar scenario. The novelty and breadth of the question I tackle here means that relying on just one observation, one way of looking, would be far too limiting.

The lesson learned from the exploerers' folly is embedded in within the principle of *triangulation* (Munafò & Davey Smith, 2018). As the name implies, the process involves using different perspectives to hone-in on a correct answer. Employing it would have enabled the explorers to realize, at the very least, that they were dealing with a large entity comprised of different shapes and textures. Maybe they could have even arrived at a preliminary sketch if they accounted for their positions relative to each other. In my case, it involves utilizing a number of different methods to approach the same question. This allows me to be more certain of the fact that games have political consequences as I have reached that conclusion through various and varied observations and it gives the ability to get a more nuanced understanding of their size, scope, and causes.

This dissertation uses a combination of quantitative and qualitative methods: namely surveys, experiments, content analyses, case studies, and archival research. Each means of analysis carries intrinsic strengths and weaknesses. A well-constructed cross-sectional survey can illustrate how (un)common some relationship is in the general public (i.e, they have what is called strong external validity) but rarely offers insight on causality. Experiments, when leveraging

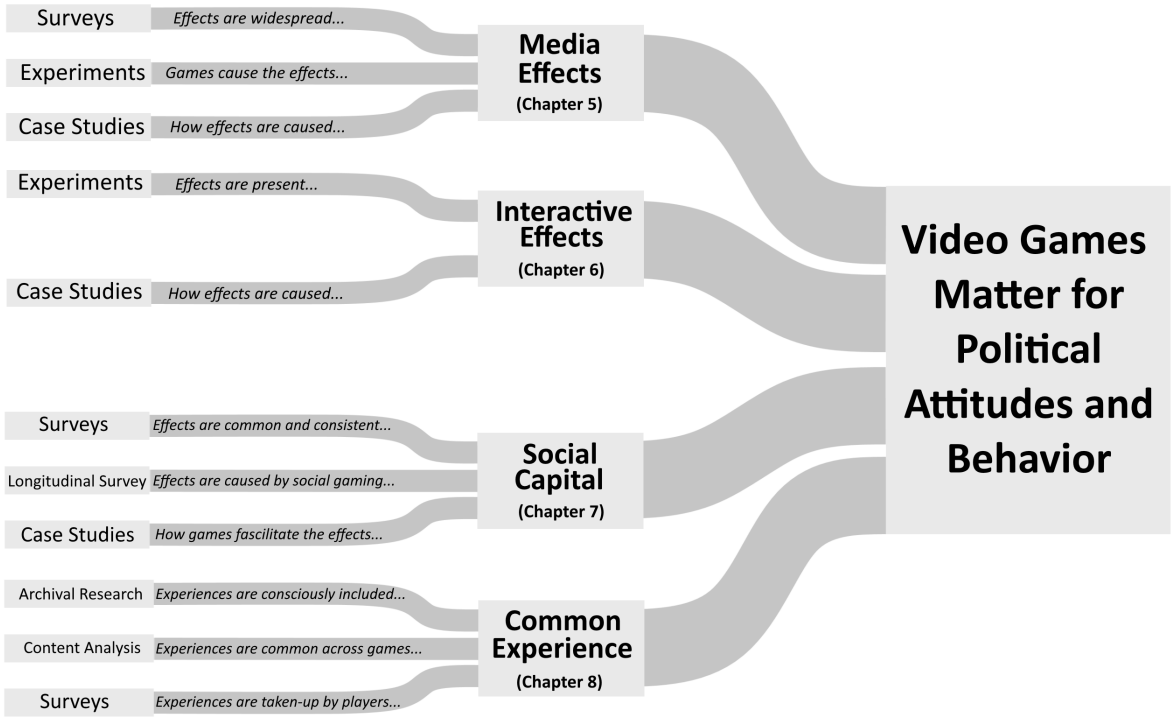

Figure 4-1. How the data and methods support the dissertation's four core arguments. The text on the lighter grey boxes describe—from left to right—the methods, argument, and conclusion. The text on the darker grey flows describes what it contributes to the next stage.

random assignment and controls, can discuss causality until the cows come home—but they rarely present conditions similar to what people experience in the real world (that is, they have high internal validity but often low external validity). Content analyses can demonstrate the commonness of topics in media and help with theory development but are unable to discuss the effects of these topics on attitudes and behavior. Case studies and archival research frequently (although certainly not always) sacrifice generalizability for the sake of depth. Alone, these methods all miss major components of what makes games relevant to political behavior. But, by deploying them together, we can use the strength of some methods to ameliorate the weaknesses of others. Figure 4-1 provides a visual preview to how these methods play off each other (pun partially intended) to arrive at the dissertation's arguments. The leftmost text convey the methods I use, the italicized text summarizes the point of the method in that context, and the larger text are

the core arguments of the dissertation explored in Chapters 5, refch6, refch7, and refch8. In a dissertation with a lot of moving parts, it can be helpful to have a schematic to refer back to.

In this chapter, I flesh out all of the methods underpinning my arguments. As a warning, it will get a tad technical ahead. Those interested in knowing how the data were gathered, how variables of interest are conceptualized, and what statistical/analytical procedures are used to model the raw data are encouraged to read on. Those who are less interested should feel free to skip ahead to the next chapter where I begin presenting the results of the analyses.

For those who have decided to soldier on, the remainder of the chapter will look at each means of data collection (surveys, experiments, content analysis. case studies, and archival digging– in that order) and do three things. First, I detail the purpose(s) of the data gathered by that method. Second, I describe how it was collected as well as how the variables of interest are operationalized. And third, I discuss how the data are analyzed.

4.1 Surveys

4.1.1 Purpose

This project analyzes five different surveys from three separate data collection projects. The first is the Pew Research Center's study on Gaming and Civic Engagement of Teens and Parents from 2008 (Pew, for brevity's sake), the second is the Youth Political Participatory Survey Project (YPPSP) from 2011, 2013, and 2015, and the third is the Gaming and American Engagement in Political Life and Society (GAmEPLS) survey, a custom instrument I fielded in 2019. In general, the purpose of including these projects is to establish a relationship between various kinds of video game play and political participation/attitudes that is generalizable to a broader population and, in-so-doing, demonstrate that the relationship between video games and political behavior has a high degree of external validity.

While all the surveys share this general purpose, there are also specific purposes for each of the three survey projects. The Pew Research Study establishes 1) an association between the content of video games and increased political activity; and 2) an association between the content of video games and changes in civic attitudes. The mix of multiple independent and longitudinal

waves of the YPPSP establishes 1) a robust connection between group-based gameplay and increased political participation and pro-civic attitudes; and 2) that gaming causes increased political participation and the civic attitudes. However, both samples are only representative for the United States' teen and youth populations, respectively. Neither is capable of generalizing to the greater American public. The GAmEPLS Survey addresses this gap by establishing 1) an association between the content of video games and increased political activity among the US public writ large; 2) an association between the content of games and increased commitment to pro-civic attitudes among the US public writ large; and 3) an association between group-based gameplay and increased participation—and greater commitment to pro-civic attitudes—for the US public writ large. However, the survey is not only a conceptual replication of these previous works. It also 4) demonstrate that people are receiving socially, morally, and politically relevant content through popular, off-the-shelf games; as well as 5) clarifies the mechanisms underlying the association between group-based play and increased participation.

Ultimately, the early teen and youth studies show the strong potential for the effects of games among US adults by demonstrating them among US youth. The GAmEPLS survey verifies this potential by demonstrating similar associations among adults.

4.1.2 Data

4.1.2.1 Pew Research

The Pew Research data derives from a telephone survey of American children between the ages of 12 and 17, as well as one of their parents. The survey was fielded by Pew from November 1, 2007 through February 5 2008;[1] 1,102 child-parent pairs were surveyed for a total sample of 2,204. The sample was designed to be representative of American teenagers based upon contemporaneous census reports. The focus of the survey was to investigate the gaming habits of American teenagers, their parents' involvement in these habits, and how both may (or may not) contribute to the teens' subsequent civic involvement.

[1]The dataset is publicly available here: https://www.pewresearch.org/internet/dataset/february-2008-teen-gaming-and-civic-engagement/

4.1.2.2 Youth Political Participatory Survey Project (YPPSP)

As the name implies, the YPPSP investigates the political activity of American youths while also asking them about their media practices, engagement, and attitudes more generally.[2] Like with the Pew data, the primary focus of the investigation was on American youths—although those interviewed by the YPPSP are between 15 and 27 years old as opposed to those who are still in high school. The YPPSP has released data for the 2011, 2013, and 2015 waves which interviewed 1,782, 1,741, and 1,033 individuals, respectively. These surveys included an oversample of Black and Hispanic youth to accurately measure their activities and opinions—but the data contained weights to make the sample mirror the youth population according to Census estimates in those three years.

4.1.2.3 GAmEPLS

The GAmEPLS survey is a custom web-based instrument of American adults I fielded through YouGov. The instrument was in the field from February 28th through March 5th 2019. It interviewed a sample of 772 Americans over the age of 18 selected by YouGov so as to be representative of the nation as a whole based upon a number of Census estimates (age, sex, race/ethnicity, geographic area, etc). The data includes questions about respondents' social and individual gaming habits, their political participation, as well as their interest in politics and political affiliation.

4.1.3 Analysis

4.1.3.1 Pew

The data from Pew is able to address both outcomes of interest: Political participation and pro-social attitudes. Political participation is measured by summing how many political actions respondents undertook. The survey asked the teens if they had volunteered, raised money for charity, discussed politics around a recent election, if they stay informed on current events, and if they have taken part in a recent protest. Respondents could answer "yes" "yes, but not in the last 12 months," or "no." Answering either kind of "yes" to any of those questions was coded as a 1;

[2]These data were originally gathered by Civic Leads, centered out of the University of Michigan. The data are currently available here: https://www.icpsr.umich.edu/web/civicleads/series/768

"no" was coded as 0. I then use them to construct an additive index which summarizes respondents' participation. "1" means participants engaged in any one of the activities, "2" means any two of the activities, etc. A similar logic was used when constructing the variable measuring pro-social attitudes. Respondents were asked to what extent they (dis)agreed with the following statements: "Everyone should be involved"; "It is important to be involved"; "It is my responsibility to get involved"; "I am interested in politics"; "I can learn from people of backgrounds different than my own." Their answers were coded on a 5 point likert-like scale. These answers were then reduced to a single dimension using principal component factor analysis. This dimension was then rescaled so that it spanned from 0–1; values closer to one meant that respondents were more positively predisposed towards the civic attitudes while values closer to 0 meant less of a commitment to these attitudes.

Regarding my primary explanatory variables, Pew asked gamers how frequently they played games where they did any of the following: Learn about a social problem, approach an issue that is important to them, address a moral issue, design or help a community, and organize/manage groups of other players in-game. The responses for these questions ranged from "Do not play games"; "Never" experience this in games, "Sometimes" experience this in games, "Often" experience this in games, and "Always" experience this in games. As respondents indicate that they have these experiences more frequently, it is expected that they will have higher numbers of acts that they participated in and higher scores on the civic attitude scale.

Additionally, the dataset contained a variety of demographic variables and other important controls. These included measures of age, race/ethnicity, gender, parents' education and household income. The analyses on teen political participation also included a control for political interest. (This could not be included in the analysis on civic attitudes since political interest was one of the concepts used in the index). Additionally, since teen attitudes and participation are strongly correspond with that of their parents, I constructed a parent participation index where parents were asked the same participatory questions as the teens and included it as a control variables. Cases with missing responses on any of these questions, those where the

Table 4-1. Summary statistics for the variables analyzed in the Pew Research (2008) dataset.

Variable	N	Mean	Std. Dev.	Min	Max
Participation Index	1079	2.33	1.26	0	5
Parent's Participation	1089	2.42	0.98	0	4
Attitude Index	1065	3.89	1.07	0	5
Political Interest	1084	2.82	1.31	1	5
Frequency Playing Game Addressing a Social Problem	1012	2.45	0.68	1	4
Frequency Playing Game Addressing a Social Issue They Care About	998	2.41	0.68	1	4
Frequency Playing Game Addressing a Moral Problem	1018	2.57	0.74	1	4
Frequency Playing Game Where Player Designs City/State/Polity	1010	2.47	0.71	1	4
Frequency Playing Game Where Player Organizes Game Groups	1023	2.31	0.66	1	4
Parent's Education	1098	4.8	1.57	1	7
Household Income	986	5.68	2.03	1	8
Race (1=White)	1094	0.81	0.39	0	1
Sex (1=Male)	1102	1.49	0.5	0	1
Age	1102	14.63	1.7	12	17

respondent skipped or indicated that they did not know, were dropped from the analyses.

Unless otherwise noted, all of the statistical analyses for the behavior index are performed using negative binomial regression. This is due to the fact that the dependent variable is counting the number of actions the respondents performed, making quantitative social science's default method, Ordinary Least Squares (OLS) regression, the improper choice here.[3] I report the

[3]While count-based dependent variables often lend themselves to Poisson regression, Poisson regression assumes that the variable's mean and variance are the same (Long, 1997) However, my data does not adhere to this assumption instead exhibiting overdispersion. Consequently, negative binomial regression is the most appropriate modeling choice. To make sure my findings are robust to modeling choice, I also investigate the associations using OLS regression. Since the results are substantively the same, I instead choose to focus on reporting the results from the more appropriate negative binomial regressions and leave the OLS results in the appendix for the curious.

incidence rate ratios for ease of interpretation. Due to the continuous nature of the Civic Attitude Scale, however, OLS it is the proper method to model its relationship with the frequency of game experiences. In those cases, I report unstandardized regression coefficients.

4.1.3.2 YPPSP

The focus of the YPPSP's data is to investigate if social gameplay is associated with increased political participation and increased pro-civic attitudes. As with the Pew Research data, this was operationalized by identifying questions in the instrument asking about the respondent's participation in politics, assigning instances where an action was taken as a "1" and those where it was not as a "0," and summing them into an overall index of political participation. Unlike the Pew Research data, however, each wave asked respondents about more than just four different ways of participating. A lot more. 2011 had 16, 2013 had 30, and 2015 had 28. Although there were a few items that were not consistent across all three waves (2011, for instance, was the only wave to include circulating a political cartoon), a number of measures were repeated all three times including whether respondents voted, signed an online and/or offline petitions, marched/protested, and discussed politics with others.[4]

The questions the survey had about gaming concerned their social elements as opposed to the content of the experiences, asking respondents how frequently they "participate in a game community, guild, competition, etc" ranging from "Never", "Less than once per month", "At least once per month", "At least once per week", and "Daily." Additional controls included age, sex, race, education, household income, and level of political interest.

As with the Pew Research data, the preponderance of the statistical analyses are performed using negative binomial regression. Specifically, all of the analyses which investigate the association between group-based gaming and political participation within the individual waves

[4] A keen observer may notice that the number of observations for the participation indices is far smaller than other variables. Although a smaller number is virtually inevitable when you construct a measure that sums across 19 items (and drops people who "could not remember" or "did not know" whether they did the action or not), the main reason for this noticeable drop is the fact that the youngest people in the sample were 15—which precludes them from being able to vote. This resulted in a substantial number of participants being dropped from the analysis. The substantive conclusions do not change with voting removed from the index.

utilize negative binomial regression.[5] However, the YPPSP does not include a battery of questions for civic attitudes. Indeed, it has only one prominent political attitude: One's interest in politics. This is operationalized by asking participants their level of agreement (Strongly (disagree; Disagree; Agree; Strongly agree) with the statement: "I am interested in political issues." Because these can be ordered from minimum levels of agreement (e.g., "Strongly Disagree") to maximal levels (e.g., "Strongly Agree"), this can be investigated using Ordered Regression. In this case, I report exponentiated regression coefficients so that the results can be discussed in the more intuitive odds-ratio.

However, the point of the YPPSP is not just to demonstrate an association between group-based gaming and political behavior. It is to take advantage of the fact that it follows-up with hundreds of its previous respondents to see if gaming is causal with respect to participation.

There are a variety of ways to attempt to identify causality in statistical social science. For those interested in longitudinal data though, one of the most prominent methods is to investigate whether or not the relationship exhibits Granger causality (Granger, 1969).

In cross sectional surveys, social scientists make hypotheses about the effect of some variable, X, on some outcome, Y. X and Y, though, are (generally) measured at the same time making it difficult to determine which came first and, thus, which "caused" which. It could be that X caused Y or that Y caused X; we are not able to know until we can definitively identify their location relative to one another in time. All we know with this kind of data is that they were measured at the same instance in time, which can be labeled t. These variables can be rewritten as X_t and Y_t in order to denote their place in time. If we have data that extends backwards in time, at say $t-1$, we could then include the prior value of these variables to see if the relationship is caused by what happened in the past and clarify which of the two is truly causing the other. Formally, to test if it is X that causes Y:

$$Y - t = \beta X_{t-1} + \beta \mathbf{Z_t} + \varepsilon \tag{4-1}$$

[5] As it was with the Pew data, OLS regression was also performed as a robustness check and there was no substantive difference in the results between the two models. Those models are presented in the appendix.

and to test if it is Y that causes X:

$$X - t = \beta Y_{t-1} + \beta \mathbf{Z_t} + \varepsilon \tag{4-2}$$

where β represents the estimated regression coefficient, ε represents the residuals of the equation, and $\beta \mathbf{Z_t}$ is the vector of additional variables and controls measured at time t. The lagged dependent variable (Y_{t-1} in equation 1 and X_{t-1} in equation 2, respectively) is included since many processes measured across time demonstrate considerable inertia; excluding it would incur serious omitted variable bias and potentially lead to incorrect estimates for the remaining variables of interest. If the coefficient for the independent variable is statistically significant, then it could be said that that variable "causes" the dependent variable. If it is not significant, than the claim of causality (or at least Granger causality) cannot be asserted.

However, there are multiple flavors of Granger causality—each designed to tackle a specific issue that the standard version is not able to accommodate. For my purposes, I do not believe the link between group-based gaming and participation will be exhibit Granger causality but instead exhibit *instantaneous* Granger causality (or IGC) (Lüketpohl, 2005). Whereas standard Granger causality imposes a very strict order in time (X_{t-1} is what causes Y_t), IGC allows for contemporaneous effects to also influence the dependent outcome (X_{t-1} **and** X_t cause Y_t). It is then investigated by testing if all of the predictive factors are jointly statistically significant (e.g., through a Wald χ^2 test). Formally:

$$Y - t = \beta X_{t-1} + \beta X_t + \beta \mathbf{Z_t} + \varepsilon \tag{4-3}$$

with the coefficients for both X_t and X_{t-1} being tested to see if the variables can be said to be *jointly* causal. For completeness' sake, the Ys and Xs are switched when testing for ICG in the other direction.[6]

[6]Of course, both Granger causality and IGC can be measured over the course of more than two waves of data. The two wave case just happens to be both the simplest to explain as well as reflective of my data.

The reason I believe that the relationship exhibits IGC as opposed to the standard version is best explained by analogy. It is well known in political behavior that church membership causes increased political activity through a host of different mechanisms—mobilization not least among them (Anderson, 2009; Wald, Owen, & Hill, 1988). The longer that one is a member, the more likely it is that they will experience an increase in their political participation. But imagine three people, two who attend the same church and one who never attended church at all. The church coordinates politically relevant activities, offers means of training members to more effectively organize and interact with the political and social world, and provides them with opportunities to engage in politically-related talk. One should expect that the two church goers would have more political involvement than the person avoiding it. But say that one of the two loses their faith and stops attending. They no longer have the access to the informative and energizing talk, are no longer aware of the opportunities, and no longer receive encouragement to participate. Should we expect that, just because they had access to these resources in the past, they will participate at the same rate as the person who continued attending? Logically not.

Exiting the groups means that the now-faithless former churchgoer no longer gets up-to-date information about how and when to participate, does not get the encouragement from more active members of the congregation, and is probably less aware of the day's most pressing issues in the first place. Although decidedly far more secular (unless one is inclined to see the relentless demon-hunting in the *Doom* series as ecclesiastical)[7], one would expect game-based groups to work in a largely similar fashion. That is, being in the group for extended periods can be reasonably expected to increase the effects membership has on participation, but it is the benefits currently dispensed by the group (i.e., current information, encouragement/peer pressure, etc) that is going to matter the most for causing political participation.

[7] I originally wrote this comment as a joke; but in playing 2020's *Doom Eternal*, it ends up being explicitly suggested that the main character, the Doom Slayer, is a God—or at least a supernatural embodiment of humanity's wrath when threatened with extinction. The serendipitous coincidence was too good to pass-up mentioning.

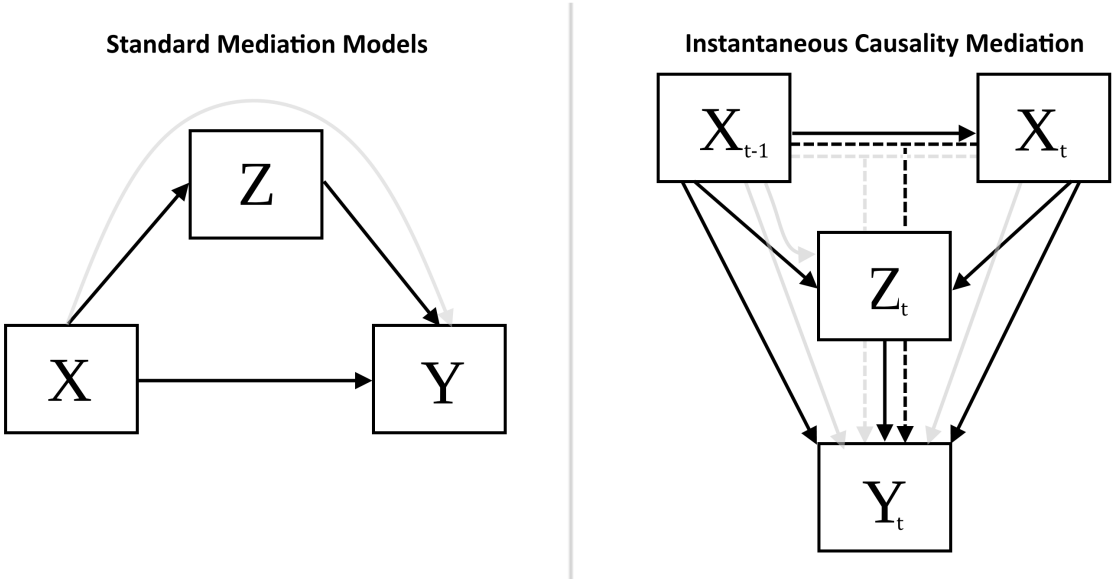

Figure 4-2. Conceptual model for the standard and instantaneous mediation analyses. Black lines represent direct effects, grey lines represent indirect effects, solid lines represent individual effects, and dashed lines are joint effects.

In order to test if the relationship exhibits IGC, I use negative binomial regression to estimate if playing socially in both 2011 and 2013 are jointly significant when predicting participation. Because social gameplay and political attitudes are not measured as a count but, instead, as ordinal scales, I use ordered logistic regression to see if political participation in 2011 and 2013 is jointly significant when predicting social gameplay and whether social gameplay is a predictor of political attitudes and vice-versa. While it is certainly possible that there exists a reciprocal relationship between the two (e.g., participation to exhibit IGC of gaming *and* gaming to exhibit IGC of participation)—such relationships have been seen in studies of media effects before, I expect that, *at the very least* gaming will be shown to be a viable source for the causal relationship.

In an ideal world, I would test for ICG between 2013 and 2015 and/or use all three waves simultaneously to test for more complex causal relationships. Unfortunately, the 2015's longitudinal sample was solely drawn from those who participated in 2013. Unfortunately, because the YPPSP did not reach out to those who participated in both 2013 and 2011, there were

simply not enough long-term participants in the 2015 wave to test for more complex forms of causality.

In addition to the test for IGC, I also use the longitudinal survey data to test if the relationship between social gaming and political participation, as well as social gaming and political attitudes, is mediated by social capital. Unfortunately, the YPPSP does not contain a measure of social capital. As mentioned briefly above, however, it contain the frequency which people talked about politics online. I constructed a new participation index for 2013 and 2015 that does not include talking about politics with others online. In order to test that the relationship is mediated, I use structural equation modeling (SEM). SEM combines the benefits of path analysis and factor analysis in a way that provides intuitive demonstrations and interpretations to all of these relationships. SEM can estimate multiple models simultaneously to more accurately predict effects than standard regression techniques. For my particular purposes, the SEM framework also has the bonus of more appropriately accounting for the fact that levels of social gaming in 2013 will be strongly correlated with levels in 2015 by modeling the former causing the latter.

Traditionally, mediation is visualized as being produced by a factor lying "in" the pathway between cause and effect. There is a direct effect between the independent variable (X) and outcome (Y), but X also influences the mediating variable (Z) which itself has an influence on the outcome. Consequently, in addition to the effect of X on Y directly, X also influences Y through its influence on Z. This can be seen in the left-hand panel of figure 4-2.

However, while this conceptualization would comport easily with tests of "traditional" Granger causality, it does need to be adapted for ICG. The ICG model posits that the effect of social gaming on political behavior *jointly* runs from past and contemporaneous gaming to participation. If social capital is to mediate their joint relationship, it ought to be in the causal paths of **both** gaming in 2013 and 2015. If the mediation is to be significant, it will then be need to be based upon the sum of the indirect effects from 2013 and the indirect effects from 2015. Traditionally, the indirect effect is calculated by multiplying the effect of the path from X to Z (a) by the path from Z to Y (b). The equation calculating the indirect effect for an ICG mediation

model is substantially more complicated. This is because there will be an indirect effect on Y from X_t *and* X_{t-1} through Z— but X_{t-1} also indirectly effects Z through its relationship with X_t!

This puzzle can be effectively demystified by realizing that the model is calculating at once two "standard" mediation models ($X-t$ on Y through Z and X_{t-1} on Y through Z) and a sequential mediation model (X_{t-1} on Y through X_t then Z). Calculating the indirect effect thus requires multiplying the paths from X_{t-1} to Z (a) by the path from Z to Y (b) and adding it to the product of X_t to Z (c) and Z to Y (b), and adding that to the product of X_{t-1} to X_t (d) by X_t to Z (c) and Z to Y (b). Or:

$$(a \times b) + (b \times c) + (d \times c \times b) \tag{4-4}$$

The right-hand panel of Figure 4-2 visualizes the theoretical model to be tested for the mediation analysis. Table 4-2 presents the summary statistics for the variables included in my analysis of the YPPSP.

Table 4-2. Summary statistics for the variables analyzed in the YPPSP datasets (2011, 2013, and 2015).

Variable	N	Mean	Std. Dev.	Min	Max
YPPSP (2011)					
Participation Index	1951	3.11	3.56	0	19
Frequency of Group Play	2886	2.25	1.49	1	5
Political Interest	2871	2.36	0.89	1	4
Education	2906	2.19	1.05	1	4
Age	2920	19.9	3.17	15	25
Gender (1=Female)	2911	1.56	0.5	1	2
Household Income	2737	10.07	4.91	1	19
Race (1=White)	2920	0.3	0.46	0	1
YPPSP (2013)					
Participation Index	549	3.25	3.34	0	19
Frequency of Group Play	1014	2.38	1.51	1	5
Education	1033	2.42	1.12	1	4
Age	1033	20.97	3.91	15	27
Gender (1=Female)	1033	1.55	0.5	1	2
Household Income	1024	10.86	4.85	1	19
Political Interest	1012	2.27	0.87	1	4

Table 4-2. Continued.

Variable	N	Mean	Std. Dev.	Min	Max
Race (1=White)	1033	0.34	0.48	0	1
Race (1=Black)	1033	0.23	0.42	0	1
Race (1=Latinx)	1033	0.23	0.42	0	1
YPPSP (2015)					
Participation Index	771	2.61	3.2	0	19
Frequency of Group Play	1021	2.17	1.45	1	5
Political Interest	1010	2.27	0.87	1	4
Age	1033	22.86	3.94	17	29
Education	1032	2.74	0.98	1	4
Gender (1=Female)	1033	0.55	0.5	0	1
Household Income	1005	11.02	4.89	1	19
Race (1=White)	1033	0.34	0.48	0	1
Race (1=Black)	1033	0.24	0.42	0	1
Race (1=Latinx)	1033	0.23	0.42	0	1

4.1.3.3 GAmEPLS

The GAmEPLS survey's purpose is to be both a conceptual replication of the relationships found in the Pew Research and YPPSP (generalizing the cross-sectional findings from both into the US adult population) and to extend the preliminary findings into more theoretically rich ground.

For the first purpose, the GAmEPLS survey asks the how frequently respondents play games that make them think about issues in society, about moral issues, and about how a polity should be organized. It also asks people how often they play in various kinds of groups (with friends in the same room, with friends online, and with strangers online) and how frequently they play by themselves. These operated as the core independent variables for the traditional media effects and social capital effects of video games, respectively. The dependent variable comprised an additive index of nine political actions that the respondent either did (1) or did not (0) undertake. These included voting, volunteering for a charitable cause, engaging in a protest, donating to a campaign, and boycotting goods for social reasons. As was the case before, I use negative binomial regression since the dependent variable is a count of all the actions the respondent performed. Similar to the YPPSP, there was only one variable proxying civic attitudes: How interested individuals were in politics. As was the case before, this relationship

was modeled using ordered logit. Control variables in both analyses included age, sex, race, household income, education, political ideology, and political party.

Regarding the second purpose, the survey asked a number of additional questions that neither the Pew nor YPPSP surveys had. After ascertaining how frequently respondents played games that made them think about social, moral, and political issues, I asked them to name the last game in which that experience occurred. This allows me to bolster my argument regarding the commonality of the experiences (Chapter 8) by demonstrating that people are indeed responding to the kinds of experiences uncovered in the content analysis. Additionally, I ask questions designed to further substantiate the claim that the effects of social play are mediated by social capital. The battery consists of 4 questions. The first asks how frequently respondents discuss issues in politics with those they play games with ("Never," "Rarely," "Sometimes," "Often," and "Very often"). The next three ask the extent that players agree ("Strongly agree," "Agree," "Neither agree or disagree," "Disagree", "Strongly disagree") with the following statements: "I trust the people I most frequently play games with," "I consider the people I most frequently play games with strangers" (reverse coded), and "If asked to do a favor by those I most frequently play games with (either in game or out), I will usually at least try to help." I investigate the role of this game-based social capital by reducing these items to a single scale using principal component factor analysis. As before, this is recoded to span from 0–1, where 1 represented greater amounts of game-based social capital and 0 represented minimal amounts of game-based social capital. This was then used to see if social capital mediated the relationship between social game play and political behaviors. Because I these data are cross-sectional, I use a traditional mediation analysis as expressed on the left-hand panel of Figure 4-2. (I discuss some of the critiques to using mediation analysis for cross-sectional data—and my response to them—in Chapter 7 .)

Table 4-3. Summary statistics for the GAmEPLS (2019) data.

Variable	N	Mean	Std. Dev.	Min	Max
Participation Index	762	3.64	2.71	0	9

Table 4-3. Continued.

Variable	N	Mean	Std. Dev.	Min	Max
Frequency Playing with Others in the Same Room	772	1.61	1.45	0	5
Frequency Playing with People Known Online	772	1.44	1.38	0	5
Frequency Playing with Strangers Online	772	1.43	1.38	0	5
Frequency Playing Alone	772	2.91	2.03	0	5
I Trust People I Play With	181	2.49	0.96	1	5
I Consider People I Play with Strangers	181	2.8	1.18	1	5
Help if Asked to Do a Favor	181	2.54	1.06	1	5
Frequency of Political Talk	564	0.79	1.35	0	5
Frequency Playing Game Addressing a Social Problem	772	1.58	1.45	0	5
Frequency Playing Game Addressing a Moral Problem	772	1.6	1.47	0	5
Frequency Playing Game Where Player Designs City/State/Polity	772	1.48	1.37	0	5
Party ID (7 = “Strong Republican”)	738	3.7	2.21	1	7
Household Income	679	5.93	3.27	1	16
Gender (1=Female)	772	0.51	0.5	0	1
Education	772	3.37	1.5	1	6
Race (1 = White)	772	0.68	0.47	0	1
Race (1 = Black)	772	0.1	0.3	0	1
Race (1 = Latinx)	772	0.13	0.34	0	1
Race (1 = Asian)	772	0.03	0.18	0	1
Race (1 = Native American)	772	0.01	0.09	0	1
Political Interest	727	1.71	0.92	1	4
Ideology (5 = “Strong Conservative”)	707	3.07	1.26	1	5
Age	772	50.18	16.72	19	92

4.2 Experiment

4.2.1 Purpose

The laboratory experiment presented in this dissertation is critical for establishing a causal link between the content of games and political behavior. While the YPPSP has a longitudinal component that enables causal reasoning, it does not contain any data on the kinds of content presented in respondents' gaming experiences. That falls to the Pew and GAmEPLS surveys—but they are cross-sectional and, thus, are unable to definitively determine what causes what and eliminate concerns that some unnamed third factor is driving behavior in both. By placing a game experience before questions about political attitudes and behavioral intent, the question of what causes what becomes much simpler to answer. Further, the process of random assignment alleviates the endogeneity issue by (roughly) evenly assigning people who would possess the hypothetical third factor across the experimental and control conditions. (At least if the endogenous factor is present among those recruited to the experiment.)

In addition, the experiment can also look at other media effects that are important to political science that were not considered in the Pew or GaMEPLS surveys. The experiment contains a number of questions relating to policy positions on a swath of issues including women's rights, climate change, and immigration. It also contains questions on how important issue domains are to the participant, their beliefs about how well a prominent political figure (President Donald Trump) is performing in a host of domains, as well as the figure's overall performance. Because the content of what the participants are experiencing is controlled and known, the experiment allows for the (heretofore unique) opportunity to comment on the ability of in-game experiences to affect attitudes in certain issue domains, to see if games can prime attitudes about political figures, and/or if they are capable of setting the agenda.

Overall then, while the surveys are included to demonstrate external validity, the experiments are included to demonstrate *internal* validity. That is, they more definitively demonstrate that the assertion that the content of games can influence political behavior and attitudes when controlling for all other factors.

4.2.2 Data

The data were gathered from a laboratory experiment conducted at the University of Florida from April 16–27, 2020. Participants were a convenience sample of students recruited from Political Science Depatrment's undergraduate listserv and through the College of Journalism's SONA platform, which allows students in the college to find and participate in experiments for course credit and/or cash incentives. Participants were randomly assigned into one of four groups—three of which played an online browser-based game, and the fourth was a control group.

I tried to balance a number of considerations while choosing these four conditions. First, I had to select a control condition. As with the surveys, I was primarily interested in comparing the effects of gaming versus not. In the survey, it was gamers versus non-gamers. Here, participants would either play a game or they would do something else. While I could have simply had respondents do nothing for the duration, that would be difficult to monitor given the remote nature of the experiment. We can hardly keep undergrads from logging into social media in class when *we are right there watching them*; it was pretty unlikely that the time doing "nothing" would actually be "nothing"—and given the small sample size, this could bias the experiment's outcomes. Plus, gaming is a leisure activity. If I wanted to see how gaming had any effects compared to "non-gamers," I wanted to have a condition that reasonably mirrored what non-gamers would be doing with that time. Consequently, I opted for the control group to watch an episode of the Netflix show *Tidying Up with Marie Kondo*—specifically, Season 1, episode 1. If my intention was to compare gaming with a popular way to pass the time, watching Netflix seemed like a reasonably solid option. I chose this show specifically because it is reasonably entertaining but does not intersect with any of the political questions I asked in the post-test[8]—or any of the topics addressed in the games that I ultimately chose for the three experimental conditions.

In choosing the games for the three experimental conditions, I tried as best I could to select the kinds of games that were examples of those that I focus on: Games that are primarily made for

[8] At least, it was not ***expected to.*** But, as I discuss in Chapters 5 and 6, this content did unexpectedly lead people to feel that they had witnessed content touching on an important social issue: namely, overcluttering and consumerism.

entertainment that incorporate socially, morally, and politically-relevant topics. This meant avoiding games that were explicitly activism projects or otherwise "serious." They also had to be of a high-enough quality that they invited increased elaboration or appeared to contain enough real information to be received and accepted as at least somewhat-factual. Additionally, I wanted the games to vary as much as possible on graphics, soundscape, and core mechanics—the idea being that if participants engaged in these experiences significantly differed in their post-game responses compared to those who watched *Tidying Up*, it could not be simply dismissed as being the result of one particular mechanic or artistic decision. While future research may very well show that these things moderate outcomes, I wanted to demonstrate that there was an effect linked to the content itself. I also wanted them to differ in the kinds of issue-areas that they touched on so that it could be possible to test other kinds of media effects—such as whether the games could prime attitudes towards President Trump, set the agenda for respondents, or shift policy attitudes.

The experiment was originally intended to be held in-person; respondents would filter into a dedicated, controlled experimental space and would be monitored to help with any technical issues and ensure that they had actually played the games. However, the need for physical distancing brought on by the 2020 Coronavirus pandemic ultimately scuttled those plans. The experiment shifted so that participants would work remotely using their own computers. I strove to limit the steps participants had to take to engage with their assigned stimuli since I would not be readily available to address technical hiccups. This meant hosting the *Marie Kondo* episode on a cloud account and using games that were freely-available online without any additional software downloads. Unfortunately, this severely limited the options I had at my disposal. Certain goals had to be readjusted for the experiment to be possible.[9] I ultimately picked three games hosted for free on itch.io:[10] *Sort the Court*, *Habitat*, and *The Final Earth 2*.

- In *Sort the Court*, players take on the roll of a king or queen sitting atop a throne and attempt to reign over a kingdom. The game tasks them to balance three resources:

[9]For example, I previously intended to have participants play games that largely mapped onto separate sociopolitical issues. This would have allowed me to better test for things like priming and agenda-setting effects. While I still strove for games with different emphases, many issues were common across different game experiences.

[10]itch.io is a popular website for independent game developers to host completed projects–as well as alphas and betas of games in ongoing development. I opted to only choose games that were considered "complete."

Population, Happiness, and Gold. Individuals approach the player with a request. Players can answer these requests with either a "Yes" or a "No." How they answer will affect the levels of one or several of these resources—sometimes causing them to rise, sometimes causing them to fall, and sometimes causing some to rise *while* others fall. (For example, a talking treasure chest named Chester can approach and say "I'm hungry. Can I eat some folks? I've got plenty of gold, so I can pay you back for their...lives..." Saying "Yes" causes the population to decrease by 5 and the gold to increase by 100.) If the player count of the city reaches zero, it is game over. A character called the "Royal Adviser" provides the player with the goal of the game "Our city's still very small, but it certainly has potential to grow. Perhaps one day, we will have a bustling metropolis and you'll be invited to join the Council of Crowns! For now all you need to concern yourself with is keeping the citizens happy and growing our population." Multiple sociopolitical issues are raised in the game including war ("a nearby town has asked us to form an alliance with them. Should we use them to beef up our ranks?"), immigration ("My witch friend is looking to move into town. Can I have some gold to help her move in?"), taxation ("The witch has slain a goblin [after getting your permission to do so] with a bounty on its head. We've earned a portion of the reward as tax income" and "the treasury is empty my lord. Shall we raise taxes to replenish it?") and infrastructure (as the population grows, scaffolding is erected in the background and the city gets physically larger).

- In *Habitat*, players are given a circular grid of 37 squares and are challenged to build up a miniature human settlement. In order to do so, players cut down trees to build homes and plant crops on squares to feed and house their population. Most of the map is covered in green tiles which either host a tree or are numbered either 1, 2, or 3–indicating how much wheat will grow if planted there. However, planting crops depletes the value of that square to zero–and lowers the values of the empty squares surrounding it. Trees will spawn pigs that threaten to destroy homes and crops–although they will also provide food if players manage to corral them through the strategic planting and harvesting of trees. If players chop all the trees down and fail to replant them, the planet warms, lightning strikes, and tiles catch on fire. The game provides players with challenges aimed at increasing the size and complexity of their miniature civilization. Turn by turn, players manage their resources in order to complete these assignments. Players are scored by their peak population size, their largest harvest, the number of pigs shot, and the number of lightning strikes survived. The game is lost when the population drops to zero (either due to pig attack, lightning strikes, or lack of food.) The game's main sociopolitical issue is the environment (via the trees, veridian color design, and mechanics centered around soil management), but also concerns infrastructure (the game instructs players to "build" and "stack" homes because, as the game aptly puts, "people need homes.").

- In *The Final Earth 2*, players are placed in charge of a small, 2 dimensional asteroid floating in space. They are tasked with building up a civilization on the world's surface using the raw materials that it offers. Players must manage their small world's burgeoning population by processing these materials, generating replacements for them, building farms and houses, and providing services such as schools, electricity, clinics and sources of entertainment. Because horizontal space is limited, players are forced to build up. (Indeed,

the game can best be thought of like a simpler, vertical version of *SimCity*.) The population grows both from citizens reproducing on the planetoid but also from immigrants arriving from Earth. The game thus deals with issues central to maintaining a city such as immigration and infrastructure—but the game's opening sentence frames much of the limitations as being the result of human's inability to be stewards of their original world: "It's 2142, and earth is a wasteland. Colonizing this tiny world is humanity's last hope." This makes the environment an additional salient issue during gameplay.

Because there have not been any studies on the effects of video games on explicitly political outcomes, I estimated the necessary power for these experiments using estimates of experimental effects of prosocial video games reported in the meta-analysis performed by Greitemeyer and Mügge 2014. I converted their Pearson r estimate (0.27) to Cohen's d (0.53) and Cohen's f (0.27) to estimate the needed number of participants given these estimates, an α of 0.05 and power of 0.90. This resulted in a suggested number of 172 participants. I recruited 222 respondents, 173 of which provided completed and legitimate responses. These 173 were given $15 and course credit for their assistance; most of the remaining 49 were given course credit.[11] The pre and post-test components, as well as the text instructing the participants on what to do, was hosted in Qualtrics. Participants in the experimental conditions were assigned 45 minutes of gameplay and were told to proceed at whatever pace was fun for them as their payment was not contingent upon how far they made it in the game. The episode of *Tidying Up with Marie Kondo* used in the control group was roughly the same length (48 minutes). In order to ensure that they received the stimulus, I had the participants click a link to their condition: Either the cloud-hosted video or the itch.io site that hosted the games. Clicking this link *also* started a hidden timer that would not allow players to proceed until 45 minutes had elapsed. Due to the remote nature of the experiment, there is no way of knowing with absolute certainty how many respondents actually played the game for the full 45 minutes. However, this set-up meant that I could guarantee that they at least went to the game site and that they could not proceed in the survey until 45 minutes

[11] I use "most" because one shall-we-say *enterprising* participant recruited their immediate family to complete the survey multiple times to fraudulently extract the $15 payment. The participant received extra credit and $15 on their first submission and, unfortunately, they and their family received a number of pay-outs until I realized what was happening. (I discovered the pattern due to the use of similar, but non-identical, e-mail addresses for the monetary payout, prompting me to discover that they had all come from the same IP address and there were clusters of responses with identical demographic information.) None of these responses were included in the analyses.

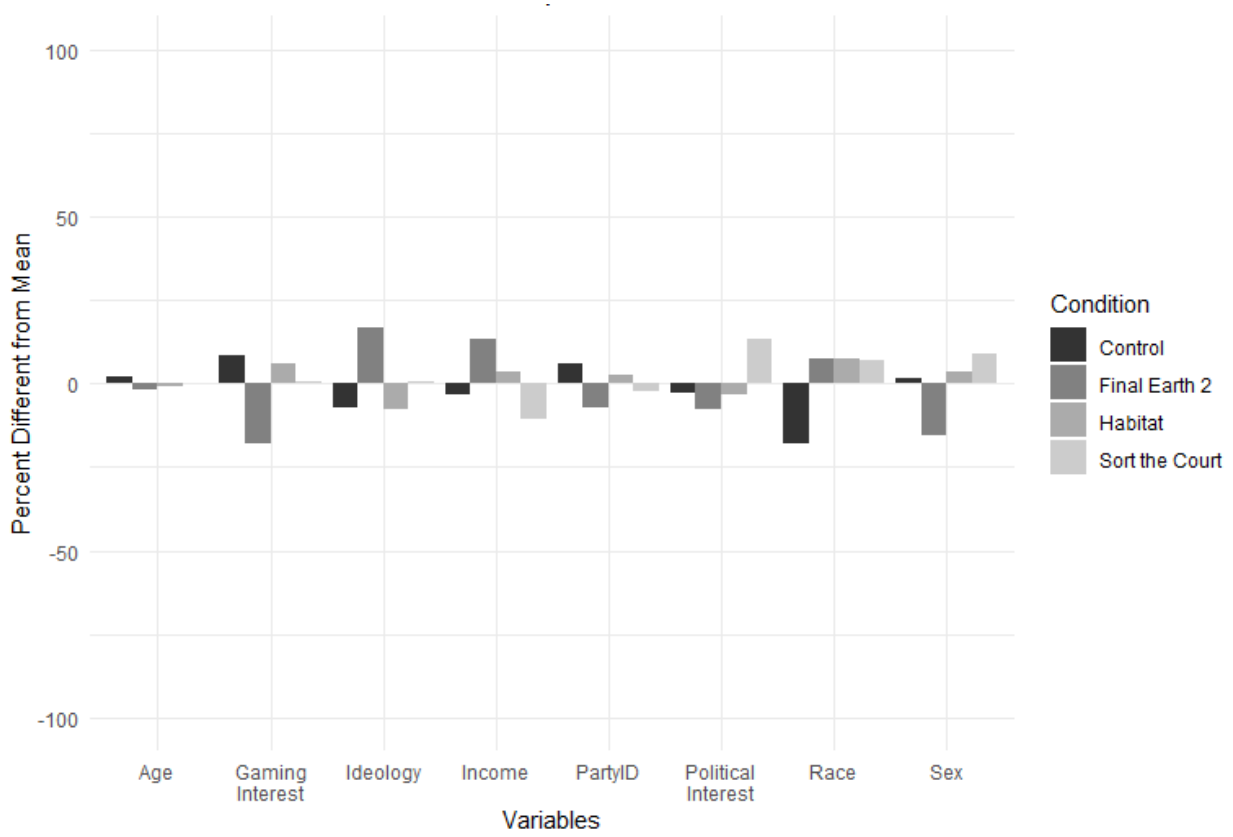

Figure 4-3. Balance between experimental conditions. The bars demonstrate that condition's deviation from the overall mean on the 8 measured factors. The small deviations across all variables and conditions (the maximum did not exceed 20 percent difference and was not statistically significant) suggests that satisfactory balance was achieved by the randomization.

expired. The hope was that, at the absolute least, respondents would feel like they had nothing better to do but play the game. As an additional check, I asked respondents to name the game that they had played. All respondents were either able to do so or give a reasonable description of the game's procedures. (E.g., for *Sort the Court*, one respondent wrote "the game about a queen making decisions about running her kingdom;" for *Final Earth 2*, one wrote "a game where we had to build our own planet;" and for *Habitat* one wrote "game about hunting, farming and forming a civilization on a grid."). Future work *not* burdened by a pandemic ought to work to include additional ways of ensuring that participants actually performed the intended task. However, given the above, I believe that it is reasonable to assume that respondents engaged with the stimulus.

Prior to playing the games, the students were given a pre-test which included a variety of controls: These included sex, race, household income, political interest, video game habits, scholastic aptitude, party affiliation, and political ideology. Figure 4-3 demonstrates the degree of balance the four groups had on these crucial variables. As can be seen, the random assignment procedure appeared to work. Only a handful of significant differences arose—which is to be expected given the number of comparisons being made.

The post-test is where the metaphorical meat and potatoes are. It contains three classes of dependent variables: Measures of attitude, measures of participatory intent, and direct measures of participation. Attitudinal measures includes batteries on climate change, immigration, sexual assault, women's rights, economic inequality, and healthcare. It also involves asking participants for their positions on civic engagement (worded identically to what was seen in the Pew survey), to rank social and political issues from most to least important, to report their attitudes on different groups and organizations, and their attitudes on President Trump's performance in various domains as well as his performance overall. Measures of participatory intent include participant's self reported likelihood to engage in a variety of social and political issues including signing a petition, donating to a political campaign, participating in a march/protest, boycotting, and voting. For the behavioral measures, participants were asked if they wanted to donate any part of their earnings to charity.[12]

In addition to the dependent variables, there are two factors that I expect will mediate my relationships of interest. These are whether people felt encouraged to think about a moral/social/ or political issue and the extent to which they felt that the experience was interactive. These were included to encourage a deeper understanding of what was facilitating the observed effects. The former was analyzed using the same questions as featured in the GAmEPLS and Pew surveys and the latter was adapted from Green and Brock 2000.

[12]I originally intended to include data from a follow-up survey sent to respondents one week after they completed the survey. However, of the 173 individuals who completed the experiment, only 53 responded. This number was too small to be able to conduct statistical analyses.

4.2.3 Analysis

Before going into details the analysis, I believe it is important to briefly discuss a challenge that overshadowed all of the data collection and analysis of the experimental results: The Coronavirus pandemic. The original experimental protocol called for individuals to be invited into a physical space to play one of three games that not only very clearly mattered, but cleanly mapped on to separate policy domains. These were going to be high-quality mobile games that participants could download onto their phones and play in a supervised setting. In late March of 2020, however, the University of Florida made the decision to strongly push all non-Coronavirus research to be done either with social distancing (i.e., keeping researchers and participants two meters apart from each other at all times) or to be done remotely. Unfortunately, performing the laboratory work in a way conducive to social distancing requirements would have been too onerous given time and financial constraints. This meant that I had to instead rely on the three desktop games that I described above. While they are certainly games that matter, there is a visible difference in quality between them and those that were originally intended. 45 minutes with a high-quality game experience is much more likely to invite cognitive deliberation than 45 minutes with a middling-quality experience.[13] More to the point, the quality is also lower than the video games that feature in the metaanalyses from which I derive my *ex ante* power estimations. As a consequence, this experiment becomes a far more conservative test of my hypotheses than originally intended. Therefore, where my theory makes specific predictions about direction (e.g., with civic behaviors and political behavior), I use a one-tailed significance test rather than a two-tailed. While not considered the norm, one-tailed tests have been used in political science research in the past and are acceptable when there are strong theoretical reasons to suspect a that the relationship lies in a particular direction. I would assert that, between my theory and survey results (which were analyzed a full year before the experiment began), I have such strong theoretical reasons. In cases where I do not have strong theoretical grounding (such as with the

[13]This is not to knock the developers of the games; game quality can only be so high given the constraints of being played in an internet browser versus on a console—or even, with the latest generation hardware, a mobile phone.

priming, agenda setting, and policy position hypotheses I describe below), I use the conventional two-tailed test.

Because respondents are assigned to exclusive groups, my analysis uses a between-subjects design. That is, I compare the differences between people assigned to the different groups; no subject received multiple different stimuli. The techniques I employ to analyze the raw data depends on whether I am discussing media effects (Chapter 5) or the effects of interactivity (Chapter 6).

As I discussed in the previous chapters, I expect that the ability of games to encourage political behaviors on the basis of their content to rest in their ability to have people consider said content to be socially, morally, and politically relevant. That is, I expect that these perceptions will mediate the relationship between my condition and my dependent variables. I asked each respondent to indicate the degree to which they agreed with all of the civic-attitude questions, and the likelihood with which they would engage in each of the same nine political actions in the GAmEPLS survey, on a 0-100 scale. In order to get at the latent civic attitudes and intent, I used principal component factor analysis to reduce each to their own scale, recoded to span from 0-1. For my mediating variables, I have whether or not (0/1) respondents had an experience that made them think about a social, moral or political issue. The game conditions are my independent variables, which are coded as a series of dummies using the control condition as the reference category. The analysis, then, uses the same logic as the left-hand panel of Figure 4-2. In the cases of actual behavior (e.g., donations to charity), I do the same except, now, the dependent variable is the amount of money individuals donated.

I also take advantage of the experimental set up to test if video games can elicit priming and agenda setting effects. I do this by investigating whether or not those who played games that made them think about particular issue domain (measured by asking respondents to identify which issues the game experience made them think of). To test whether or not games can set the agenda—that is, raise the importance of an issue in a player's mind on the basis of being recently cued—I asked respondents to rank the importance of 12 issues with 1 being the most important

and 12 being the least important. These are the same issues used by Gallup when asking their survey respondents what the most important issue in the country is and consists of things like the economy, healthcare, the environment, race relations, and terrorism. I then performed an ordinal logistic regression to see if those who considered the issue ranked it as more/less important compared to those who did not. To investigate whether games prime attitudes, I asked individuals to rank how well President Trump is performing in all 12 of the aforementioned issues as well as overall. I then use linear regression to see if the interaction of whether people thought of an issue and people's perceptions of the president's performance on that issue was a significant predictor of their overall perception of his performance. I do this for the three issue domains with the most respondents: Jobs, Infrastructure, and the Environment. Serendipitously, it also happens that these issues were the closest to mapping on to particular games, mapping onto *Final Earth 2* (although it was also covered by *Sort the Court* as well), *Sort the Court*, and *Habitat*, respectively. Finally, I then test to see if playing these games cause any change in policy attitudes. These attitudes were calculated using a series of questions which were then reduced down to a single dimension using principal components factor analysis. As before, I believe that these relationships will be mediated by the extent to which participants believed they experienced something that made them think about a social, moral, or political issue because indicating as such suggests that the respondents had deliberated on the experience.

For the chapter on interactivity (Chapter 6), I use structural equation modeling (SEM) to test if the effects I measure with regards to the game's content (Chapter 5) were mediated by the extent that people felt that their media experience was interactive. In this case, while I believe that there may be good reason to believe that involvement could mediate priming, attitude change, and agenda setting, the theoretical architecture is simply not fleshed-out enough to investigate it at this time. The interactivity scale was taken from Green and Brock's "Narrative transport" scale 2000. I took three items that related to the level of interactivity, engagement, and leverage player's perceived. These read: "I found myself thinking of the ways the experience could have turned out differently;" "at times, I felt like I was present in the experience rather than simply observing it;"

and "I was mentally involved in the game while playing it." The answer to these questions were then reduced down to a single dimension using principal component factor analysis and rescaled from 0–1, with 0 being the lowest feelings of interactivity and 1 being the highest. If games affect people by virtue of the fact that they are active participants above and beyond simple exposure to the narratives, the extent to which they were invested and involved in the game should mediate the other relationships. Further, those who were more involved should be more likely to participate and more likely to have their attitudes influenced than those who felt less involved. Because these relationships are already mediated by the extent to which individuals feel that they are dealing with a social, moral, and political issue, I employ a sequential mediation model. The steps for analyzing indirect effects for such models was described above in the context of the YPPSP (see also A. F. Hayes, 2017).

4.3 Content Analysis

4.3.1 Purpose

The content analysis has three main purposes: First, to establish that video games contain socially, politically, and morally relevant content across a multiplicity of issues and offer opportunities for interpersonal interaction; Second, to look more towards the broader universe of games to see how frequently such content crops up and how common various kinds of multiplayer gameplay is; and Third, strongly dovetailing in with the first two, to reinforce the content-focused findings of the survey research.

Regarding the first reason, as of writing there is a dearth of research investigating the presence of politically relevant content in games. While there have been a number of studies demonstrating this fact for individual games (e.g., Bailes, 2018; Barnett & Sharp, 2015; Krcmar & Cingel, 2016; Stamenković, Jaćević, & Wildfeuer, 2017), many social scientists are unfamiliar with this literature. Additionally, there has yet to be an analysis that looks at a broad number of games simultaneously. To be sure, there have been excellent content analyses of multiple games focused on sexism and sexuality (Downs & Smith, 2010; Lynch et al., 2016; D. Williams, Martins, Consalvo, & Ivory, 2009), race (Waddell, Ivory, Conde, Long, & McDonnell, 2014;

D. Williams et al., 2009), and violence (Hartmann, Krakowiak, & Tsay-Vogel, 2014). However, no analyses have yet been done on multiple games concerning socially, morally, and politically relevant content more generally nor have there been any focusing on the opportunities for social interaction.

Second, the analysis speaks to how widespread such content is. The games in the aforementioned individual analyses are often selected because they are known, ex ante, to offer significant social, political, and moral content. While choosing cases because they demonstrate the phenomenon of interest can be a perfectly valid means of carrying out an investigation, it largely prohibits us from being able to make conclusions about the population writ large (see King, Keohane, & Verba, 1994). Instead, this analysis looks at how frequently this kind of content crops up in a more representative sample of games.

Third, content analyses reinforces the relationship implicitly assumed by the models constructed from survey data. One of the shortcomings of using survey research to investigate media effects is that it assumes that respondents have actually been *exposed* to the kinds of content driving the theoretical relationship that the researchers are interested in. Several studies have been published about how news exposure can increase knowledge of, or alter opinions about, a particular policy without bothering to look if the news even mentioned the piece of knowledge or possible policy in the first place. Not looking opens the possibility that some other variable is causing the relationship being observed. Imagine if it turned out that watching the news made people more likely to approve of the particle physics research being done at the Large Hadron Collider in Switzerland. One might expect that this could be due to the news reporting favorably on the activities and experiments taking place at the collider. But what if the news never even mentioned the installation, let alone sang its praises? This would mean that the relationship is likely driven by a different variable affecting both outcomes, such as education or need for cognition. This is why research deploying surveys to investigate media effects often also include a content analysis (Barabas & Jerit, 2009; J. R. Zaller, 1992).

Similarly, demonstrating that games do, in fact, contain socially-relevant material bolsters the claim that the causal arrow (or at least *a* causal arrow) flows from gaming to behavior. And while this causal linkage is definitely stronger in the above-mentioned experiment, the content analysis has the added bonus of reflecting the kinds of experiences people actually have when gaming as opposed to simply reflecting the artificial and contrived experiences tested in the lab.

4.3.2 Data

The data are quantified observations collected by playing 50 of the most popular games released for PC and console from 2007 through 2017. Starting in 2008, the Entertainment Software Association (ESA),[14] the trade association of the American video game industry, has published an annual report listing the previous-year's best-selling computer and console games (in terms of units sold). I use this list to construct the universe of games that this content analysis investigates. Games need to sell several hundreds of thousands, if not millions, of units in order to make the list—meaning that any social, moral, or political messages contained within the normal parameters of play will be reaching large audiences by definition.

Using the ESA's published report to supply the universe of games was not without a few issues. First, a number of the best selling games do not actually offer a single story or experience but, rather, open-ended environments for people to explore and play in as they want. A perfect example comes from the most popular game franchise for PC games of all time: *The Sims*. In *The Sims*, the player guides a simulated person (or family) through life without any preset objectives. Players choose the character's appearance, its emotional propensities, its good traits, its bad traits, its career and aspirations—everything up to and including when they showered and go to the bathroom. *The Sims* and its various sequels and expansions were a dominant presence on the list, but it is a digital sandbox. Its design lets players decide what will happen for themselves. And because there are so many degrees of freedom, because it is so contingent upon player choice, my experiences playing it will be all but guaranteed to be too idiosyncratic to be generalizable to a

[14] Members include the world's largest gaming companies including Microsoft, Sony, Nintendo, Ubisoft, Capcom, and many others.

"normal" game. If only for the sole reason that a "normal game" does not exist. Subsequently, *The Sims* franchise, and games like them, were excluded from the universe.

A second issue is that not all games are designed to end. Some, such as *League of Legends II* and *Rocket League*, are venues of competition and lack any semblance of narrative. They are effectively team sports reimagined for the digital age. There are objectives but no cause, *per se*, to perform them outside the logic, rules, and structure of the games themselves. Gameplay is limited to each match with no real limit on how many matches could be played. Others, like *Star Wars: The New Republic*, *World of Warcraft*, and *The Elderscrolls: Online* are entire virtual worlds where players are encouraged to live out what amounts to a virtual life. It is hard to analyze the content of experiences that, on paper, never conclude. These kinds of games were also excluded from the possible universe of games to for the case of narrative analysis.

Third, there were inconsistencies in how the lists were created. The ESA reported 40 top games from 2007-2009: 20 games for popular game consoles such as Xbox, Playstation, and Gameboy and 20 that appeared on PC. However, games could appear on the first list multiple times if they performed well on different game consoles. *Call of Duty* was on 2007's best-selling list three separate times: Once for Xbox, another for Playstation, and a third time yet for PC. However, in-game and multiplayer experiences (at least from a narrative and core mechanics standpoint) do not differ across these modes of play. From 2011 through 2015, they maintained the two lists of 20 games but aggregated sales across consoles. This meant that *Assassin's Creed II* was only on the console list once although it was also on the PC list. From 2016 onward, the ESA stopped differentiating between console and PC games in terms of sales, instead opting to just report a single list of the top 20 games across all modes of play.[15]

Finally, there was the fact that some games were so popular that they managed to appear on the lists multiple times across different years. These duplicates, however, I decided to keep. Since the list is based upon the sales made during that year, multiple appearances meant that hundreds of thousands of *new* people were flocking to that particular experience. While I acknowledge that

[15] At least all modes of play *sans* games played on cellphones and mobile devices

Table 4-4. Title and duration of games played for the content analysis. Time played is rounded to the nearest half-hour.

Title	Hours Played	Title	Hours Played	Title	Hours Played
Assassin's Creed 3	12.5	*Fallout 4*	20	*Madden NFL 2009*	6
Assassin's Creed: Revelations	13	*Fallout: New Vegas*	18.5	*Mario Kart*	3.5
Batman: Arkham City	9	*Far Cry 4*	12	*Mortal Kombat IX*	4.5
Battlefield 3	3.5	*Far Cry Primal*	15	*NBA 2K11*	4.5
Battlefield 4	8	*FIFA 16*	2.5	*NBA 2K12*	4.5
Battlefield Hardline	9.5	*Grand Theft Auto V*	25.5	*NBA 2K14*	20
Bioshock Infinite	9	*Guitar Hero: World Tour*	10	*New Super Mario Bros*	16
Call of Duty 4: Modern Warfare	7	*Halo 3: ODST*	4.5	*Pokemon Moon*	19.5
Call of Duty: Black Ops 3	9	*Halo 4*	5	*Pokemon X*	20.5
Call of Duty: Modern Warfare 2	7	*Halo 5*	5	*Portal 2*	5.5
Call of Duty: Modern Warfare 3	9	*Horizon Zero Dawn*	20.5	*SimCity 4 Deluxe*	8.5
Call of Duty: World at War	6.5	*Injustice*	4	*Skyrim*	22.5
Civilization IV	11	*Lego Batman 2*	15	*Super Mario Odyssey*	12
Civilization V	12	*Lego Marvel Super Heroes*	18	*Super Smash Bros*	1.5
Destiny	6.5	*Madden NFL 2017*	5	*Legend of Zelda: BOTM*	51.5
Diablo 3	10.5	*Madden NFL 2015*	4.5	*Titanfall 2*	5
Empire: Total War	8	*Madden NFL 2014*	4.5		

this choice biases the selection process, I believe that this bias is justifiable given the games' clear cultural importance—and importance evidenced by the fact that they were not only popular enough to remain commercially *viable* across time but commercially *preeminent*. If I was looking for games that people play, these clearly fit.

The published lists provided 360 game-years. Eliminating those without any fixed narrative and those duplicated across various forms of play reduced it to roughly 250 game-years. I then randomly selected 50 of those games as the subjects of my content analysis.

To be sure, this selection method disproportionately emphasizes the blockbuster games created by large production studios with multimillion dollar budgets as opposed to those created by small or independent developers. Many of these latter, like *Five Nights at Freddy's*, *Slenderman*, *Doki Doki Literature Club*, *Headliner: NoviNews*, and *Not Tonight* are cult-favorites in some circles of the gaming community and several contain ample socially relevant material. It also precludes games that sold well over a course of many years but never hit the critical threshold for an individual year, such as *Undertale* or *The Walking Dead*. However, publicly available videogame sales data is spotty at best; the decision to publish the number of units sold falls entirely on the developers and they are under no obligation to update the figures with any regularity. Consequently, this is the best way to construct a universe of games that are guaranteed to have been played by large numbers of the US public—-even if it unfortunately omits a handful of notable titles.

4.3.3 Analysis

How does one do a content analysis of video games, though? Nested within this ostensibly innocuous question lies a tangled web of choices and unsettled debates. Should games be analyzed through the narratives they present, like one would a novel or play, or as the consequence of an assemblage of rules articulated in the language of code? Should the focus be on the environment, the characters, the actions expected of the player? Should the lens of analysis be Burke's pentad (Bourgonjon, Rutten, Soetaert, & Valcke, 2011), feminist theory (Dietz, 1998),

or be without any formalized theoretical commitments (Brand, Knight, & Majewski, 2003; Malliet, 2007)?

For my purposes, I opt to analyze and code if a game's rhetoric touches on any one of a variety of social, political, and moral issues. The term "rhetoric" may seem out of place here; the word tends to connote somber associations with written texts or spoken words meant to persuade people of serious things. But, over the course of the 20th century, the notion of what persuasion is, and what can be used to persuade, expanded dramatically. Most contemporary rhetoricians hold that virtually anything can be used to sustain or advance an argument (Lunsford & Ruzkiewicz, 2012). This, as can probably be inferred, includes video games (Bogost, 2007; Paul, 2010, 2012). The arguments that games are capable of making are as subtle and obvious, mundane and profound, tacit and explicit as can be advanced through any other kind of medium(Paul, 2012). And they are only as limited in topic as the culture that births them.

There are several ways that games can raise arguments. Like with the "classical" form of rhetoric, games can raise arguments through various forms of text: Character dialogue, verbal/written exposition, in-game articles, books, and scrolls. Additionally, like many of the more recently studied modes of visual argumentation (i.e., television, advertisements, architectural design, etc), they can deploy arguments by presenting visualizations of virtual peoples and spaces: What do the characters look like; how is their gender, race, and class portrayed? How do they appear to treat each other? Is their world warm and unpolluted by technology or cold and glaringly artificial? (Conversely, is it warm and technologically advanced or is it cold because of the conspicuous absence of technology?) Unique to games, though, is the ability to make argumentative appeals based on the kinds of actions available to you and how they are performed. This is deemed "procedural rhetoric" (Bogost, 2007) and includes the rules governing how we navigate the world and interact with other characters as well as the various mechanics determining how the game is played and won. Obviously, arguments can be made using more than one kind of appeal—and many of the most persuasive games do exactly that.

Some content analyses investigate their topic of interest (i.e., books, movies, articles, etc.) by looking at them as a cohesive whole; others by splitting them up into individual scenes, chapters, and sentences (Weber, 1990). The prevailing practice in game studies appears to be to do the latter (Bourgonjon et al., 2011; Brand et al., 2003; Dietz, 1998; Malliet, 2007). It is certainly possible to analyze some games by breaking them down; *Halo*, *Call of Duty*, and *Titanfall* are separated into missions and takes virtually every player on the same story. They are, in effect, interactive digital novels. *The Wolf Among Us*, *Life is Strange*, and *Detroit: Become Human* also present discrete chapters that proceed in a fixed order, but there is a large amount of choice that exists within the individual sections. But the problem comes in exporting this concept to the vast universe of games. *Mass Effect*, *The Witcher III*, and *Skyrim* all have a core story but allows players to approach different quests without fixed chapters, sections, or overbearing narrative guidance. And how would one split the content in *Guitar Hero*? By song? By set? The diversity in games makes it untenable to break it down by any standardized method. Consequently, I approach games as individual pieces of media and ask if the rhetoric contained within it touches on one of several socially, morally, or politically issues.

What counts as a social, moral, or political issue? I use the following definitions:

- **Social issues** are those that either arise as a consequence of cramming people together into complex social groups or those that affect a sufficiently large number of individuals that it garners the attention of the whole. Examples of the former include pandemics, social deviance, the environment, immigration, technological advancement, and—most enigmatic of them all– the economy. Examples of the latter include mental health, abortion, hunger, addiction, sexual assault, natural disasters, and suicide. These differ from political issues because while political actions can ameliorate and/or exacerbate these problems, politics do not necessarily precipitate their emergence. That is, while these things may be influenced by politics they are not caused by politics.[16]
- **Moral issues** are those that reflect deep-seeded values concerned with how the world ought to be and how people should act within it. I lean heavily on moral foundations theory advanced by Jonathan Haidt 2013. Moral foundations theory posits that moral judgments rely on one of six dimensions: Care/Harm, Fairness/Cheating, Loyalty/Betrayal,

[16]To clarify, that is not to say that specific examples are not caused by political malpractice or effective stewardship. The current widespread hunger felt in Venezuela comes as a result of the failures of President Nicholas Maduro and his government. The United States government was an early investor and developer of many technological marvels that we take for granted. But hunger is something that happens, and happens often, in the presence or absence of government—and technological advancement, generally, is not dependent upon government's guiding hand.

Authority/Subversion, Sanctity/Purity, and Liberty/Oppression. If a game does or shows something related to one or several of these domains, it has touched on a moral issue. I also coded if the game made specific pronouncements or claims over the nature of "good" and/or "evil" and if the game made reference to religious order and/or tenets.

- **Political issues** are those that concern people, power, and the institutions that sustain them both. Or, in the famous words of Harold Laswell "who gets what, when, how?" Political issues include the rights, liberties, and affordances granted to individuals and groups, the processes meant to deliver on these privileges, the people responsible for doing so, and the way that those affected react to those people and processes. Obvious in-game examples include whether the player is tasked with doing something on behalf of a ruler or if they are themselves playing as a ruler trying to manage a society. But while leaders and formalized governing structures are certainly political, they are not exclusively so. Questions of how certain "kinds" of people are treated could just as well be navigated by a group surviving in a post-apocalyptic forest as they could by a queen surrounded by her court. What matters is that players bear witness to—if not actively interact with or decide—some part of the who, what, when, and how being pursued. Examples include, but are not limited to, working on behalf of a ruler or government agent, becoming a ruler or government agent, changing a policy, witnessing or participating in a revolt, witnessing or participating in an assassination, witnessing or participating in a system that grants rights/privileges unequally, acting to change such a system, or acting in a way that changes how politics are ran more generally.

In addition to coding moments within the game, I also analyzed and classified game mechanics. These included the avatar's species, gender, and point of view, the game's genre, the degree of choice players perceive to have (high/medium/low), if the game takes place in an open world, or if it is "on-rail" and limited to the immediate environment. I also code if the game has an option for multiplayer, if said multiplayer can be performed online or with another in the same room, if online multiplayer can be done with friends, if it can be done with strangers, and how the game itself hosts opportunities to communicate (by microphone, text, pre-selected texts, or characters performing pre-determined actions such as a dance or thumbs-up, or "emotes."). Table 4-5 presents all of the specific topics I code for in my analysis.

In order to make my gameplay as representative of how players most-commonly approach games were played on average difficulty (if it was possible to modulate) until the completion of the main narrative objective. Side-objectives were completed if and when they were necessary to complete the main campaign (to acquire specific tools, gain the requisite experience points, or

Table 4-5. Elements of the games—and specific social, political, and moral issues—that were coded in the content analysis. (War in the "social issues" column refers to the social and interpersonal ramifications of war while it refers to its various political considerations and consequences in the "political issues" column.)

Game Structure	Social Issues	Political Issues	Moral Issues
Game Name	Addiction/Drug Abuse	Interact with Ruler	Care
Release Year	Mental Health	Work on Ruler's Behalf	Harm
Platform	Economy	Be Ruler	Fairness
Duration Played	Environment	Interact with a Ruler's Agent	Cheating
Avatar Point of View	Race	Work for an Agent	Loyalty
Avatar Species	Technology	Be an Agent	Betrayal
Avatar Gender	Sexual Assault	Change a Policy	Authority
Illusion of Control	Abuse	Revolt/Revolution	Subversion
Game Format	Self-Harm	Assassination	Sanctity
Multiplayer Options	Homosexuality	Terrorism	Corruption
Game Genre	Education	Protests	Religion
	War	Elections	Freedom
	Policing	Sanctioned Participation	Oppression
	Surveillance	Plan Buildings/Structures	Good
	Hunger	Care for Constituents	Evil
	Healthcare	War Between States	
	Media	Witness a Dispute Between Two Groups	
	Disease	Allocate Resources	

Table 4-5. Continued.

Game Structure	Social Issues	Political Issues	Moral Issues
	Immigration	Act to Resolve a Dispute Between Two Groups	
	Abortion	Witness a Disparity in Rights	
	Gambling	Change a Disparity in Rights	
	Social Violence	Decide the Fate of a Polity	
	Social Unity	Witness Rights/Protections	

unlock additional narrative options) or if they appeared to be so when I began. Good faith efforts were performed to complete objectives without external assistance but, when out of my depth, I turn to walk-throughs published on fan Wikis or on gaming review sites like IGN.

To ensure that the results were not solely the result of my observational biases (conscious and unconscious), an individual unaffiliated with the research was hired to analyze three of the fifty games (*Call of Duty 4: Modern Warfare*, *Super Mario Odyssey*, *New Super Mario Brothers U*. Following the example of Brand, Knight, and Majewski 2003, the assistant and I compared codings on a game early-on in the process, one towards the middle, and one at the end. These games were selected by a separate individual with an intimate understanding of the project and deep familiarity with video games on the basis upon their popularity and the complexity of their narrative. The assistant, an individual experienced in playing games as an occasional hobby, watched a video recording of my gameplay and recorded if the game touched upon a particular topic. The inter-coder reliability (measured by Krippendorff's α) was 0.84, strongly suggesting that the social, moral, and politically relevant moments I recorded are apparent to the broader public and not just the fervid minority enthusiastic enough to write a dissertation on the topic.

4.4 Illustrative Case Studies

4.4.1 Purpose

As the name implies, the purpose of the illustrative case studies is to illustrate some of the sociopolitical issues that video games can address and how they go about doing so. These insights

are not meant to provide causal inference in and of themselves but to deepen the understanding of the causal pathways supported by the other evidence. For example, the survey and experimental evidence I have collected suggests that content which encourages players to think about sociopolitical issues can, in turn, encourage increased participation. But how is it that games encourage players to consider social issues? Do the games' characters talk about the issues? Do players strive to solve them? How do these interact with the rules that govern player's actions and options during gameplay?

Answering questions like these does two things. First, it provides necessary insight for those who are not as acquainted with the medium and the multitudinous worlds that it offers. If I told an avid player of *Overcooked* "video games can increase interpersonal trust," they would probably blankly stare back at me as if I had told them that the sky is blue or that water is wet. If I told that to someone whose only exposure to digital gaming is *Solitaire* and *Minesweeper*, they would be far more skeptical. Explaining what *Overcooked* is and how it is played would go a long way towards bridging that gap.[17] Second, they provide an in-depth look at what is mediating the relationship supported by the other data. What are the in-game experiences linking my proposed causes to their effects? It may be one thing to "know" that games can alter attitudes but very little can be done with that information if we do not understand how it is they do so.

Three sets of illustrative case studies are leveraged throughout this dissertation. The first focuses on the social, moral, and political content of games: What are the kinds of things games present and how do they do so? The second looks at immersion—how the games work to make us feel like we are the ones visiting the digital world and how that might amplify our cognitive deliberation on the socially-relevant experiences. The third set focuses on the different ways

[17]For the curious, Overcooked is a multiplayer game that tasks players to travel to different restaurant settings and create a variety of meals. Players have to chop vegetables, cook meats, boil grains, clean dishes, and combine ingredients—all within a short period of time (between three to five minutes). The kitchens are set up in ways that force players to divide necessary duties with the layouts and challenges changing with each map. One kitchen is on a tumultuous ocean with a kraken's tentacle capriciously crashing down. Another is in a haunted mansion where otherworldly forces move prep tables as players try to chop tomatoes. Players not only have to cooperate to get the task done, they have to communicate extensively with each other, and rely on each other's abilities to make enough food to pass the level.

Table 4-6. Attributes of the games selected for content-based analysis. The games vary on virtually every conceptual dimension of gameplay, illustrating that sociopolitically relevant content is not limited to a particular configuration of styles or design choices.

Game	Genre	Predominant Topic	How Navigated	Avatar	Art Style	Point of View
Celeste	Platformer	Social	Linear platforms	Pixelated 2D female	Arcade Classic	Third-Person
Civilization	Strategy	Political	Click and scroll	Functionally none	Cartoonish	Omniscient
Fall Out: New Vegas	First-Person Shooter	Moral	Open world on foot.	Customizable 3D human	Realistic	First-Person

games have people play together and what mechanics are present that could encourage political participation and interest.

4.4.2 Data

The data for these studies come from the content of nine popular games: *Celeste*, *Civilization V*, *Destiny 2*, *Fall Out: New Vegas*, *Fortnite*, *Mario Party*, and *Quiplash*. For the first two case studies, of socially relevant content and interactivity, I explore *Celeste*, *Civilization V*, and *Fall Out: New Vegas*. Regarding how multiplayer experiences can translate into social capital, I look at *Destiny 2*, *Fortnite*, *Mario Party*, and *Quiplash*.

My selection of these cases were adapted from typical and diverse case study designs (Gerring, 2008, 2017; Seawright & Gerring, 2008). Regarding the first, with the exception of *Celeste*, *Fortnite*, and *Quiplash*, all of these games were among the best selling video games of 2007-2017. *Fortnite*'s exclusion from this list is purely based on time; it was the bestselling game of 2018 after the release of its breakout "battle royale" game mode. And even if *Celeste* and *Quiplash* are absent from that list, they are still played by hundreds of thousands of players and were the recipients of industry and consumer awards. In short, these are common games that regular people play.

With regards to the selection of cases based off diversity, these games were specifically selected because they *also* demonstrate variation in the pertinent elements of the game's design.[18] The illustrations concerning single-player experiences varied on the genre, topics discussed, the in-game avatar, player point of view, art style, how the environment is navigated, and the duration of play. See Table 4-6 for how *Celeste*, *Civilization*, and *Fall Out: New Vegas* varied on these themes. The case study focused on interpersonal interactions varied on the genre, the presence of sociopolitically relevant topics, if the interactions are virtual or occur in reality, if the interactions are cooperative or competitive, how much communication is encouraged among players, the potential for interpersonal trust to be developed, and the amount of opportunity players have for reciprocity and reprisal. See Table 4-7 for how *Destiny 2*, *Fortnite*, *Mario Kart*, *Mario Party*, *Overwatch*, and *Quiplash* match on to these concepts. In both instances, and the latter one especially, channeling the logic of a most-different designs allows me to expound on different, simultaneously operating causal pathways, a state commonly referred to as "equifinality" in the social sciences (George & Bennet, 2005, p.14).[19] The paired use of typical and diverse designs enables me to not only illustrate processes present in today's games but offer insights that could hopefully be useful as games continue to evolve.

4.4.2.1 Data collection

The collection for this method was probably the most straightforward of all the others for this project. I played all of the above-mentioned games and engaged in a kind of digital "soaking and poking" (Fenno, 1978). While some may raise an eyebrow at this method, digital participant observation is a common method in qualitative investigations of video games (Consalvo & Dutton, 2006; Iversen, 2012; Paul, 2010, 2012; Pérez Latorre, 2015; Wright, Boria, &

[18]Due to the diversity of the video game environment, it was impossible to select cases that showed all possible variations (e.g., in art style or genre). Thus, the design does not demonstrate the "full" variation in these factors (Gerring, 2008). In such instances, typicality was prioritized over diversity.

[19]Generally, case-studies also have some measure of the dependent variable embedded within them. However, my dependent variables (attitudes and participation) exist outside the universe of the game. You cannot directly observe from a round of *Overwatch* whether the people you played with will turn out in the next election nor can you finish the last level in Celeste and infer that players will walk away with different beliefs about mental illness. I am making a leap in assuming that the aggregate relationships observed in the survey data will hold for players of these individual cases. This leap is shortened by the fact that most of these games were among the most popular in the last 11 years—but it is a leap of faith nonetheless.

Table 4-7. Attributes of the games selected for multiplayer-based analysis. The variation across dimensions helps demonstrate how social capital development can occur in a variety of game environments. (Note: "High," "Medium," and "Low" are relative values. By virtue of being multiplayer experiences, all games listed here have higher amounts than most singleplayer games.)

Game	Relevant Topics in Narrative?	Virtual or Real Life	Cooperative or Competitive	Reciprocity and Reprisal	Inter-Personal Trust	Communication Encouraged
Destiny 2	Yes	Virtual	Both	High	High	High
Fortnite	No	Virtual	Both	Medium	Medium	Medium
Mario Party	No	Real Life	Both	Medium	High	High
Quiplash	Yes	Real Life	Competitive	Low	Low	Medium

Breidenbach, 2002). The fact that the games were fun was merely a bonus. I spent roughly 10 hours playing *Quiplash*, 20 hours playing *Celeste*, 20 playing *Fall Out: New Vegas*, 35 playing *Mario Party*, 50 playing *Civilization V*, 70 playing *Fortnite*, and 110 playing *Destiny 2*. During this time, as one would when conducting field research in reality, I allowed myself to be immersed in the logic of these digital worlds, taking notes on what I observed/experienced and the means through which the games presented them to me. *Fall out: New Vegas*, *Civilization V*, and *Quiplash* were played on a Windows 10 PC; *Celeste* and *Fortnite* were played on the Xbox One; and *Mario Party* was played on the Nintendo Switch.

4.4.3 Analysis

In order to understand how I analyze these cases, with an eye towards games studies' preeminent theoretical division. In the social sciences, the main schism is often found between "qualitative" versus "quantitative" methods or "naturalistic" vs "interpretivist" approaches of understanding (Bevir & Blakely, 2018). As I describe in the last chapter, the prevailing division in game studies is between "narrativism" and "ludology:" The former emphasizes the story structure, characters, and plots whereas the later emphasizes the rules, mechanics, and systems of the game itself. For my purposes, the most fruitful analytical path is to view the games holistically, considering the interplay of both core elements in the generation of politically relevant meaning.

My analysis, then, is oriented from this more synergistic understanding of narrative and ludology. My attention will be predominantly (although not exclusively) focused on the following elements of the gameplay experience: Game narrative, character dialogue, environment, movement mechanics, communication mechanics, interplayer interactions, win/loss conditions, quest/level progression, illusion of choice, user interface and feedback systems, and degree of challenge. That is not to say that I try to emphasize all of these elements in all of the games that I analyze; not every element applies equally to every game and, even if it does, each element is not equally pertinent to the purpose of that particular case. In illustrating how games convey politically relevant content and foster communities that can affect political behaviors, I will not only focus on what is presented but how. In that way, I hope to better convey the power of the medium as it relates to political behavior.

4.5 Archival Research

4.5.1 Purpose

The purpose of utilizing archival data for this project is two-fold. First and foremost, it is incorporated to provide an additional point of confirmation for my fourth argument, that games frequently contain socially, politically, and morally relevant content. While the content analysis can illustrate that many popular games contain pertinent narrative elements, there is still the fact that I performed the analyses: Someone who obviously cares a lot about both politics and video games. It could be that only those more familiar with political frames (Berinsky & Kinder, 2006) or with higher need for cognition (Popkin, 1991; Sniderman, Brody, & Tetlock, 1991) will pick-up on relevant content or be able to relate the fictitious experiences to the real world, biasing my results. While the intercoder reliability was high for the games that my research assistant also coded, I could only afford to have them code a small selection. And while the surveys can show if games have prompted players to think about social, moral, and political issues, as well as the kinds of games that manage do so, there could be a number of moderating factors at play. It is possible that meaning is more visible to players who are more engaged with the experience, but that they will slip under the radar of normal players. There is also the disquieting, nagging

concern forcibly suppressed by virtually everyone engaged in survey research: What if respondents were only answering in a certain way to be mischievous or polite—or what if their responses are contaminated by psychological forces like rationalization and confabulation? Research suggests that respondents by-and-large at least attempt to be honest and that their answers often, although not always, correlate with actual action (see, e.g., Bond et al., 2012). But the possibility remains and is certainly disconcerting.

In light of these weaknesses, another strategy to determine if meaning is present would be to see if developers were cognizant of their game's relevance, which is possible through the systematic analysis of archival data. If developers acknowledge concertedly putting certain experiences into their games and signal that they appreciated the significance of these experiences, it serves as independent confirmation of the medium's sociopolitical relevance.[20] If designers include relevant experiences, then it follows that players are ingesting and responding to content that was intended to be received. It is certainly possible that some players are extracting unique meaning by dint of their interest and political sophistication, but it means that this is not *all* that can be underlying the relationship.

The second purpose of the archival research is to move beyond simply asserting that the games include pertinent experiences and investigate the broader circumstances of that inclusion. Given that designers are at least sometimes consciously aware of the broader relevance of their content, why did they make the choices they did? What are their motivations for including these experiences? What kinds of design decisions do they make to articulate these motives? Answering these questions allows me to not only broadly assert that relevant content is commonly featured in games—it allows me to construct an account of *why*. Understanding the presence, extent, and execution of various motivations will hopefully give future audiences greater leverage in using these games for social good, extracting what "works" for their own (non-)serious games,

[20]Of course, it is not sufficient evidence of the claim I advance in my fourth argument. Game designers may have intended to put certain experiences in their game but that does not guarantee that this intent was executed well enough for players to have received the content. This shortfall is compensated by the survey data. Additionally, materials included in archives are not imported randomly and representatively, but through a series of choices (conscious and otherwise) that often handicaps their ability to make general assertions. For that reason, it is good to position the archival data alongside other forms of inquiry—as I have done here.

furthering society's ongoing sometimes-constructive conversation on the merits of gaming, or simply deepening our appreciation for the medium in and of itself.

4.5.2 Data

I gather two kinds of archived data. The first is comprised of physical, tangible artifacts and reference materials. These include developer notebooks, trade journals, and magazines pertaining to games and gaming culture. The second are digital videos pertaining to games and game design. These are recorded talks delivered by game designers and professionals in the video game industry at the industry's largest conference—the Game Developer's Conference (or GDC)—and are made available online in the GDC Vault.[21]

4.5.2.1 Data collection

Physical data were aggregated and analyzed from the collection of the Strong Museum of Play in New York. Originally started in 1968, The Strong has become one of the foremost museums in the world for toys, games, and play. The Strong currently publishes the *American Journal of Play* and hosts both the International Center for the History of Electronic Games, and the World Video Game Hall of Fame. Its physical archives includes over 55,000 items including physical artifacts of games and consoles, industry journals, developer notes, fan and hobbyist magazines, and a myriad of other cultural remnants intersecting with gaming and the industry that has boomed around it. During the summer of 2019, I spent a week at the Strong digging through its relevant collections and was graciously funded by the museum as a research fellow. During my time, I specifically leaned heavily on the Brian Fargo Papers, Dan Daglow Collection, Her Interactive Collection, the Ken and Roberta Williams Sierra On-Line Collection, the Will Wright Collection, and periodicals located in the Brian Sutton Library of Play.

Digital data were recorded from archives of the Game Design Conference (GDC) Vault. GDC is one of the largest industry conferences for game developers and designers, offering talks intersecting every part of the game-making process—from conception to actualization and the business/marketing practices present at every step in between. The GDC Vault contains hundreds

[21] https://www.gdcvault.com

of hours of content spanning the conference's 20 year history. The site offers a number of filters to expedite the task. I limited my watching to content filmed from the "standard" US GDC pertaining to "Community Management," "Design," "Game Narrative," "Independent Games," and "Social / Online Games." Since the Strong is strongest (pun intended) with older games and trends in the industry, I decided to leverage the videos taken from more recent conferences (2013-2018). From here, I filtered out ingermane videos by title and summary information. I concluded my investigation when I hit a point where new information provided little-to-no additional return on insight. This resulted in approximately 20 hours of video content to augment the physical materials I analyzed at the Strong.

4.5.3 Analysis

The process of analyzing magazines, notebooks, and videos certainly seems straightforward at first blush: Read and watch all of the materials, take careful notes of what was witnessed, extract what is useful, and mix everything learned all together into a single cohesive argument. But while that is an accurate account of what it takes, it belies the devilish difficulty underneath actually doing it.

While it is tough to describe the process of ingesting information and next to impossible to trace out the way the mind stitches the various concepts together, to account for the subtle creative jumps that allows one to discern patterns across a myriad of sources, I can describe the steps I took to focus this enigmatic pattern-finding process on answering the questions at hand. Developing my analytic strategy required answering two interrelated questions: How could I be sure that the information I was getting was credible and what kinds of information would be useful to my purposes here?

My answer is seen in my choice of what to investigate. If my intent is to investigate whether something is "objectively" present in the game and see how mechanics and narrative interact to foster a politically relevant experience, it might be wise to look for the accounts of people who the most intimately associated with the game's content. And who could be more intimately associated than those who came up the premise, who structured the narrative, who constructed the

mechanics, and who went mad debugging in the process of stitching it all together. That is, who would know better than game developers themselves?

For this reason, I restricted the scope of my searching to those sources generated by game developers.[22] Primary sources (e.g., design notebooks and unaltered individual accounts) were highly prized but, as is so often the case, could not constitute all of the data. Secondary sources were filtered such that they were only included if they featured extended accounts originating from developers. This allowed me to include testimonies featured in magazines—even if it was altered to make compatible with the format it appeared in (e.g., editing for length and/or clarity). Sources were not included if they only featured limited involvement by a game developer, such as a single quote surrounded by interpretation and exposition, but were included if their original words constituted an appreciable part of the material.

But establishing credibility is not only about establishing whether the source is a proper authority on the topic and whether their positions are accurately presented. It is also about acknowledging the omnipresence of various types of bias. Game designers, when presenting their work to their peers and to the press, are probably not inclined to say that the experience was vacuous. There is no easy work-around to these biases; they and their ilk are present in most sources of self-provided data. At present, the best solution I can offer is to approach critical observations with a skeptical eye and strive to situate them in the broader context that generated them.

Not all credible information is *useful*, however. Many GDC speeches are highly credible, but some of their concern, *shockingly*, is not oriented towards people writing dissertations on the behavioral ramifications of games. They instead focus on things that would be pertinent to their main audience, on issues specific to the video game industry. How could I wade through the ocean of credible information to find credible, helpful information?

[22] "Game designer" and "game developer" are catch-all terms in the industry describing a variety of occupations that includes graphic designers, programmers, writers, creative directors, among many others. I will, unhelpfully, be further expanding the term to include community managers, or those whose responsibility is to manage multiplayer interactions.

Embedded within the aforementioned twin purposes of using archival data were five tractable questions. 1) Do game designers consciously acknowledge putting socially, morally, and politically relevant experiences in their products? 2) Are game designers aware of the social networks moored by their games and the social capital being generated within them? 3) Given 1 or 2 (depending on the question at hand), what is their understanding of this content/these networks? How do they go about understanding the issues well enough to distill them into rules and narratives? 4) What design decisions are developers making to reinforce the content/networks that are present? and 5) What motivates developers to include such content?

I would summarily search for words and phrases that answered one of these questions or suggested that one was at least around the proverbial corner. Sometimes these searches were easy—such as when one video was premised entirely on increasing the representation of Muslims in gaming. Others were more opaque, such as the several times I tried to translate printed out snippets of code that often featured in design notes. In any event, these questions allowed me to focus my efforts and winnowed away at the deluge of information offered by the videos and physical artifacts.

4.6 Summary of Methods

There has been a lot of information throughout this chapter. Indeed, more than enough has been discussed to make just about anyone feel unmoored and cast adrift in a sea of methodological technicalities and other tiny details.[23] I feel it is helpful, then, to spend the remainder of this chapter distilling the most important parts of each analysis and stitch them together; to show how they will play off each other's strengths and weaknesses for the argument's asserted in the dissertation's remaining chapters.

[23] At the risk of adding even more detail, it is important that I briefly discuss my thresholds for determining statistical significance. As is often known, smaller samples tend to be noisier; it is more likely for them to advance a false negative if the threshold is set too stringently. Setting it too loose, however, will raise the risk of false positives instead. In order to balance these risks, I use the cut-off of $p = 0.10$ ($\alpha = 0.90$) when there are fewer than 200 observations and $p = 0.05$ ($\alpha = 0.95$) otherwise. In practice, this means that all of the survey data –with the exception of the structual-equation models analyzing social gaming in the GAmEPLS survey—will be judged at the $p = 0.05$ threshold while the experimental evidence will be judged at $p = 0.10$. Some theoretically-motivated experimental responses will be judged using a one-tailed test, but only in those cases where there is both ample prior theory and survey evidence to substantiate the decision.

In Chapter 5, I argue that the content of video games can affect political attitudes and behavior through traditionally-understood media effects. I use data from Pew Research and from the GAmEPLS survey to show that there is a statistically significant relationship between certain kinds of game content and political attitudes and participation. This establishes a general association among American teenagers and American adults, but does not address causality. I then utilize a laboratory experiment comprised of a student sample, which addresses whether the games are causally associated with attitudes and behaviors. The external validity concerns associated with this design are ameliorated by the survey data but the experiment does not delve deeply into how in-game experiences mediate the relationship. This is addressed by in-depth case studies of three varied but representatively popular video games.

In Chapter 6, I argue that games can influence political attitudes and behaviors by virtue of the fact that they are interactive experiences. I first establish this effect through structural equation modeling of the data gathered in the experiments, testing the significance of interactivity as a mediator. As before, the experimental results are not very generalizable alone. However, since the effect of interactivity is happening in tandem with the aforementioned media effects, the survey data demonstrating the pervasiveness of such effects at least somewhat ameliorate this concern. However, the experiment does not discuss how in-game experiences increase the feeling of narrative transport. This is accomplished through in-depth case studies of three varied but representatively popular video games.

The argument of Chapter 7 is that many games are operating as a nexus of social capital, which then translates to increased participation. I use the GAmEPLS survey and cross-sectional waves of the YPPSP to establish a statistically significant relationship between gaming in groups and political participation. As is the case in Chapter 5, these surveys are not sufficient to address causality. To do that, then, I leverage the longitudinal aspect of the YPPSP to demonstrate that gaming in groups is instantaneously Granger causal of political participation. While this analysis makes a strong case for causality, it does not demonstrate how games are able to generate social capital. I address this through in-depth qualitative case studies of four representative but diverse

multi-player games. While these in-depth studies elaborate on how social capital could be at work in the underlying relationship, the data heretofore explored do not show how the elements of social capital (trust, reciprocal action, talk, and association in the network). To account for this, I go full-circle back to the GAmEPLS survey to confirm that the factors associated with social capital do in fact mediate the relationships between gaming in groups and political participation.

Finally, I contend in Chapter 8 that the experiences underpinning the relationships explored in the previous three chapters are common and originate in the games that people pick up to pass the time. I first use archival research to demonstrate that game designers consciously incorporate socially, morally, and politically relevant experiences in their games and explores their motivations for doing so. Due to the haphazard nature of how materials get accessioned into archives and the potential biases of the accounts that manage to get included, these accounts cannot claim to demonstrate that experiences are common in the entire universe of commercial games. To amend this shortcoming, I conduct a content analysis of 50 popular video games, randomly selected from a curated industry list of best-sellers over the past decade. This selection procedure allows for its conclusions on the prevalence of such content to be far more generalizable while the archival evidence reduces concern that the content analyzed is only visible to the overwrought minds of scholars and their research assistants. However, neither the content analysis or archival data demonstrates that players actually receive the content present within the games. To address this, I return once more to the nationally-representative GAmEPLS survey to demonstrate that 1) people frequently engage in these game experiences and 2) that said experiences do indeed originate from popular, off-the-shelf games.

In the beginning of this chapter, I wrote how the tragedy of the parable of the elephant is not that the naive explorers suffer from a dearth of data but that they refuse to triangulate their equally valid, equally *limited*, observations towards the greater purpose of understanding the whole animal. While this dissertation is a whole other beast entirely, I hope to apply their lessons here. If this project is to make any tangible, longstanding methodological contribution to the study of video games in political science, I earnestly hope that it is demonstrating the necessity to use

many different kinds of data for robust causal inference while providing a successful exemplar of that principle in action.

CHAPTER 5
MEDIA EFFECTS

In the beginning, there was darkness. But then, light—or at least its promise. Feeble sparks fly from two stones that a man is cracking together in the dark. The moon and stars outside filters in with a soft glow, revealing him to be working in a cave. This celestial light may be weaker than he would prefer, but it is brighter than most would expect. The air is unlittered by halogen; there is no ambient haze from buildings or streetlights overpowering nature's brightness. He was born far, far too early for that.

One intrepid spark latches on to a piece of kindling. He blows on it gingerly, hoping his breath encourages it to the next dry piece rather than snuffing it out. Luck is on his side; it catches. A fire starts growing. Slow, at first, but it soon envelopes the whole of his torch. He turns it towards the wall where it illuminates a scene cast in earthy hues: siennas, umbers, and blacks. It depict hunters, stick figures with pointed lines portraying their arrows and spears, and the animals they pursue.

They are rudimentary. They are stylized. But they are stories.

Stories have been elemental in the human experience. The oldest, incontestably artistic human artifacts portray impossible bodily proportions and human-animal hybrids that could only be conjured by the sculptor's imagination. Cave paintings, such as those in the Lascaux caves in France, are thought to carry not only the literal stories of successful hunts but the legends that were important to the society that lived out of it at the time. The rediscovery of the Epic of Gilgamesh in the late 19th century revealed that narratives are as old as the earliest human societies—and that they were used for social purposes: They showed what was to be valorized and despised, what behaviors are (un)acceptable for a "good" citizen, and who has the right to rule and where their legitimacy derives (Aslan, 2017).

We have never lost our penchant for stories, nor have our stories lost their penchant to be political. Stories encode information about the world and can encourage people to behave accordingly. The research I presented in Chapter 3 showed that stories have the potential to affect how we think and act. We know that we are cognitively affected by the stories we see on the news, tending to think that things we see are more important and judging political figures based

on how well they attend to these issues (Iyengar & Kinder, 1987). We know the narratives that we hear on talk shows and late night television affect how we think and how well our votes match our preferences (J. Baumgartner & Morris, 2006; J. C. Baumgartner & Lockerbie, 2018). We also know that these effects are not limited to non-fiction: We know that movies can temporarily inspire authoritarian tendencies (Glas & Taylor, 2018), that novels can shape salient cultural attitudes (Green & Brock, 2005), and that television shows can influence attitudes on political topics (Holbrook & Hill, 2005; Mutz & Nir, 2010; Swigger, 2017). When narratives contain elements of the political, they carry the potential to inspire political affects.

Stories are our species' heritage; to be affected by them is our birthright. This is as true now as it was tens-of-thousands of years ago, back to those naive pictures painted on the walls of the Lascaux caves.

These famous illustrations, by the way, are not the inspiration for my story about the man in the cave—at least not directly. What I was actually describing was the opening cinematic sequence from the video game *Far Cry Primal*. The stick figures the man was facing describe a mammoth hunt undertaken by members of the imaginary Wenja tribe as they endeavor to find the land of Oros. The developers of the game took great effort to include nods to many famous pieces of paleolithic art—the Lascaux caves included. Between this and the prehistoric flora and fauna, they strove to make audiences feel like they were living in Europe circa 10,000 BCE. But the game is not just about fantasy fulfillment. Its story is one where the player character, Takkar, discovers that his tribe has been brutalized and decimated in the land of Oros. The players, through Takkar, work to save other Wenja from predators and rival tribes, build up their village as its de facto chief, allocate resources for the good of the group, and tackle existential threats.

Video games, too, are stories—and their narratives also often traffic in the social, moral, and political. *Far Cry Primal* is just one of a myriad of examples—a few of which I have already talked about earlier in Chapters 1 and 3. I will discuss just how common it is for video games to contain social, moral, and political content in Chapter 8. Here though, I want to advance the

argument to its logical end: If stories can affect people's political behavior, and video games advance stories, they too should be able to affect political behaviors.

This chapter presents three different studies that I hope will demonstrate just that. First, I present a qualitative case study of three games—*Celeste*, *Civilization V*, and *Fallout: New Vegas*—to give a sample of some of the issues games tackle and demonstrate how they use both narrative and ludic elements for these purposes. They are intended to provide concrete examples that readers can latch onto for the chapter's more abstract statistical arguments, but also provide initial insight into how they might get their rhetorical arguments to stick. Second, I turn to two sources of survey evidence—Pew Research Center's study on Gaming and Civic Engagement of Teens and Parents from 2008 and my original GAmEPLS survey fielded in 2019—to demonstrate robust statistical associations between playing games with social, moral, and political relevance with certain social attitudes and political behaviors. Finally, I turn to an original laboratory experiment that demonstrates that playing games in which people think about social, moral, and political issue shifts attitudes in a more pro-social direction and increases participatory intent.

5.1 How Games Highlight Moral, Social, and Political Issues

Celeste, *Civilization V*, and *Fallout: New Vegas* were among some of the most popular games of the last decade—both in terms of critical acclaim, but also in sales. This was important when deciding what games to analyze. The fact that they are popular means that a number of people find them fun to play. While that bode fortuitous for me since I would have to play them in order to understand them, it was important for a separate reason. Popularity meant people played them **in the first place**—enough of them that I could credibly claim they they are typical gaming experiences. Additionally, I selected these three because each can be mapped on to one of the three broad types of issues that I believe engenders political activity: *Fallout: New Vegas* is mostly oriented around moral issues, *Celeste* is oriented around social issues, and *Civilization V* around political issues. While it is not true that these games deal only these topics (much of *Fallout*, for example, concerns the expressly political issues of factions and their competing claims over territory), they are areas of special emphasis, making them especially useful

illustrations. They also exhibit a great deal of variation between the games on core facets of gameplay. They differ dramatically in their art styles, soundscapes, level design, genre, player feedback systems, win/loss conditions—it might honestly be easier to describe the ways in which they are similar rather than exhaust the extensive list of differences. Despite these myriad dissimilarities, all three have content that matters.

I sought this variation for exactly that point—to demonstrate that mattering is not dependent on some narrow constellation of mechanical, thematic, or artistic features. It does not matter if the game uses a pixel art aesthetic (*Celeste*) or pushes the technological envelope for visual realism (*Fallout*); if there are multiple discrete levels (*Celeste*) or a single, evolving world (*Civilization*); if you are looking out through the eyes of an in-world character (*Fallout*) or down on the scene like a god (*Civilization*): No single feature, or set of features, (dis)qualifies a game from mattering.

As mentioned earlier, these case studies are designed around the twin purposes of illustration and demonstration. I want to illustrate the kinds of serious issues that games address in the pursuit of play. This will hopefully be helpful for those who do not play video games or whose only exposure comes from the bewildering observations of their children or grandchildren mashing buttons in front of a screen. I hope these illustrations will be interesting for those who do play games as well—especially those who have not paused to think about how the narrative and ludic elements of their favorite games come together to create the experiences that have so heavily impacted them.

I also want the case studies to demonstrate how the games are able to bring about the statistical relationships I explore later in the chapter. As I discussed in my theoretical chapter (Chapter 3), the extent to which games will shift people's attitudes and behaviors depends on the extent that the experiences are taken up into their working cognitive models of reality. For games that deal with politically relevant information in a circumscribed manner, the E^2-ELM theory predicts that it will be determined by how much they elaborate on what they experience. For games that deal with explicitly relevant information, this is determined by how much of the information they receive and accept, articulated in the RAS model. I want the cases to give voice

to the numbers and grant additional credulity to the claims they carry. To that end, the cases need to accomplish the following things:

- They have to show that the games do, in fact, consider social, moral, and/or political issues. These considerations should not be perfunctory or skin-deep; many games will briefly mention a relevant issue to make a joke, add a bit of depth to the world, or because an earnest attempt to address an issue was poorly executed. (Not all games are masterpieces.) But if the issues are not considered for at least a few minutes over the duration of the game, players will have little need or want to retain it.
- They have to show that these experiences satisfy their particular requirements for mattering. If the game exhibits explicit mattering, it needs to be seen how it attempts to mirror real-world concerns. If the game exhibits circumscribed mattering, the case ought to highlight how the politically relevant aspects are incorporated into the larger artistic effort.[1]
- The experiences highlighted ought to encourage the players to incorporate the game's arguments (both latent and explicit) into their working models of reality. This is opposed to an emphasis on the things that make people feel like they are in the game, which will be covered in the next chapter. For games with circumscribed mattering, this means illustrating how aspects like technical quality, engagement, and resonance are used to make the argument about the politically relevant issue it tackled worth deliberation. For games with explicit mattering, this means highlighting how their arguments are bolstered through realistic information and/or authenticity.

I will describe the games with these three criteria in mind. In doing so, I will show how each are satisfied through a combination of both the game's narrative and ludic elements. After all, that is why they are games rather than some other kind of visual entertainment. I leave ludic elements that increase feelings of immersion and presence for the next chapter on interactivity, instead focusing on those elements that emphasize the game's rhetorical arguments.

These games are not exceptional in the ways they address social, moral, and political issues. They are emblems of highly popular genres in contemporary gaming—and many of the narrative and mechanical techniques are common tropes across games in general. While each description necessarily emphasizes the things present in that particular game, I hope that my descriptions evince a broader understanding of the games I could not include as well.

[1] Social mattering fits best in discussion of multiplayer experiences and will consequently be covered in Chapter 7.

Figure 5-1. *Celeste*: Madeline (lower right) meets her Mirror-self (floating; upper left). The Mirror-self is an entity manifested by the mountain embodying Madeline's mental health issues.

5.1.1 *Celeste*

5.1.1.1 Game summary and objectives

In *Celeste*, players take on the role of Madeline, a young woman with a self-appointed mission to summit "Celeste Mountain," located in an undisclosed part of Canada. The game is a 2D platformer with a classic arcade aethestic.[2] Like many games, although unlike both *Civilization V* and *Fallout: New Vegas*, Celeste follows a single, linear narrative over a sequence of discrete levels. In this case, it unfolds over seven—although there are are roughly 20 bonus levels should the player want to make the exact same narrative progress but through courses that are much, much harder than normal. Each level is comprised of several puzzles, with challenges that will kill Madeline if they are not overcome. Players bounce off of walls, off of (and on to)

[2]Platformers are a genre of game where players advance by dynamically moving from safe-spot to safe-spot in order to reach the end of the level. These safe-spots are often above the ground, hence **platform**er. To make an analogy, the childhood game of "the floor is lava" is a real-world platformer. Although the platforms in Celeste are not limited to chairs, tables, and couches—except in one level where the player navigates Madeline to the top floor of the haunted "Celestial Resort."

rocky outcroppings, use rickety machinery, hitch rides on sentient stones that are a tad touchy, and even bound on the tops of clouds, in order to solve the puzzles and complete the level.

Some of her most common obstacles are spikes and icicles, which she needs to weave over and through, but she also has to dodge crystals, traps and agitated spirits. The most omnipresent threats, though, are gravity and momentum. A slight misstep in an early jump may be disastrous. Not because it makes the player fail immediately (although they most certainly can), but because this slight difference in velocity and placement will incur cumulative errors that will make dodging some obstacle at the end of the level—say a levitating wall of spikes—impossible to clear. The game is relatively forgiving in that there is no limit on how many times the players can die; they do not get a "game over" sign and get sent back to the very beginning of the game. They get to automatically revive at the start of the puzzle that killed them. Although that can be cold comfort when the room takes 30 seconds of concentrated effort at a time to clear, as it does in some of the later puzzles. At the end of every level, the game tallies how many times the player died in summiting it. It is not uncommon for players to rack up 2-3,000 total deaths over the course of the game.

The game opens with a small pixelated figure, Madeline, approaching a craggy, broken dirt path at the base of the mountain. "This is it" she tells herself. The player takes over and a hop, skip, and a jump later, a colossal block of ice comes hurtling down and nearly crushes her. It is certainly an auspicious start. The player pushes Madeline forward, past more sheer cliffs and icy obstacles, until she happens upon a large wooden cabin with a stout old woman out front. The woman warns her that "the mountain may be too much for you...you should know Celeste Mountain is a strange place. You might see things. Things you ain't ready to see."

After then nearly dying as the bridge from the house to the mountain's base collapses under her feet, Madeline then begins her climb up through an abandoned city. Machinery evocative of construction equipment litters the area and, in many locations, enables the player to successfully advance to the next puzzle by allowing themselves to be jettisoned about. It is while she is

clearing this maze of skeletal metal that she meets a fellow traveler named Theo.[3] Theo welcomes her, glad for the company on what is otherwise a lonely climb. He tells Madeline that he is an "adventurer from a far off land," which he later reveals to be Seattle. After a brief conversation, Madeline leaves Theo and heads-off to complete her ascent through the city. After some time, and trial and effort, she emerges in front of a giant monument in the shape of a tombstone. It reads: "This memorial dedicated to those who perished on the climb." She decides there is as good a place as any to rest for the night, although not without some doubt that she could be in over her head.

She awakes in the night but feels compelled to keep going. The player pushes her onwards. She comes across ancient ruins erected by black stone. She decides to go deeper. After a few screens of relatively low-risk platforming, the players direct Madeline to a mirror. But her reflection seems odd. Darker. The player jumps, the reflection jumps. The player crouches, the reflection crouches. The player moves right. The reflection moves left, *opposite to how it should.* The screen zooms in on the mirror. Madeline stands still. Her reflection takes two steps forward.

The mirror cracks open. The reflection is free and starts running left off screen. The cold stone in the halls transforms to allow the player to retread their steps and advance even further into the ruins. After doing so, the player soon comes across the reflection, resting placidly next to the skeleton of a less-fortunate climber.

"Madeline, darling" she says, "slow down." Her eyes turn red as she begins to levitate.

"Are you...me?" Madeline asks.

"I'm Part of You...I can't tell you what a relief it is to finally get out of your head. But look, I'm worried about us. We need a hobby, but this...You are many things, darling, but you are not a mountain climber. . . .I know it's not your strong suit, but be reasonable for once...you can't handle this."

The dialogue concludes and Madeline runs away. But the reflection follows. She mirrors Madeline's movements exactly as she dashes and jumps her way through the ruins. If they touch,

[3]Technically, Theo can be introduced here or in the following level, depending how adventurous the player feels.(Or how lost they get). In either case, his dialogue is effectively the same.

the player dies and has to restart the puzzle. If the player manages to solve all the rooms without succumbing to their pursuer, Madeline eventually evades the reflection and exits the ruins. But she soon comes to the conclusion that this was all a dream.

Before the start of the next level, the game tells the player directly to "be proud of [their] death count. The more you die, the more you're learning. Keep going!" The encouragement and kind words are welcome because the technical difficulty ratchets up for the rest of the game.

As Madeline continues her climb, she comes to realize that the "part of her," the reflection in the mirror, was **not** just a figment of her imagination. She is the work of the mountain, the parts the old woman warned she might not be ready to see. This mirror self does everything in her power to get Madeline to turn back—and her power is quite considerable. She antagonizes a lost spirit into chasing Madeline through and abandoned hotel, triggers an anxiety attack by confining her and Theo in a stalled gondola suspended hundreds of feet in the air, and helps trap Madeline and Theo in ancient ruins corrupted by their insecurities. For Madeline, it is populated by deadly monsters to reflect the parts of her she sees as ugly and irredeemable; for the selfie-happy yet self-conscious Theo, it is imprisonment inside a crystal with hundreds of disembodied eyeballs staring at him.

"Did you know," the game chimes-in to the player, "it is impossible to outrun your own shadow."

This latter gauntlet causes Madeline and Theo to engage in some introspection. As they sit around the campfire, they discuss their personal struggles with mental health and their drive to find meaning.

> **Madeline:** I'm going crazy. My brain fixates on these stupid things that happened forever ago. I should be over them. None of it even matters. I'm good at keeping up appearances, but the truth is I'm barely holding it together.
>
> **Theo:** How do you cope?
>
> **Madeline:** I drink mostly. And get mad at people on the Internet.

A little later, Theo relates:

> I'm just bumming around. As usual. I just got this new job in Seattle. I thought I finally knew what I was supposed to be doing with my life...But I hated it. So I quit after a week and hopped a bus to Canada. I just felt this urge to...get lost in the middle of nowhere. Now that

> I'm saying it out loud, I realize how flakey it sounds...I'm just worried that I'll never figure out where I'm going.

Eventually the conversation winds down and Madeline goes to sleep. But she is clearly emboldened by the conversation she had with Theo. In her dream, she seeks out her mirror-self, telling her that she realized that she understands what the mountain is trying to show her. That she has to abandon the toxicity the mirror-self embodies "all the things that [she does not] like about [her]self."

The mirror self does not respond favorably. Shadowy waves of incarnated rage roll in and engulf the world before capturing Madeline and hurling her down. Down past the gondola, down past the hotel, down further than the basecamp. She is so far removed from the frigid cold of the mountain that she is actually in a lush, viridian forest. Despite her beautiful surroundings, she is desolate.

"I was so close. It's over now. Why won't she leave me alone? I HATE her....But she's part of me. I'll never be able to get rid of her. And she was right. I couldn't climb the mountain."

She comes across the Old Woman and bitterly admits defeat. She had been right when she warned Madeline before: the mountain was too much. After indulging in a laugh at Madeline's expense, the Old Woman suggests working with the reflection, rather than thinking it is something to be fought or cleaved off. "This girl you're talking about, she sounds like she's holding you back. Talk to her. Figure out why she's so scared."

Madeline seeks out the mirror self, eventually finding her in the forest. And while it is clear that she was emotionally hurt from Madeline's attempted abandonment, she defensively warns Madeline in no uncertain terms that any attempt to reconcile would not be pretty. Madeline walks closer and the reflection makes good on the threat. For the next several screens, Madeline is trying to advance towards the reflection while the latter shoots lasers and missiles at her, adding substantial difficulty to the puzzles.

Eventually, if the player is persistent, they break through to the mirror self.

“Fine,” she tells Madeline. “You win. I guess you don’t need me after all. If you want me to go away I’ll try.”

“That’s not what I want. I need your help more than ever. Please. Let’s work together...It’s okay to be scared.”

The mirror self transforms into bright orbs that surround Madeline until she is encompassed in a luminous glow. A flash and Madeline’s appearance has changed. Her hair is pink, like a lighter hue of the reflection’s. The screen chimes and informs the player that Madeline has leveled-up. Instead of being able to simply dash in mid-air, she is now able to dash twice. The two decide to reattempt the climb, together.

Starting below rock bottom, they climb back through the city, both ruins, the hotel—all the levels that they had fought each other on. “It won’t be easy” the Old Woman had warned the two when they committed to the climb. “[But] I reckon you can make it if you cooperate.”

And they do. Through puzzles that now require the new double-air-dash ability, Madeline reascends through all the places that the mirror self had fought her before. At the end of each mini-level, in order to get to the next stage, Madeline has to jump towards the mirror-self, which propels her around otherwise impossible obstacles and further up the mountain. The final ascent up requires completing 30 puzzles. Some treacherous, some easy. Few would be possible without the added abilities unlocked by Madeline making peace with herself.

At the end, the pair reach the summit and the player is treated to an image of a serene sunset over the mountain tops. Both Madeline and her reflection are contentedly sitting, watching the clouds roll by. Players can sit in this moment for as long as they want; the game giving them a moment to reflect and “just enjoy this for a bit.”

5.1.1.2 How it matters

Celeste is a game that both narratively and mechanically rewards perseverance. Unfortunately, it is tough to translate just how technically difficult the jumping puzzles are. (Writing “okay, well, first you jump right onto a wall, dash left to a diamond, dash up-diagonal over some spikes—and watch out not not get splattered by the machine your dash activated”

conveys very little in a large number of words). But the game *is* difficult. That is part of its core appeal. At time of writing, only half of the players who downloaded and started the game on the popular computer game client Seam managed to complete all seven levels.

This difficulty is meant to mechanically reinforce the game's story on the struggles of mental health. The game does not just tell the player that overcoming anxiety and depression is tough. It makes the embodiment of depression chase you over chasms and spikes; it sends monsters spawned by self loathing barreling at them, teeth gnashing, as they try to rescue an in-game character; it makes summiting the mountain difficult, even after one finds acceptance with the parts of themselves they had previously tried to cast away.

While the game explicitly talks about mental health, its mattering on this topic of societal importance is largely circumscribed. It avoids spouting references to either neuroscience or melancholic philosophers like Kierkegaard; It does not try to outline why people feel depressed nor why more seem to be feeling this way now compared to generations before. The game may say that Celeste Mountain exists in Canada but, in reality, it does not. Nor does magic for that matter (Tim Horton's notwithstanding). The characters are not real, although their struggles are meant to elicit empathy. Instead, the main vehicle of meaning is metaphor. Depression and anxiety is presented as a separate entity that actively works to sabotage its progenitor. The game takes a bold, thoughtful step beyond what is commonly peddled by self-help books ("just let go and abandon your insecurities!") by observing that, for many, these feelings are inextricable.[4] Finally, the game's most obvious metaphor (so distinguished because it take pains to make this explicit in the narrative) is sheer act of the difficult climb up, the self-wrought descent down, then the climb back up the mountain.

The game does not try to make claims for how depression works. It makes no policy recommendation or specific suggestions for how afflicted players can overcome it. It presents an

[4]Indeed, it subtly—and perhaps unintentionally—advances a Buddhist critique of Western self-help programs as being violence one perpetrates against oneself, trying to radically change who they are to fit another's mold rather than seeking self-acceptance (see Marino, 2018).

artist's truth of the subject: a poignant one, pregnant with hope. One that invites players to elaborate on it by the depth of feeling it elicits.

The most predominant mechanisms encouraging this elaboration is the game's technical quality and resonance. Regarding the first, the game's pixel art aesthetic is vibrant and beautiful. The audio is crisp and inspirational—paying homage to the chiptune music of the arcade and 32-bit eras. From a mechanical standpoint, the game does not glitch out or burden players with inconsistencies in appearance, difficulty, or movement. Players are not hampered by hitboxes[5] that vary from place to place. The movement controls feel smooth and intuitive—and the momentum system feels fair given the nature of the challenges presented. Critics often laud these elements in their reviews of the game—including the Strong Museum of Play, home to the International Video Game Hall of Fame, which named *Celeste* as its 2018 game of the year and one of its most notable games of the last 40 years (Wired, 2019).

The technical quality of the narrative, though, is also well-regarded. The story flirts with traditional, tropish notions of victory for protagonists in this genre of media (e.g., abandoning the bad parts of themselves) before subverting it. There are moments of humor punctuating the serious message, keeping the players involved and entertained. Most importantly, the characters are fleshed out with backgrounds and problems that are relatable. Executing its various metaphors in ways that players don't feel preached-to while also constructing characters that make them care and consider the issues discussed is a tremendously difficult task.

Turning to the game's resonance, *Celeste* is neither proximate to our reality nor is it too distant. The sparse use of actual locations (Seattle and Canada) give it some feelings of realism—although not too terribly much. The same could be said regarding the choice to cast humans as the characters, rather than animals.[6] But the main way it is able to convey a sense that it resonates with our world is by virtue of the issues that its characters face. One in five Americans are estimated to have struggled with depression or anxiety (*NIMH: Any Anxiety*

[5]The area around in-game objects that allows the engine to determine if they come into contact with each other.

[6]This sounds comical, but it was actually done to great artistic effect in the adventure game *Night in the Woods*, which also dealt with anxiety and depression.

Disorder, 2020). Many more know someone first-hand who has. Even if they are unable to relate to medical diagnoses of depression or anxiety, they can often relate to the other issues expressed by Madeline and Theo: feeling like there is a darker side of us, a homunculus pushing us to be cruel and self-destructive; feeling like we are adrift in life's waters, left without a clear plan or purpose. These are struggles that have afflicted people for eons. The setting is fictional but it speaks to very real human concerns.

In many respects, *Celeste* is simpler than *Civilization V* and *Fallout: New Vegas.* Although there is a bit of latitude in how to attempt each level, players are not given anywhere as much choice in how the narrative progresses. There is only one story-line, one path to the top. That is it. Additionally, as I will talk about more when I get to their case studies, *Civilization V* and *Fallout: New Vegas* concern a number of socially relevant issues and themes. *Celeste*, on the other hand, really only deals with mental health.

But this all is better thought of as a specialization rather than a limitation. The depth of feeling and meaning that *Celeste* can plumb by virtue of this singular focus is remarkable. While many games' road to meaning is by addressing multiple issues, many others emphasize one or two but do them exceptionally well. And judging by its content and critical acclaim, there can be little doubt that this strategy resulted in players thinking deeply about the issue and being impacted by how it was presented.

5.1.2 *Civilization V*

5.1.2.1 Game summary and objectives

In *Civilization V*, players are tasked with shepherding a society from humanity's nascent beginnings through the modern day and even beyond. Players nominally take on the role of a historical leader, such as Hiawatha (Iroquois Confederacy; 1525 – 1595), Wu Zetian (Tang China; 624 – 705), Shaka Zulu (Zulu Kingdom; c. 1787 – 1828), George Washington (The United States; 1732 – 1799), and Theodora (Byzantine Empire; c. 500 – 548). I say "nominally" though because the players hardly spend any time in the body of the leader they select. Instead of looking through their leader's eyes, they are given a near-omniscient vantage point; they peer down on the

Figure 5-2. *Civilization V*: Managing the social policies active in the empire. Each broader social policy contains sub-trees made up of smaller policies. Players unlock the ability to activate a single part of the sub-tree, or adopt a broader policy agenda, by generating culture—which can be facilitated through various buildings actions. The mouse is hovering over "Professional Army" policy in the "Honor" category, detailing the benefits of that policy. Each policy often results in trade-offs—either explicitly or in opportunity costs. If the player completes all of the elements in 5 policy-areas, they can begin the Utopia Project. If they are the first player to complete it, they win the game *via* a cultural victory.

happenings of the world as a whole. The characters are more accurately understood as anthropomorphic placeholders for the societies that they led or emerged from in reality.

A "standard game" (played with the default settings) includes six leaders and 12 city-states and will play for up to 500 turns. In each turn, players can choose to perform an action with any of the cities, workers, or troops under their control. Once every eligible entity has had its move, or once the player has elected to do nothing, the turn then passes to the next player. The game can be played with others either locally or online, although it is most frequently played alone. Any open slots are filled by AI players, that is, players controlled by the game itself. Each player's goal is to build cities, negotiate alliances, wage war, conduct trade, and develop culture—all so that theirs

becomes the world's preeminent civilization. City-states are exclusively controlled by AI and do not have much in the department of territorial and global ambition. They can, however, have confederates and rivals among their peers and be allied or opposed with the players.

Once the player selects a leader and starts the game, they are given control over settlers delineative of the society they represent and a unit of troops to defend them. These settlers will ultimately found the player's first city, becoming the capital of their fledgling civilization. The settlers are placed somewhere on a procedurally generated world map, but exactly where is a mystery. They are enshrouded by a fog of ignorance that is only lifted through exploration.

Mechanically, the map is a tessellation of hexagonal tiles. As players move from one tile to another, the fog shrinks back and reveals more of the terrain. The world is an assemblage of grasslands, forests, rivers, tundras, deserts, mountains, marshes, and more. It is riddled with possibility and uncertainty—but also resources. Each tile type offers a base level of the game's three natural resources: food, production, and gold. Some tiles offer only one resource individually, some offer two, others are completely barren. Food fuels the city's population growth, which is tied to the number of tiles it controls; production is used to create buildings, raise armies, train workers who improve the land, and/or make settlers to found additional cities; gold is used to expedite production, to buy additional land, and engage in diplomacy. Most tiles can be improved, but only once a certain level of scientific expertise is met. The land itself thus presents the players with an early and crucial set of strategic considerations. They have to consider not only what the tile they are standing on offers, but whether those in the immediate vicinity will be helpful or a hindrance as their city advances and expands. What all players face then on their first turn the same question immortalized by *The Clash* in 1982: "Should I stay or should I go?"

It is better for the players to make a decision quickly. They are not alone in the fog. Not only are there the other players to contend with, there are also throngs of barbarian encampments throughout the map. Barbarians are similar to city-states in that they are entirely controlled by the AI, but they are far more aggressive. They roam the map, attacking cities and kidnapping workers and unmoored settlers. Games can be lost by players dithering around too long and having their

settlers captured by these roving marauders. Barbarians are relatively easy to defeat, militarily speaking—but the manpower needed requires a force larger than the single unit given at the start. And larger forces can only be marshaled once a city has been established.

Once players make the decision on where to settle, they are asked to choose something to produce (a "production" in the game's terminology), a technology to research, and an ideology. Production refers to buildings, troops and laborers, and wonders.[7] The options for all three are simple in the earlier turns, reflecting the relative simplicity of early human settlements. The options expand as additional technologies are developed. The earliest things that be researched are similarly primitive: pottery, archery, animal husbandry, and mining. But they are just the first steps in an expansive technology tree. Each layer serves as the foundations for ever-more advanced concepts, fields, and products—many of which requiring several prerequisites. In order to discover "economics," civilizations must first master over 25 other technologies as varied as "banking," "trapping," "iron working," "mathematics," "theology," "writing," and "physics." However, once they do, they have the capacity to extract far more gold from their interactions than they could before.

Ideologies are also presented as trees of stacked, interwoven preconditions. However instead of one overarching tree, players unlock and complete up to eight: Tradition, Liberty, Honor, Piety, Patronage, Commerce, Exploration, and Rationalism. Players can have up to five active ideologies at any given time—although only Tradition, Liberty, Honor, and Piety can be unlocked without sufficient technological advancement. Each ideology has a set of social policies such as "military caste," "mandate of heaven," and "philanthropy," that affect the player's resources, buildings, pay-offs, and penalties. Selecting them often features some sort of subtle trade off. For instance, unlocking "Republic" in the Liberty tree increases production, which can be used for troops, but also increases how quickly citizens get weary of war. Early choices in these three areas often compound, interacting in subtle ways that do not become apparent until long into the game.

[7] Wonders are notable structures like the Great Pyramids, Stonehenge, and the Great Library at Alexandria in the early game and Machu Picchu, Sistine Chapel, Statue of Liberty, and Sydney Opera House as the game progresses.

Once a player puts down their first city, the number of resources they have to balance expands considerably. In addition to production, food, and gold they now also must consider their science production, cultural production, citizen happiness, citizen unhappiness, faith, and population. Science and culture production determine how quickly technological and social advancements are made and can be accelerated by constructing certain buildings (like universities and temples) or by selecting certain social policies. Citizen happiness (and unhappiness) acts as a proxy of public (dis)approval. Civilizations with positive net happiness work their ways towards "golden ages," which temporarily increase the civilization's gold and production yields. Negative happiness runs the risk of depressed productivity and, if the situation goes on for too long, civil war. Happiness can be attenuated with certain buildings, policies, or through the acquisition of luxury goods. Unhappiness can come about through overpopulation and military conquest. Faith accumulates as empires gain spiritual clout through world wonders and by befriending religious city-states. Civilizations with high amounts of faith have the opportunity to "found" a religion, which extends the influence the civilization has on other players' cities—even opening the possibility of an opponent's city seceding to join the civilization that best matches their faith. As noted above, population is tied to the number of tiles a city can work. However, the larger a civilization is, the more unhappiness is generated.

This sort of trade-off is common in the game; players hardly get the opportunity to attend to all of their aims at once. The pursuit of one goal detracts from another, either directly or through opportunity costs. A player pursuing any victory condition has to juggle a myriad of conflicting, and interacting, considerations.

There are five ways to win a game of *Civilization V*. Players can be the last to control their original capital city, giving them a **domination victory**. Capital cities only change hands through military conquest, so this victory can only be secured if players build up their forces and capture at least one opponent's capital. Players with a more pacifistic bent may prefer to pursue a **diplomatic victory**. These are secured by winning what is effectively a "world leader" vote at the United Nations. Each nation and city state receive a certain number of delegates based upon how

advanced they are culturally and technologically. Each delegate has one vote. Whichever country passes the minimum threshold, based on the number of civilizations and city states still in the game, wins. These victories are hardly ever won alone (hence why they are called "diplomatic"). Instead, players must receive votes from other players and/or city states, which can be earned through fostering good relations throughout the entire game.[8] **Scientific victories** occur when players research all of the game's technologies. This results in them building and launching a ship to our nearest interstellar neighbor, Alpha Centauri. **Cultural victories** could instead be pursued and are earned by players fully enacting five social ideologies. Social ideologies are comprised of smaller social policies, which are purchased by culture points. If players enact enough policies, they complete the "Utopia project" and automatically trigger this victory. Finally, players can choose to run out the 500 turn clock and shoot for a **time victory**. These are earned by the player with the largest number of points by the end of turn 500 (calculated based on the players' accumulation of gold, social policies, scientific advancements, citizens, as well as the number of cities, resources, world wonders, and military units under their control).

These would be a complicated enough if players were doing it alone. But, as mentioned before, they are not. They are competing with several others in a race to achieve any of the five win conditions first.

As suggested by both the military and diplomatic victories, it is not only possible that players will interact with each other, it is all but guaranteed. National borders will creep up on one another, armies will cross paths, and leaders will frequently inform players when they have performed an action that they either agree or disagree with. For example, if the player frustrates Catherine de' Médici, she might appear on their screen saying "You really should start paying attention to what's going on around you. There are games being played here on so many levels." If Cyrus the Great happened to agree with you, though, he might say "I understand all too well, there are some opportunities one simply can't pass up."

[8] Or, if they have the resources, through bribes of gold.

Players can also take the initiative when engaging other societies by accessing their diplomacy menu. They can learn about their relationships with other states and possibly even encourage them to go to war with other players. They can engage in trade, which can include gold and luxury resources as well as various diplomatic agreements including open borders, mutually beneficial scientific research plans, and promises of peace. Or, players can declare war. If they do, cities will have to use their available troops (or spend the time and production to make new ones) to try and capture other cities in a bid to cow the player(s) into submission. Any action that the player can initiate in the diplomacy menu can also be initiated by one of the AI: meaning that they can propose trades or prompt/end wars with each other and with the player. An important thing to remember through it all is that they, like you, are trying to establish the world's leading empire. War is not the only way to out-compete other players; the tools of peace are simply more furtive.

5.1.2.2 How it matters

Civilization V is a game with narrative content that explicitly matters. Characters are given names, biographic profiles, appearances, and attributes that mirror the real-world leaders and societies they were inspired by. In their interactions with the other contenders, the game makes players consider a variety of phenomena with social, moral, and political relevance such as war, diplomacy, and economics. It encourages players to consider politics as a process of balancing trade-offs. (Indeed, *Civilization* is prototypical of so-called "resource management" strategy games, a broad genre of games that includes *Democracy*, *Empire: Total War*, and *SimCity*). Players are given five broad possibilities to strive towards, five routes to victory. Which will they choose? How will they choose to get there? What will they prioritize? What will they sacrifice? These choices are present for the entire duration of the game, which can easily span over 10 hours. There are no right or wrong answers, only consequence. *Civilization* carries a number of rhetorical arguments about politics and what it takes to run a state. But if there was a through-line across them all, it would be that governing is complicated, open-ended, and fraught with competing considerations.

There are a number of ways that this kind of content encourages players to internalize these arguments. For one thing, the game makes a big play towards authenticity. The buildings, research, and policies they implement all have readily identifiable real-world analogues. Indeed, the game offers a "Civilopedia" that provides factual historic information on the real-world analogue that inspired the building, unit, or policy. The attributes that they offer and the way they influence the player's resources and trajectory makes stylized sense considering their real-world functions. Playhouses raise culture and happiness. A national "warrior code" would cause troops to be raised faster. Overcrowding causes dissatisfaction. These are things that the players do not only consider once but revisit consistently throughout the game.

But *Civilization V* also asserts its authenticity and realism in the fact that these things interact with each other in complex ways. A state's military might is partially a product of how technologically advanced they are. However, being too focused on military production will cause their scientific progress to languish. On the other hand, if states focus entirely on scientific achievement and have no means of national defense, they run the risk of being bullied or swallowed up by more aggressive neighbors. States do not get to just snap their fingers to raise an army, build a world wonder, or start a religion; it requires effort and capital to pull off—effort and capital that could have just as easily been directed towards another goal. Every individual game offers something comically anachronistic (like the Great Pyramids of Giza being built in the early 700s CE), but it is quite easy to take what is being offered and add it to one's cognitive repitoire of facts about state-making. Indeed, considering the fact that few people spend large amounts of time contemplating that subject, the game's treatment of it offers a strong possible influence among those who play it.

5.1.3 *Fallout: New Vegas*

5.1.3.1 Gameplay and Objectives

Fallout: New Vegas is the fourth installment in a series of games fleshing out the entire *Fallout* universe. The games explore an alternative timeline to ours that split just after the second

Figure 5-3. *Fallout: New Vegas*: The first major narrative choice of the game. Players must decide if they want to help and escapee named Ringo seeking refuge in the town of Good Springs, both of which are under threat by the rapacious Powder Gangers. Alternatively, you can choose to side with the Powder Gangers, kill Ringo, and spurn the Town's kindness. Trudy, Goodspring's barkeeper, tells you that your actions will have reputational consequences.

World War and occupies a universe where many of the optimistic technologies envisioned by futurists in the 1950s (think robots and ray guns) are actualized. In this alternate reality, the Cold War runs colder and longer, finally turning hot when China and the United States initiate the "Great War" in 2077: an international nuclear exchange over oil resources in Alaska. The war lasts only two hours but completely decimates all of human civilization.

Life itself persists, as it would—albeit irrevocably altered and irradiated. The only people that manage to survive intact (at least in North America) are those who were housed in roughly 120 sprawling subterranean vaults, operated by "Vault-Tec." These are vast, complex structures that each sustained, and provided political structure to, hundreds of people and their descendants until the vault doors were opened.

When that happened, though, was not always within the residents' control. It turns out that the preservation of the early post-war's culture also meant preserving its cavalier attitude towards human-subjects testing. Each Vault-Tec vault was actually a social experiment. These spanned the horrific (not actually sealing the doors to test the effects of radiation, creating a group of glowing, decaying hominid creatures known as Ghouls) and the bizarre (populating a vault with just one man and 999 puppets). The people who reclaimed the surface were not only survivors of the nuclear apocalypse, but survivors of their twisted Edens.

Fallout: New Vegas takes place in the Mojave desert in the year 2281. The vaults in the area had all been opened for nearly two centuries and their residents and descendants began trying to rebuild life in an environment that was already pretty inhospitable before the Great War. And its survivability has not improved much. Settlements are often ramshackles of pre-war cities, water sources are under constant threat from wildlife and radiation (and irradiated wildlife)—the Mojave is euphemistically called "the wastelands" in the game. It is a barren hellscape that constantly seems no more than a breath from total collapse.

The game begins as players awake in the house of Doc Mitchel, a doctor in the town of Good Springs, nestled in the desert. Doc explains that you have been unconscious for days after he worked to bring you back from the brink of death. You had been being shot in the head and ignominiously buried in the sand. As I will describe in greater detail in the next chapter, players get the opportunity to tell Doc their name, customize their appearance, and determine the broad contours of their in-game personality.

From this point on, much of the player's experience is contingent upon their individual choices. As they advance, they discover that the perils of the desert are not limited to giant radioactive scorpions and 12 foot tall reptilian behemoths called "death claws" (they live up to the name). The dangers involve the game's many factions, all vying to survive and/or exert as much control as they can exert over the area surrounding the Hoover Dam and the "New Vegas" strip. The player's actions towards these groups can affect their reputation within them, ranging from

neutral to idolization or, going the other way, from neutral to vilified. Depending on their actions, players can also have mixed reputations like “dark hero” and “smiling trouble-maker.”

Factions range in size, clout, and temperament but there are three with the most leverage on the Mojave: The New California Republic (NCR), Caesar’s Legion, and Vegas’ Four Families led by the enigmatic Mr. House. As the courier advances to find their[9] own answers, they gain notoriety throughout the desert and the attention of these three groups.

Players are given a wide swath of actions that they can perform throughout the 20 or so hours of gameplay. They are emboldened to pick any option their heart desires so long as they are prepared to deal with the fallout from their choices (pun most certainly intended). While I will try to stick to experiences that are common across games, the information is unavoidably flavored by my own play style. Similar to how many ethnographers take the time to detail the biases that they are consciously aware of, I feel I ought to briefly disclose the way I approached this virtual world.

My character (who I unoriginally named and modeled after myself) is someone who prioritizes the diplomatic route when at all possible but is not afraid to turn to the six-shooter when physically threatened. He tries to talk his way out of trouble and invests a lot of effort into advancing his scientific knowledge to gain additional information about the characters he is dealing with and about their world. He works to raise his esteem with groups who are trying to make their way without harming anyone else, find common ground between factions who do not actually want to be in conflict, and will go out of his way to eliminate the bandits and thugs whose sole purpose is to do harm onto others. This is both because it is instrumentally useful (you can get more done with less of a headache if more people like you) and also because, frankly, I (Peter) would feel bad about leaving a place worse than how I found it: even if it is only bits and pixels. And I am sure exactly none of this surprises anyone who knows me in reality.

Having bore my soul, I can now return to the gameplay.

After players are patched up by Doc Mitchel, they are tasked with meeting the other residents of Good Springs. The residents first introduce the characters to the NCR, Caesar’s

[9] I use the third-person singular when describing the protagonist because whether the courier is male or female is entirely at the player’s discretion.

Legion, and Mr. House. The NCR is painted as a government that means well but is too zealously involved in everyone's business, Caesar's legion as a cruel band of brutes opposed to the NCR's over-involvement, and Mr. House as an enigma who nevertheless has the undisputed rule over the New Vegas Strip. They learn that the NCR and Caesar's Legion had a battle over Hoover Dam not too long before the start of the story. The NCR held the Legion back but the latter have since been steadily chipping away at the NCR's lands and troops. It is doubtful that the NCR could hold them back again. Among the people the player meets in Good Springs is a lumbering automaton who speaks with decidedly Hollywood take on a Western accent ("Howdy, pardner!") named Victor. Victor reveals that the player-character had been shot in the head and buried by a man named Benny, pointing them to the nearby city of Primm for more answers.

Before the player leaves, they are presented their first major choice: There is a man holed-up in Good Springs named Ringo, who is sought after by the "Powder Gangers," a group of armed escapees from a nearby NCR prison. The Powder Gangers are planning to raid Good Springs and kill Ringo—as well as anyone else who happens to be in their line of sight as they enter the town. The player has to choose whether they ally themselves with the Powder Gangers or try to rally the town to defend Ringo and themselves.

After the choice is made, players travel down a dilapidated highway towards the Bonnie and Vance Casino in the town of Primm. But before they get there, they are stopped by an NCR officer just outside the city limits. The player is advised not to enter because the Powder Gangers have taken over the city and NCR is too undermanned to liberate the town's citizens. The player still needs to enter in order to find out more about Benny; they simply have to face the Powder Gangers in order to do it. Once the player makes it to the Bonnie and Vance Casino, they learn that Benny was heading towards New Vegas—but also that Primm's acting sheriff was kidnapped by the Powder Gangers. They then get to decide if the nearby NCR outfit will establish Marshal law, if they want to go to the Powder Ganger's prison to rescue the original sheriff (who was arrested some time before by the NCR), or if they want to reprogram a Bonnie and Vance tour guide robot to be in charge instead. (Readers get one guess as to which of the three I chose...)

As players are *en route* towards New Vegas they pass through the town of Nipton and get their first face-to-face look at Caesar's legion. It is not pretty. Flanking both sides of the road leading into the town center are about a dozen languishing souls, an inch from death, crucified on wooden crosses. Approaching them, the players are told that the victims are so weak that taking them down will kill them instantly. Bodies pile up in the streets, houses and buildings nearby have been razed. It is a scene of wanton cruelty.

A man dressed as a Roman Centurion approaches the character and tells them that they will be allowed to live so that they can tell the NCR about the horrors they witnessed. He goes on to describe that the Legion, seeing a town of "weak" and "undisciplined" people, violently took control and instituted a mandatory lottery. Winners were allowed to go free. Losers were lucky if their death was quick. The man wryly notes that no one fought to free "loved ones;" the only vocal protesters to the lottery were by those who lost. Everyone else was lambasted as too cowardly to retaliate once they were allowed to go. The player is free to wage war upon the Legion, to agree with their methods, to try to join them, or vow to hold them responsible eventually. Irrespective of the choice, this town is still just one stop of many as they track down the man who tried to kill them.

The players continue forward in the Mojave from town to town as they learn more about the groups throughout the wasteland, about the NCR and the Legion, and about the location of Benny—the man who started this whole adventure with a misplaced bullet to the head. In the process, the player solves problems, exacerbate them, and/or creates entirely new ones. Among the colorful places, quest-lines, characters they can encounter is a decommissioned nuclear facility filled with Ghouls who want to embark on a salvaged nuclear warhead to their religious paradise, a group of medical noncombatants who try to heal members of the derelict "Freeside" of their drug and alcohol dependence, a group of Super Mutants struggling from neurodegenerative disease caused by a favorite technology, a gang of Elvis impersonators called "the Kings" who are trying to maintain order, providing food, water, and "security," for people in the borderlands where Mr. House's power ends and the NCR's begins, and a vault where people so despised the

prospect of being elected "overseer" (presumably because "winning" would result in their ritual sacrifice) that they ran negative campaigns against themselves so that the others would not vote for them. These and many more misadventures culminate in the players finally learning the location of Benny in New Vegas—and meeting Mr. House at his ultra exclusive "Lucky 38" hotel and casino.

Upon meeting Mr. House, they learn that the man himself is not really a man at all. Or, at least, not only a man. Mr. House takes on the appearance of a giant computer, revealing himself to be the original architect of New Vegas, uniting the warring tribes in the area to create a technological oasis in the desert. This reveals him as being well over 200 years old. He is not a machine, like the "Securitrons" he commands, but like the Wizard of Oz, he forbids you from peeking behind the metaphorical curtain to uncover the full truth. (If you curry enough favor—or later simply hack your way through his security systems—you come to learn that Mr. House is a human who has kept himself on advanced life support equipment for most of his bicentennial lifespan.) He reveals that the player was originally commissioned to transport a titanium chip from beyond the Mojave to him—a chip that would allow him to defend his interests in New Vegas against both the Legion and NCR. Benny is his protege. At least he was, up until he tried to kill the player to acquire the chip for himself. Mr. House promises money and power if the player gets the chip back from Benny and returns it to him. How the player acquires it (murder, subterfuge, persuasion) is left to their individual discretion.

Around this point the player also receives invitations to speak with the local head of the NCR (an ambassador to the New Vegas strip) and Caesar himself. Once the player has acquired the chip (either from killing Benny or coming to some form of understanding with him), they have to decide which faction they want to support, translating to who they want to have control over the Mojave: The NCR, the Legion, or Mr. House. There will be a final battle at Hoover Dam and the group standing afterwards takes the whole pot: the dam, the strip, everything. Whichever choice the player makes unlocks a new series of quests, which involve finding new allies for their preferred faction, strengthening their military capabilities, protecting important figureheads

(Caesar, Mr. House, and the President of the NCR), and assassinating noteworthy rivals. With limited exception, performing one faction's end-game quests precludes players from doing another faction's quests. Players can "fail" quests and still progress towards the end; their successes and failures here determine how difficult it is to win the final battle. The choices that the player makes throughout the game, reflected in their total "karma," provides a different spin on the legacy of their actions, revealed in a presentation after the final battle concludes.

I would be remiss in not noting that there is a fourth "faction" that the players can choose: themselves. For what it is worth, this is the route I chose after my extended experience with all three major factions made me realize that all of them would take advantage of the region's populace, just in different ways. Players can usurp Mr. House and use the platinum chip to strengthen his robotic armies and place them under your direct command. At the battle of Hoover dam, you help the NCR beat back (or demolish; dealer's choice) Caesar's Legion. However, when the NCR's head general arrives to take permanent control over the Dam, the player reveals that an uncountably large, absurdly over-powered robot army has completely surrounded the NCR's battered forces. He applauds your ingenuity but warns that you had best be able to keep a hold over the region because "if the situation were reversed, [he'd] see [the player] hang." This turns out to be an empty threat. The end-game cutscene reveals that neither the NCR or the Legion ever get a stronghold in the region and that the character is revered for the rest of history as someone who stood for "liberty" and an "independent New Vegas."

5.1.3.2 How it matters

Unlike *Celeste* and *Civilization V*, *Fallout: New Vegas* is a game that is neither primarily explicit or circumscribed in its politically relevant content. The game's length, and the sheer size of the world it inhabits, allows it to be both. It makes direct appeals to political issues such as technology, war, hunger, drug addiction, and the process of constructing coalitions for political expediency. The process by which people do the latter can be said to be a fair sketch of how it works in reality: Negotiations, tit-for-tats, understanding the others' beliefs and crafting appeals that play off of them—they all play a role in successfully getting factions to align themselves with

the players. (Alternatively, beating them into submission is also an option in the game—which is also a gruesomely successful tactic in reality as well.)

But the game also sets itself in a world distinct from ours. We may have religious minorities, but we do not have Ghouls who worship an atomic bomb. Many Americans worry about a government, backed by a strong military, infringing on their liberties for the sake of safety. A good chunk of these folk probably cast a leery eye at the state of California. But no one sweats themselves over the advancements of the "New California Republic." *Fallout: New Vegas* is like many longer video games in the broad "role playing" genre in that it allows itself to infuse both reality and metaphor into a single artistic product. The purpose of the game is to have participants play with the consequences of their actions—to provide them with a world where their choices ripple out and affect all that they meet.

All in all, there can be very little doubt that the game makes players consider moral, social, and political issues for an extended period of time. Even the issues that are given cursory amounts of attention still require players to seriously mull them over for about 20 minutes. And while 20 minutes may read like a short amount of time, it exceeds the amount of time dedicated to most issues on local news. Whatsmore, players are not watching someone give a report; they are right there in the thick of it. They the ones actively making it come to pass.

Fallout: New Vegas invites elaboration on its myriad topics due to two mutually reinforcing factors—the same that abetted Celeste earlier: Its technical mastery and its resonance with reality. The characters are well-written and often given complex motivations behind their thoughts and actions. The locations they inhabit have history—and the histories of one faction often intersects with that of others. When one talks to the Kings about their history with the NCR, they receive a story that is at once similar and dissimilar to that they would get from the NCR about the Kings. There are clearly shared details (clashes, concern over resources and migration), but the way that they are spun reflects each group's biases and aspirations. Fights are not always external either. Groups face internal schisms over ideals that are broadly shared but break down once you get down to the specifics. These result in subtle power struggles that make themselves felt in the tone

and topic of character dialogues; they are even manifest in the idle gossip that non-playable characters make to each other that the player can overhear. To be able to execute this for all of the groups featured in the game, and to give so many characters their own unique personalities and histories, takes a tremendous amount of technical skill.

Players may ultimately just be encountering pixels and compressed sound files, but that is not all that they see. They see complex characters, worthy of their emotional and cognitive investment. Even if a handful of them are not all that interesting, their quest-lines often engage the players with intricate sub-tasks that requires learning new things about the world, and how to master it, in order to succeed.[10] When players are experiencing the social, political, and moral issues, they are not getting a lecture or reading a disembodied treatise. They are witnessing it, watching it unfold and impact these characters—or provide the narrative action that drives the quest along.

This technical skill and engagement contributes to the world's resonance with our own. It was already pegged as being somewhat proximal given that it is an alternative history that only splits off a few decades ago. But it increases that proximity by retaining key geographic locations (the Mojave, Sierra Nevadas, Lake Mead, and Hoover Dam) and the "memory" of other places and entities ("New Vegas;" the "New California Republic;" the "Kings"). The radio that the player carries with them throughout the desert plays songs by Bing Crosby, Peggy Lee, and Dean Martin. Even the fantastical elements, like the mutants, robots, and ray guns, are directly inspired by our cultural touchstones for these concepts, originating out of world fairs and pulp science fiction in the 1950s and 60s. The characters seem realistic, the issues they deal with are real, and the world is not that divergent from the one in which you are reading this book.

And that is only dealing with the circumscribed mattering; that is not to consider the explicit rhetorical arguments that the game makes about the debilitating effects of addiction, the causes and consequences of gang violence, the very American drive for independence and

[10] One example that comes to mind is a quest where players have to fish out a sunken Air Force bomber out of Lake Mead. In the process of raising the aircraft from its watery entombment, the players can help build a rebreather, which allows them to get to the plane without drowning. Once they have used the rebreather in this context, they then learn how to complete another questline provided by the NCR.

freedom from government influence, the dangers of absolutist, supremacist ideology, and the resilience of the world's oldest professions to name a few. (What happens in New Vegas...).

Fallout: New Vegas is not a game where the socially relevant stuff is mere window dressing. It is not something that players can ignore or be unaffected by. They have to at least acknowledge the game's internal logics to finish it. And how they finish it tells them a little about themselves, too.

5.1.4 Case Study Conclusion

Now that I have concluded the case studies, it is helpful to revisit the standards I set out in the beginning to see how well they measured up.

5.1.4.1 Consideration of social, moral, and political issues

All three games spent a considerable amount of play-time addressing at least one issue of broad political importance. Celeste dealt with mental health and anxiety, an issue of increasing importance and recognition in the United States; Civilization V considered political actors and empires, war, technology, and the unavoidable presence of trade-offs (among others); and Fallout: New Vegas considered issues of war, technology, alliances, substance dependency, as well as moral issues such as betrayal, liberty/freedom, religion, sanctity, and decay. In all three of these cases, the politically relevant materials constituted a core part of the experience. Individuals playing these games to completion (or even to an appreciable stopping point) would have had to spend a fair amount of effort wrestling with them.

5.1.4.2 Did these experiences matter

Likewise, all three games exhibited aspects in-line with my theory of when games matter.

- *Celeste* mattered in a circumscribed manner: its approach to mental health was more artistic and metaphorical than literal. Meaning was found in both its narrative and mechanical aspects—the difficulty of the levels, and requisite mastery needed to satisfy each level's win condition, reinforced the game's narrative on the difficulty of living with mental illness. The game exhibited substantial technical mastery and resonance with our reality, encouraging people to elaborate more on its message.
- *Civilization V*'s mattering was more explicit. Players are presented with real leaders, develop real buildings, technologies, and wonders, guide real civilizations, and face a (relatively) realistic model of how trade-offs can complicate the development of political

societies. Here too, the narrative and mechanics both work towards fleshing out things with political merit. Not only are mechanical elements given politically evocative labels (e.g., "social policies"), they affect the generation and maintenance of resources managed to approach the game's many win-states. The players' goals sound like they were ripped straight out of an international relations textbook—but they must pursue them while maintaining the happiness of their digital denizens. Or at least they should, lest they want to see an end-screen telling them how "[they] have been defeated" by the actions of "[their] many foes." Its multiple layers of realism give the game an air of authenticity. Players may take specific, idiosyncratic instances with a grain of salt, but take away its prevailing rhetorical arguments.

- Due to *Fallout: New Vegas*' considerable length (I played a comparatively expedited play-though and it was still twice as long as either of the other two games), the game had the chance to exhibit both circumscribed and explicit mattering. Issues of explicit mattering included alcohol and drug dependence, gambling, nuclear war, poverty, crime, and hunger—as well as moral values such as "liberty" and "oppression" a well as "care" and "harm." Circumscribed issues involved the game's focus on power and consequence. The game invented its factions out of whole cloth. Their purpose is for the player to play with the idea of consequence in a world that appears to actually react and change with their decisions. The elaboration on this theme was accomplished due to the game's technical mastery (generally in the world and character building) as well as its resonance with our world (being explicitly made by imagining what would have happened if we took an alternate path after World War Two). This increased resonance also provides authenticity for its explicit contentions. After all, authentic experiences can be said to be those that have very strong resonance; something appears "authentic" if it strongly gels with how people perceive reality.

5.1.4.3 Can these experiences be cognitively incorporated

Although it is impossible to definitively answer "yes" or "no" on the basis of my experiences alone, what I witnessed while playing these games strongly suggest that their rhetorical arguments can influence players' attitudes and behaviors. First and foremost, these games often address issues that go neglected by traditional mainstream political information sources. We may obliquely talk about "governance" when we praise or lambaste leaders on how well they appear to be doing, but few things spend as much time hammering the competing considerations that come with the territory as hard as *Civilization V* does. Mental health still faces significant stigma, but *Celeste* dashes-in headfirst. The news will definitely present perspectives of groups competing for power (or, at the very least, frame their perspectives—see Callaghan & Schnell, 2005), but few do so in a way that legitimately force viewers to grapple these contrasting

positions on their own terms, and in the thick of the conflict, like *Fallout* does. That is to say, these games may be a prominent source of information on these issues by dint of the fact that said issues are not as frequently covered by others. Depending on who is playing, the frames they offer could very well go uncontested. Further, repetitive action and exposure is a strong predictor of attitude change—durable attitude change at that. These games would have players engage with these issues anywhere from five minutes to several hours. Even on the low end, this is about as long as a typical newscast. On the high end, it is vastly more involvement than people tend to expend on issues that are not important to them prior.

I do not want these case studies to overstate my argument: These represent viable, plausible pathways to video game effects on behavior. They do not suggest video games make activists of all its players—no more than saying that movies, novels, and other stories do. Even if the information presented in games is largely unchallenged by factual sources, that does not mean it is unchallenged by other sources of information. People still have their personal experiences, their friends, family, religious teachings, their visits to internet forums—they even have other stories! (Possibly even other games!) The relative weight of these other sources of information will be higher still if players approach the game as a fictional distractor, a fun way to pass the time or unwind but nothing worth too much cognitive investment. While the studies on fiction's effects on behavior suggest that it is wrong to think these people are completely unaffected—effects of stories tend to seep into our attitudes and activities in more subtle ways—they are certainly less affected by coming into the experience with this mindset than if they were more earnestly involved. And while repetition will quite likely strengthen the durability and strength of the games' effects (at least if the existing research on media effects can be appropriately extrapolated to the medium), this repetition may carry an intrinsic trade-off. Adults have a relatively inelastic amount of time they can afford to spend on gaming in a given period of time. If players are getting exposed to the game on multiple occasions, that means they are probably spending less time playing per session. Less time playing means less time immersed in the narrative and logics of the game experience: less time being deeply impacted by the game—perhaps not even getting

involved enough in each session to be as deeply impacted as they otherwise would have. What is being reinforced then is a fundamentally less powerful message than if people could afford to spend more time playing.

But while it is important to make sure the argument is not overstated, there is no need to swing to the other extreme either. These factors will certainly moderate the effects games have on political behavior, most likely dampening them down. But there is no reason to suspect that the effects are somehow entirely erased. These studies demonstrate that games deal with politically relevant content ways that are rousing and often poignant. They evince plausible pathways for the games in question to affect those who play them. In the next section, I shift from the medium towards the players, using my survey data to show that there is strong reason to believe that members of the broader public are being affected by the content in their games.

5.2 How Players' Political Behavior is Affected by Content

As mentioned above, I use data gathered in 2008 by Pew Research and data I gathered in 2019 for the GAmEPLS survey. As I detail in Chapter 3, the Pew data focused on the effects of video game content on American teenagers, and was fielded just as concerns on the topic were at their cultural zenith. The survey asked how playing certain kinds of games corresponded to the teen's attitudes towards politics and their social/political participation. This presents a substantial limitation to how well we can generalize its results. While most teenagers game (results suggest that 96 percent gamed more frequently than "never"), and have more free time to do so (a fact that I appreciate and resent not taking advantage of more and more with every passing year), they do not represent the major plurality of American gamers. Most people who play video games in America are grown adults; the average age of gamers in the US is 33 (ESA, 2019). While the teenagers studied by Pew are adults now (the oldest would be entering their thirties), there is no magical way to take their answers in 2007 and make them representative of people who play games now, let alone the general American population as it currently stands.

This problem is ameliorated by the GAmEPLS survey, which was designed to be representative of American adults. Among its questions, the survey asked individuals how

frequently they play certain types of games[11] and also asked them how often they engaged in various political activities. It also included a variable measuring an important civic attitude (how interested respondents are in politics). Finding statistically significant relationships in both the Pew and GAmEPLS survey data would lend strong credence to the idea that the stories of games, conveyed by both narrative and mechanical elements, influence civic attitudes and political participation.

5.2.1 Games And Political Attitudes

Turning first to the data on attitudes available in the 2008 Pew survey: Respondents were asked if they played video games and, if they did, if they "often," "sometimes," or "never" "[played] a game where [they] learn about a problem in society;" "[played] a game that explores a social issue [they] care about;" "[played] a game where [they] have to think about moral or ethical issues;" and "[played] a game where [they] design or help make decisions about how a community, city, or nation should be run." (Those who select "never" here are best understood as those who played games but never played a game with that kind of experience. There was a separate category for those who totally abstained from playing video games). Pew asked its respondents how strongly they agree/disagree (on a five-point scale, from "Strongly agree" to "Strongly disagree") with five questions regarding their attitudes towards political involvement: "Everyone should be involved in working with community organizations and the local government on issues that affect the community;" "I think it is important to get involved in improving my community;" "being actively involved in national, state, and local issues is my responsibility;" "I am interested in politics;" and "I can learn a lot from people with backgrounds and experiences that are different from mine." These were collapsed into a single variable which captured the latent "civic attitudes" dimension spread amongst them. This civic attitudes variable was then scaled to span 0–1, with 0 being the lowest level of commitment to these positions and 1 being the highest level of commitment.[12] Additionally, the survey provides a number of important

[11] The survey asked about the same types of games as Pew did. My questions were directly inspired by theirs, which provided both theoretical clarity and an opportunity for comparison.

[12] The average and standard deviation of this scale was 0.752 and 0.150, respectively.

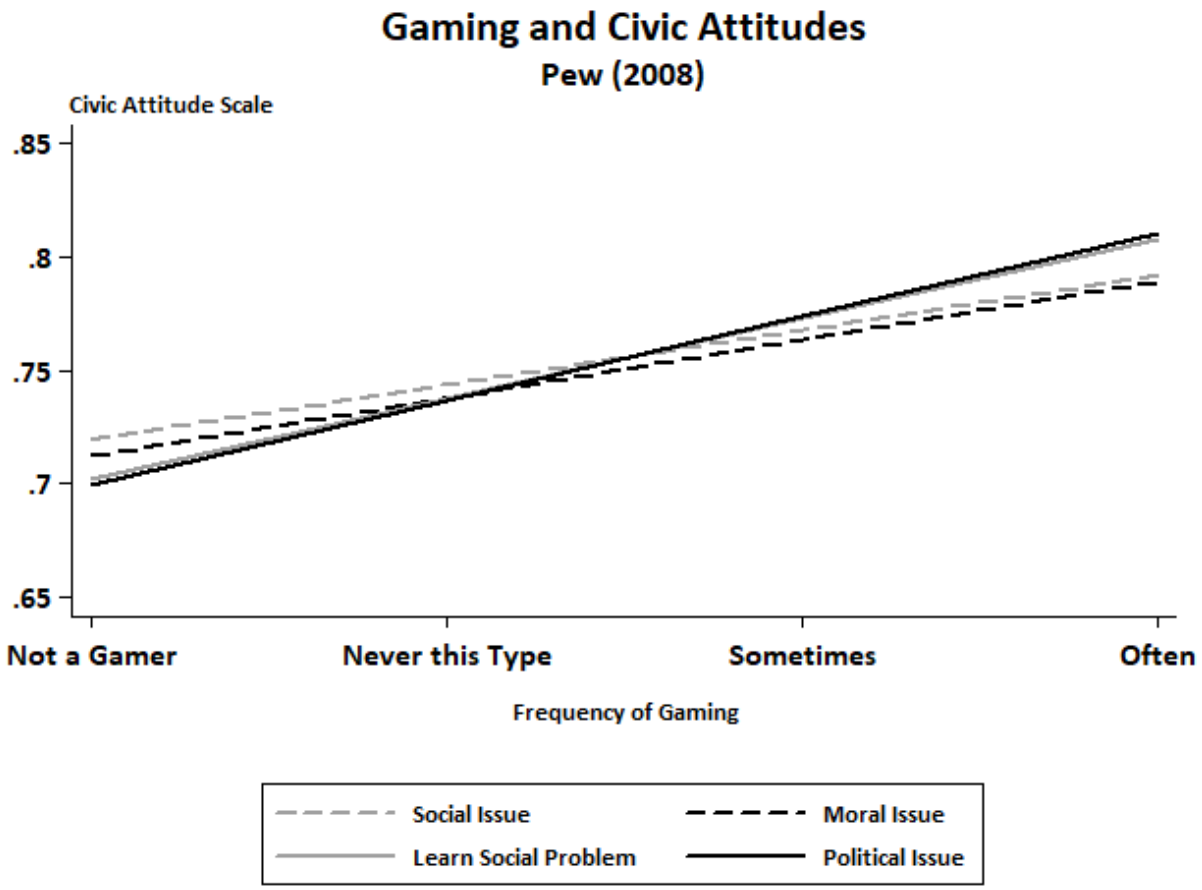

Figure 5-4. The association between gaming experiences and civic attitudes as measured in the Pew data (2008). The different colored lines represent four different kinds of game experiences (ones that make people think about issues in society, social issues they care about, moral issues, and political issues) measured by four different OLS regression models (all other variables were held at their means). The X axis represents the how frequently respondents had this experience and the Y axis represents the 0–1 civic attitude scale. Across all four kinds of gaming experiences, playing more frequently was associated with higher scores on the civic attitudes scale. For factor loadings and regression outputs, see Table B-1 and Table B-2, respectively, in the Appendix.

variables (age, education, sex, race, household income, and—since we are talking about teenagers after all—levels of parental political activity) which allow me to control for some of the more obvious factors that could muddle the statistical relationship between frequency of having these game experiences and civic attitudes.

If playing games that made people think about moral, political, and social issues (both in general and those they were already interested in) are likely to shift civic attitudes, we would

expect to see that playing these kinds of games more frequently will have significant differences in their attitudes towards political engagement. We would expect that playing these games more frequently would translate to a tendency to give more "pro-civic" answers. That is, the more they play games with social, moral, and political relevance, the higher their scores on the underlying civic-attitude dimension.

Figure 5-4 visualizes the results of four OLS regression models, looking at how the frequency of playing games where players think about moral issues, think about political issues, about social issues that they were already familiar with, and about issues that they learned from the game affected their civic attitudes. It demonstrates that, as respondents played all four types of games more frequently, the stronger they scored on the civic attitude scale. Each step in frequency for experiencing moral issues results in an increase of 0.026 points on the 0–1 scale, for political issues it was 0.037, new social problems was 0.035, and familiar social issues was 0.024; all of these positive relationships were statistically significant ($p < 0.001$).

Although the figure places all four lines on the same chart, it is not advisable to compare their relative performances as, again, they were estimated using four separate models. So the image cannot tell us that those playing games inspiring them to think about political issues was associated with higher scores than those thinking about social issues—even if the line for the former seems higher and more steeply sloped. What we can tell from the image (as well as the accompanying statistical results) is that, in all four cases, increased play was positively associated with stronger underlying civic attitudes. Although the scaling can make these effects seem small, those who had the experiences were expected to score between 0.075 and 0.100 higher on the scale—roughly 10 percent of its entire range—compared to those who did not play games at all.

The above graphic simplifies the relationship by predicting a linear trend—but we know that respondents could not say "somewhere between 'never this type' and 'sometimes'" let alone specify a specific point like "0.16913 of the way between 'sometimes' and 'often.'" They had discrete, ordinal options available to them. Did those who said "sometimes" have stronger attitudes than those who played video games, but never of that type? How about between "often"

and "sometimes?" For each of the four models, I estimated the contrast in the estimated scores between each level and the one preceding it. Ideally, each level should not only be higher than the last, it should be significantly higher than the last. The results of this analysis suggest that this is the case with all four models ($p < 0.001$). Playing more really was associated with higher levels of civic attitudes.

But this is just one survey result among teenagers back before Barack Obama was president. A lot could change between then and now—a lot more if we were to try and generalize to American adults instead of just youth. This is where the GAmEPLS survey comes in. Although it does not include as robust a civic attitude scale, it does include one important civic attitude: how interested people are in politics. Interest is gauged by asking respondents how often they tune-in to politics and current events. Respondents were given a 4 point ordinal scale that went from "hardly at all," to "only now and then," to "some of the time," to "most of the time." It also asked respondents how often they played games that made them think about moral issues, social issues, and political issues. They could not be a gamer, play games but not of this type, rarely play such games, sometimes play them, play them often, and play them very often. The survey also has questions that allow me to control for party identification, income, sex, ideology, age, education, and race—which, as before, reduces the possibility of a spurious relationship. Because the dependent variable is discrete and ordered without being continuous, it lends itself to ordered-logistic regression. Not only does this allow us to see if the frequency of these gameplay experiences are significantly associated with more political interest in general, it also allows us to estimate the probability that a respondent, say, pays attention "most of the time," and see how this probability evolves as the frequency of gaming increases. If more gaming leads to more political interest, we would expect that the probability of being in-tune "most" and "some" of the time will increase as gameplay frequency increases while the probability of being in-tune only "every now and then" or "hardly at all" should shrink. This is because probabilities are bound between 0 and 1; as the more-interested take up greater and greater shares, the least-interested show up less and less.

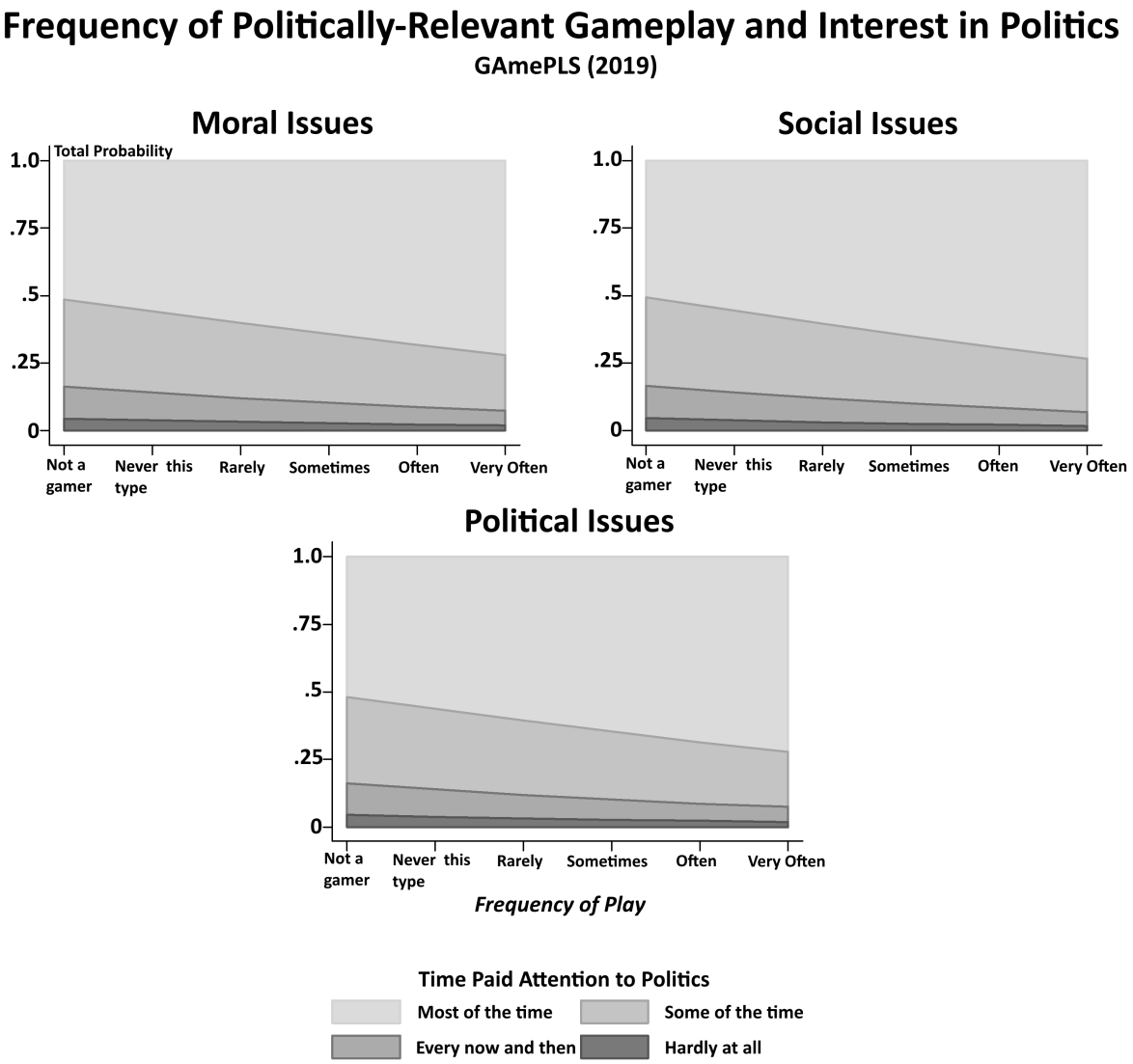

Figure 5-5. The association between gaming experiences and interest in politics in the GAmEPLS survey (2019). The different colors represent different amounts of time respondents could pay attention to politics; the lighter the shading, the more attention they give. The different charts look at the different kinds of experiences investigated in the GAmEPLS survey measured by three ordinal-logistic regression models (all other variables held at their means). The X axes represent how frequently they play games with those experiences, and the Y axis is the probability that respondents fall into any of the four groups. The more that people played, the more likely it was that they paid attention to politics "most of the time." See Table B-3 for the regression outputs.

I ran three ordered-logistic regressions: one where the main independent variable is the frequency of playing games with moral issues, one where it is the frequency of playing games with social issues, and one where it is the frequency of playing games with political issues. The

regression models themselves suggest that increased frequency of playing these games is significantly associated with greater amounts of political interest. Each step up in the frequency of playing games with moral, social, and political experiences lead to a 19 ($p = 0.006$), 21 ($p = 0.001$), and 19 ($p = 0.012$) percent increase—respectively—in the log-odds related to increased interest. This meant that the more politically-relevant game experiences the respondent reported, the more interested they were in politics.

That there was an "increase in the log-odds" may give us an intuitive sense of the direction of the effect, but not a particularly intuitive way of understanding the substantive impact. Fortunately, there are ways of translating these figures into images that makes the point far more clear. Figure 5-5 presents a set of three charts that looks at how levels of political interest are predicted to shift based upon the frequency of social, moral, and political gameplay. Each shaded shape represents one of the four levels of how tuned-in the respondent could be to politics, from "hardly at all" (the darkest) to "most of the time" (the lightest). The X axis is the frequency which they could have that particular gaming experience and the Y axis is the probability. All other variables in the model were held at their means. The size of the shape reflects how likely it is for a respondent to belong to that particular category; the larger the shape, the more likely it is that a respondent would express that particular level of interest. If the shaded shape grows larger as we move rightward along the X axis, then it becomes more likely that people will report as being that level of interest as people play more frequently. If the shape shrinks, then it is less likely that people will be at that level of interest.

In keeping with the hypothesis, the shaded shape representing being tuned-in "most of the time" grows while the rest shrink. Across all three models, there is a roughly 50 percent chance that those who do not play games will be the most interested in politics. By the time they are having these experiences "rarely", this jumps to a 60 percent chance. And those who "very often" have these experiences have a 70 percent chance of being the most politically interested. This means that it becomes more likely for people to be more interested. In contrast, those who were not gamers had about a 5 percent chance of being the least interested in politics, hardly tuning-in

to what is going on in the circus. By the time we get to those who had these experiences very often, the probability of being the least interested had dropped below 2 percent. Not only was playing games more often associated with a higher chance of being maximally interested, it was associated with a lower chance of being minimally interested. The more that people played, the more interested they tended to be in politics.

If a line chart gave the mistaken impression of there being a continuous measure, an area chart definitely does the same. As before then, it is important to look back and see if the differences between playing "very often" is statistically higher than "often" is higher than "sometimes," and so on. I estimated the contrasts in the estimated effects between each frequency level and the one immediately preceding it. There was not one instance where the difference between steps was not statistically significant ($p_{max} = 0.040$). Even minimal increases in the frequency of play are associated with statistically signficant increases in political interest.

Substantively, these values suggests a fairly strong, positive association between playing games with social, moral, and political content and attitudes about civic engagement. While certainly not the largest such effects ever recorded in the media effects literature, they are on the higher end of what we would expect given how surrounded people are by media of their choosing—that is, the fact that we live in a so-called era of "minimal effects" (Bennett & Iyengar, 2008). As with all cross-sectional survey data, these relationships reflect associations. Causality cannot be determined from these statistical models alone. I will soon present on the findings of experimental results which address the issue of causality for these and other kinds of political attitudes. Before that, however, I would like to shift our attention towards the evidence regarding the associations of game content with political participation.

5.2.2 Games and Political Participation

Both the Pew and GAmEPLS surveys have items that allow me to see how gaming affects various forms of political participation. As before, I will start with an analysis of the Pew data before moving to GAmEPLS.

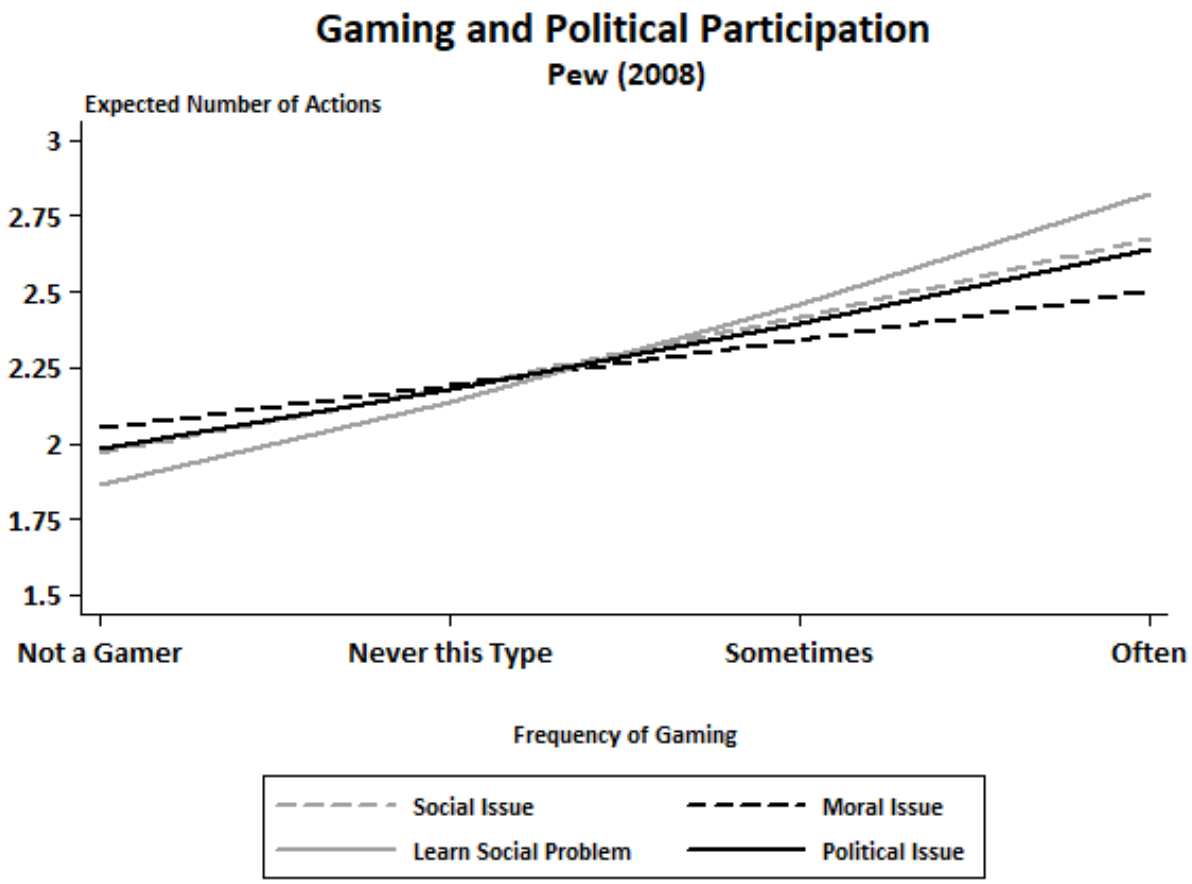

Figure 5-6. The association between gaming experiences and political participation in the Pew data (2008). The different colored lines represent four different kinds of game experiences measured by four different Poisson regression models (all other variables were held at their means). The X axis represents how frequently respondents had this experience and the Y axis represents the estimated number of actions respondents took. Across all four kinds of gaming experiences, playing more frequently was associated with higher numbers of actions performed. See Table B-4 for the regression outputs.

5.2.2.1 Evidence from Pew

Before being asked about their gaming habits and civic attitudes, the teen participants were asked whether they had performed any of the following political actions over the last 12 months: volunteer in their community; help raise money for a charitable cause; try to persuade people with how to vote; stay informed on current events and politics; and taken part in "a peaceful protest, march, or demonstration." For each variable, I code their responses as either a 0 or a 1—a 1 if they said they performed this action and a 0 if they said they had not. I then add up all of these

values and create an index ranging from zero to five. Some reported performing the minimum number of zero actions; others reported doing the maximum possible of five. The average respondent performed 2.33 actions.

As before, my main explanatory variables were the questions asking respondents how frequently they played games that made them think about social, moral, and political issues. Because this dependent variable is counting the number of actions people reported taking, I use four Poisson regression models (one for the frequency of experiencing social issues that were new to them, one for the frequency of issues that were familiar to them, one for moral issues, and one for political issues) to estimate the association between playing these kinds of games more often and the number of political actions they performed.[13] To minimize the risk of spurious relationships, I use the same control variables as I did when investigating civic attitudes: age, education, sex, race, household income, and their parent's level of political activity. Similar to my expectations regarding gaming and civic attitudes, I expect that the more the teen respondents report having these game experiences, the more actions that they will perform.

The results of the models are all consistent with this expectation. Across all four types of politically-relevant gameplay, increased participation was significantly associated with more political actions performed. Each step up in the frequency of playing games that made people think about new social problems was associated with a 14.8 percent increase in the number of actions performed ($p < 0.001$), each step-up in the frequency of dealing with a familiar issue was associated with a 10.7 percent increase in the number of actions performed ($p < 0.001$), a 6.8 percent increase for moral issues ($p = 0.002$), and a 10.0 percent increase for political issues ($p < 0.001$).

The results of four models are visualized in Figure 5-6. Each line represents one of the four kinds of politically-relevant gameplay asked about in the survey. The X axis represents the frequency that the respondents reported playing these kinds of games and the Y axis reports the estimated number of actions respondents performed. Those who did not play video games were

[13] These data did not exhibit overdispersion, precluding the need for negative binomial regression (Long, 1997).

predicted to perform approximately two out of the five actions. But those who often play these kinds of games are estimated to perform as few as 2.50 actions (for games with moral experiences) and as many as 2.82 (for games with political experiences). As before, because these estimates derive from different regression models, I do not advise comparing these values; it would require an entirely different investigatory set-up to establish which type of gaming seems to be more or less effective.

As before, it is important to see if the differences related to increased frequency translate into thinking about the time spent as an ordinal rather than continuous process. As before, the differences between each step-up the frequency ladder is statistically significant ($p_{max} = 0.030$). Across all four kinds of politically-relevant gameplay measured in the Pew data, increased frequency of play is positively associated with undertaking additional political actions.

As I mentioned before, while the Pew data are illuminating they are also fundamentally limited since they only provide measures for the sample's teenagers. It is irresponsible to conclude factors that encourage or discourage them to act are necessarily the same as what will inspire an adult. Most of us can personally attest to the fact that, having been one at some point in our lives, teenagers are weird. Adolescence is a confluence of hormonal, social, and psychological gauntlets that we mercifully only have to undergo once and then never again. It is a mistake to assert that American teens have categorically fewer concerns than adults, but it is accurate to say that their burdens are composed in a way that still affords them more unstructured "free time" compared to adults. This means that they have more time to partake in hobbies like video games and, thus, may be more likely to be affected by them than those over 18. While this merely posed a generalizability problem when discussing civic attitudes, the issue is more acute here. Not only are teenagers different from adults on a wide variety of important (and sometimes embarrassing) factors—they are also different because they are systematically precluded from performing many of the same political activities (e.g., voting and signing ballot petitions) as adults can. Further, even the actions that they can perform, they have less opportunity and

independence to do so. These are concerns that need to be ameliorated if one was to make a general assertion about the effects of gaming content on participation.

5.2.2.2 Evidence from the GAmEPLS survey

To this end, I now turn to what the 2019 GAmEPLS survey suggests about the relationship between the content of games and political participation. There, I queried respondents about a broader array of possible political acts than were asked about in the earlier Pew survey. It asked if respondents they had done any of the following actions over the previous two years: participated in a protest or demonstration, engaged in a boycott for social or political reasons, volunteered for a political party or candidate, donated to a political campaign, volunteered with a charity, donated to a charitable cause, signed up to receive information from a candidate or campaign digitally, contacted an elected or government official, and voted. Respondents could indicate that they they had not done they action, that they had done the action once, or that they had done the action more than once. As before, I coded a yes (either "once" or "more than once") as a "1" and no as a "0" for each action before adding them up into a nine-item political participation index. Some individuals performed zero actions, others performed all nine—but the average number of actions respondents claimed to have performed was 3.64.

As a reminder, in the GAmEPLS survey, I asked individuals how frequently they played games that made them think about social, moral, and political issues—ranging from those who never play games to those who have such experiences "very often." These were my primary explanatory variables. Like with analyzing participation using the Pew data, the dependent variable from the GAmEPLS data is a count of the number of actions individuals performed. Following the age-old standard of "if it ain't broke, don't fix it," I again used Poisson regression to generate statistical models that investigated the association between the frequency of politically-relevant gameplay and the number of actions performed. To reduce the risk of a spurious relationship, I used the same control variables as before: age, sex, race, party identification, political ideology, gender, household income, and education level—also including interest in politics. As before, I expect that respondents who play games with social, moral, and

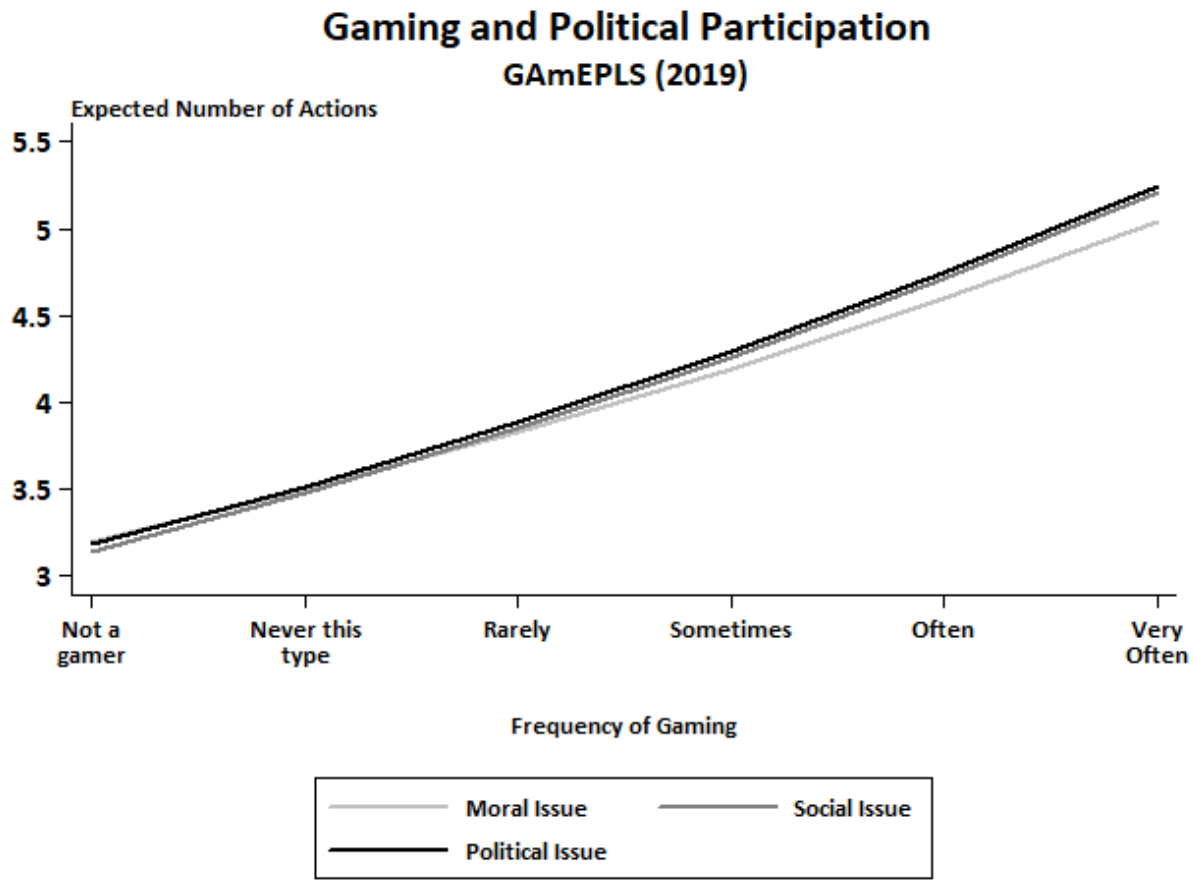

Figure 5-7. The association between gaming experiences and political participation in the GAmEPLS data (2019). The different colored lines represent three different kinds of game experiences measured by three different Poisson regression models (all other variables were held at their means). The X axis represents how frequently respondents had this experience and the Y axis represents the estimated number of actions respondents took. Across all four kinds of gaming experiences, playing more frequently was associated with higher numbers of actions performed. See table B-6 for the regression outputs.

political content more often were more likely to engage in more political action—especially compared to their fellow respondents who do not play video games.

The statistical models are strongly consistent with these expectations. Each step up in the frequency of morally-relevant gameplay experiences was associated with a 9.54 percent increase in the number of expected actions ($p < 0.001$), each step up in socially-relevant gameplay was associated with a 10.64 percent increase in the expected number of actions ($p < 0.001$), and each step up in politically-relevant gameplay was associated with a 10.49 percent increase in the

expected number of actions ($p < 0.001$). The results of these three models are visualized in Figure 5-7. Those who did not play games at all were expected to perform roughly 3.2 out of the 9 actions. Those who "sometimes" had these experiences were expected to do about 4.2 actions. Those who did so "very often" were estimated to perform between 5 (for moral gameplay) and 5.2 (for social and political gameplay). As before, I checked to see if the differences between each step up in frequency was significantly different than the one prior. In all three models, all of the contrasts were significantly different ($p_{max} < 0.001$). Those who more frequently played games with social, moral, and political content participated more in politics.

Up through now, "participating more in politics" has meant scoring higher on a scale scoring respondents on the number of different actions they participated in. What about participating more by performing these actions more frequently? I worded the participation questions in the GAmEPLS survey so that I could address both questions. Recall that each of the nine participation items had three possible responses: "No" they had not performed that action, "Yes" they had performed that action once, and "Yes, [they had performed it] more than once" (over the last 12 months). These responses could be ordered from least to most—just like before with political interest. Consequently, this could also be analyzed using ordered-logistic regression. Using the same control variables as in the models focusing on the nine-item index, I specified 27 ordered-logistic regression models: one for each of the nine actions with frequency of moral, social, and political gameplay as the main explanatory variable. If gaming is associated with people performing more types of actions, there is also a strong chance that it is associated with performing actions more frequently.

Figure 5-8 visualizes the results of the 27 models. The Y axis stacks the nine participatory acts I asked about in the survey. The points represent the effects estimated by each regression model—the black representing the models that looked at the effects associated with socially-relevant gameplay, the dark gray with morally-relevant play, and the light gray with politically-relevant play—and the bands extending out in both directions represent the 95 percent

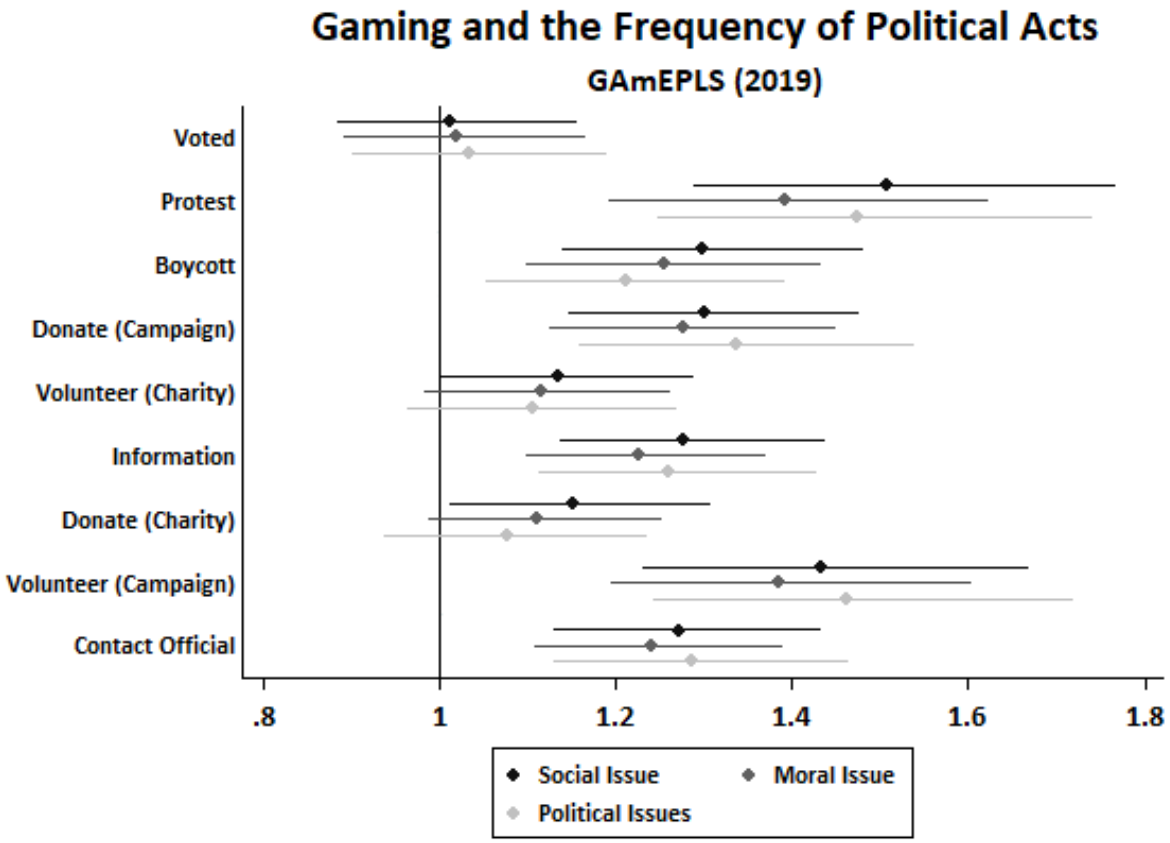

Figure 5-8. The association between gaming experiences and how frequently respondents performed 9 different political actions in the GAmEPLS survey (stacked along the Y axis). In all, the image represents 27 ordered-logistic regression models. The different colored lines represent three different kinds of game experiences. Points are model estimates, bars are 95 percent confidence intervals. If the points are to the right of the solid vertical line at 1.0 (without any overlap in the confidence intervals), than more frequent gameplay was significantly associated with performing that action more frequently. For most combinations of actions and gaming experiences, more frequent play led to people performing the action more often. The regression outputs for this image can be found in Tables B-8, B-9, and B-10.

confidence intervals of the estimated effect.[14] The X axis is the variables' estimated effects on the odds-ratio–which can be understood as any other statement of the odds. If something has 2 : 1 odds, that means that the outcome on the left is twice as likely to happen as the outcome on the right, 0.5 : 1 odds mean that it is half as likely, and 1 : 1 odds mean that the outcomes are equally probable. In the case of ordered-logistic regression, the model estimates the baseline odds that an

[14]These confidence intervals are constructed using heteroskedastic-robust standard errors.

observation will be greater than a particular threshold (e.g., greater than both "yes" or "no"—meaning "yes, more than once"). The values on the X axis represent the average multiplicative effect that changes in the value of the independent variables have on these odds. If the model estimated an independent variable's effect to be 1, that would mean—since any number multiplied by 1 results in the same number—it has no effect on the underlying odds; the variable has no effect on the outcome. (This is why there is a black, vertical line at X = 1 in the image; if one of the error bars crosses that threshold, then there is not enough evidence to reject the claim that the variable has no effect). If the effect was estimated to be larger than one, the odds of scoring higher than the threshold goes up, meaning the variable is positively associated with higher values on the participation measure. If the effect is estimated to be less than one, the variable is negatively associated with higher values on the participation measure. Therefore, if the point is on the right-hand side of the black line, and the error bars do not overlap it, then the variable is associated with greater frequencies of participation for that particular political action—the specific X value reflecting how much increasing the frequency of play by one step (e.g., "rarely" to "sometimes") multiplicatively affects the underlying odds.

As can be seen, there are only three actions where the frequency of socially, morally, and politically relevant gameplay is not positively associated with additional levels of activity: voting, volunteering with a charity, or donating to a charity (although the frequency of socially-relevant gameplay is actually significant for these last two). Across all the other actions, for socially, morally, and politically-relevant gaming alike, increased gaming was associated with performing the action more frequently. As before, I tested to make sure that all the steps from one frequency level to the next was statistically significant—at least with those models that offered significant results. And across the literally 100 different tests, only two steps were not significant: the steps from "rarely" to "sometimes" and from "sometimes" to "often" when looking at socially-relevant gameplay and volunteering with a charity ($p_{max} = 0.049$; $p_{min} < 0.0001$; $p_{mode} < 0.0001$).

Why were the results insignificant for voting, volunteering, and donating? Definitive answers will have to wait for future investigations, but there are a few possibilities. Before

offering them, though, I believe it is important to note that there is a fair bit of difference in the degree that their confidence intervals overlap the significance boundary. Three of the four insignificant results concerning charitable activity (whether volunteer or donation) are what many social scientists would call "knife-edge" results—meaning that their significance values only just missed the (ultimately arbitrary) decision threshold of 95 percent confidence ($p = 0.078$; $p = 0.086$; $p = 0.149$; $p = 0.293$). A distinct possibility, then, is that a separate survey sample *would* find statistically significant results for these actions. Much the same cannot be said for voting, however which was quite far away from that threshold for morally ($p = 0.765$), socially ($p = 0.864$), and politically ($p = 0.623$) relevant gameplay.

Assuming that these do reflect true nulls, there are some possibilities. With regards to charitable actions, it is possible that the games raise information about issues that are not very visibly tied to prominent charitable organizations. The most viewed charities on charitynavigator.org, a site dedicated to helping people get the most bang out of their charitable buck, include the Wounded Warrior Project, Save the Children, the ASPCA, and Feeding America. It is difficult to think of games that directly touch on the issues that these charities were founded to address. (This is even true of The Wounded Warrior Project. Most war games glorify soldiers and gloss over physical and mental injuries sustained in warfare.) It could be that these games are getting people interested in particular issues but they aren't familiar with the charitable landscape enough to know of where to donate their time and money.

With regards to voting, the lack of significance could come from the fact that it is, in many ways, substantively different than the other items on this list. It is the only action where people have to go through a multistage process in order to complete it. It is also, comparatively, among the most informationally burdensome items on the list: One must not only know that there is an election going on, but *also* the candidates, issues, and when/where they are able to vote. It is also the item on the list with the fewest generally-known opportunities to participate; most people are only generally aware of elections when they fall on Presidential and/or Congressional election years. That means most respondents to the survey would not have been particularly likely to vote

"more than once" no matter how much they gamed. It is also possible that the effects are conditional. Games may not impart much of an affect for someone who is older—someone who has years (if not decades) of investment in their localities, issues of interest, and political identities. But they could have an effect on people who are younger, who are less investment in all of these areas and are thus more amenable to content-based effects. Future work will be necessary to test these and other possibilities.

But while the results were not significant in seven of the models, the *were* in 20 of them. (Even then, three of seven were knife-edge results). For most of the nine actions, then, the evidence strongly suggests that playing politically-relevant video games is not only associated with undertaking more unique acts but doing each act more often as well.

5.2.3 Conclusion to Survey Section

Across two different surveys, fielded at totally different times and investigating drastically different core populations, I find that more frequent exposure to politically-relevant gameplay is associated with stronger civic attitudes and higher political participation. Looking at civic attitudes, the Pew data suggests a positive association between politically-relevant gameplay and higher scores on a composite attitude factor, suggesting that gaming is associated with a stronger commitment to civic engagement. In the GAmEPLS data, political interest increased among those who played the games more and more often. With regards to participation, frequency of politically-relevant gameplay was associated with increased political activity on both the five-item scale constructed with the Pew data and the nine-item scale constructed with the GAmEPLS data. Additionally, the GAmEPLS data also suggests that increased politically-relevant gaming was associated with individuals performing most of the nine actions more frequently. These suggest that games not only can encourage people to perform more kinds of actions but perform a variety of actions more frequently.

However, while these results are suggestive, these survey results only measured the attitudes and actions of their respondents at one point in time—meaning that they are not able to establish if the causal arrow actually goes from gaming to behavior. It is possible that politically-relevant

gaming is instead caused by people who are more civically engaged. Or it is possible that the relationship is spurious, caused by an unknown third factor, and that there is no causal relationship to be seen here—reversed or otherwise. In order to see if the content of games cause changes in political behavior, I need the force of a controlled experiment. The results of such an experiment are what I turn to next.

5.3 The Causal Link

In April of 2020, I conducted an experiment on a convenience sample of University of Florida undergraduates—some recruited from the department of Political Science through the department's undergraduate listserv and others from the College of Journalism and Communications' SONA system—which allows undergraduates to sign-up for both online and in-person experiments for course credit. They were asked to engage in a "New Media Experience" for 45 minutes and to answer a series of questions before and after. They were offered a $15 Amazon digital gift-card in exchange for their participation. The experiment was performed online through Qualtrics; respondents engaged in the experiment on their own computers on their own time at whatever location they chose. I recruited 222 individuals to participate in the survey; of those 173 submitted valid responses. For the demographic questions, I asked them their age, sex, race, party identification on a 7 point scale ranging from strong Democrat to strong Republican, political ideology, their household income, their interest in politics, and how often they played video games—which ranged on an 8 point scale from "several times a day" to "never". The average age was 20.66 years, the average household income was $122,476, the average placement on the Political ID scale was 4.8 (between "weak Democrat" and "Democrat"), the average placement on the ideology scale was 3.18 (between "moderate" and "slightly liberal"), they on average played video games somewhere between about once a day and several times a week (2.12 on the scale). Looking at the demographic breakdown: 66 percent of participants identified as female (one identified as non-binary), 76 percent of the sample was White, 11 percent was Asian American, 6 percent was Black, and the remaining 7 percent was

split between Native Hawaiian or Pacific Islander (4 percent), American Indian or Alaska Native (roughly 2 percent), or Other (roughly 1 percent).

Participants were randomly assigned to one of four groups. In the control group, they were asked to watch the first episode of the hit Netflix show *Tidying Up with Marie Kondo* (which happened to last approximately 45 minutes). For the three experimental conditions, they could either play one of three video games playable from any web-browser: *Sort the Court*, *Final Earth 2*, or *Habitat*. In *Sort the Court*, players play as a regent and try to build up their nation while managing their popularity, population, income, and comings-and-goings of their court. If they failed to keep the balance, their city would shrink and they could be killed or deposed. In *Final Earth 2*, players are told that the Earth has been lost due to humanity's poor stewardship and are instructed to rebuild civilization on an asteroid-like object. In doing so, they must provide utilities, housing, jobs, services such as policing and medicine, and opportunities for employment—all while building vertically to mitigate the space constraints (pun intended). And in *Habitat*, players are presented with a small grid filled with different resource tiles. They are tasked to build up a society, using the land to provide for all of their food and security needs. A link which took players to their randomly assigned experience was embedded in their Qualtrics survey. After participants had their media experience, they returned back to the survey and answered a series of questions concerning their political attitudes and behaviors. With limited exception (see the Experiment section of Chapter 4), the randomization procedure resulted in sub-groups that were balanced on the demographic elements.

This is a fairly conservative test for the effect for a number of different reasons. First, the game experiences themselves were relatively brief. While the survey evidence consistently showed that there were significant differences between those who barely had politically-relevant game experiences and those who never had them, the differences the two conditions were relatively small. 45 minutes is not a long time in the grand scheme of things—so a single play session's effect might not appear in this smaller, noisier sample. Second, the respondents were younger individuals—and while the average US gamer is an adult (aged 33 as of 2019), prior

work suggests that younger adults have more time to play games. This could mean that a single session's effects would be minimal as they could be relatively inured to the effects of games. This would bias the effects towards zero and, thus, towards statistical insignificance. Third, as a consequence of the Coronavirus pandemic, these games were not the highest-quality games available. In terms of browser-based games, they are respectable and engaging products—but compared to the technical and narrative quality that can be expressed on games played on dedicated consoles and downloaded to the computer itself, the difference is, to steal from Mark Twain, like that between the lightning bug and the lightning. With all of these things in mind, then, finding a significant relationship here would be strong evidence that games do cause changes in civic attitudes and political participation.

5.3.1 Effects of Playing Games on Civic Attitudes

Looking first towards civic attitudes, I asked participants to rank how strongly they (dis)agreed with the same civic-attitude statements presented in the Pew survey: "Everyone should be involved in working with community organizations;" I think it is important to get involved in improving my community;" "being actively involved in national, state, and local issues is my responsibility"; "I am interested in politics;" and "I can learn a lot from people with backgrounds and experiences that are different from mine. Participants were given a sliding scale from Strongly disagree to Strongly agree. Behind the scenes, this encoded their response on a 0-100 scale, with 0 being Strongly disagree and 100 being Strongly agree. As before, these responses were enfolded into a single factor using principal component factor analysis with 0 being the lowest amount of commitment to Civic Attitudes and 1 being the highest level of commitment.

After the experiment I asked respondents if they agreed with the following three statement: "the media I experienced made me think about issues in society" (social issues) "...made me think about moral issues" (moral issues), and "...made me think about how a society should be run" (political issues). From my theory and survey results, I expect that the relationship hinges on whether or not people are identifying politically-relevant content in the games. It is not that there

is something special about *Final Earth 2*, *Sort the Court*, or *Habitat*; it is that their content is socially, morally, and politically-relevant. If players see nothing relevant about their experiences, then there is little reason to think that it will inspire increased civic interest or participation. These variable will thus mediate the relationship between the conditions and increased commitment to pro-social stances on my civic attitudes measure—the combination of the direct effect of the game and the indirect effect through the mediators making up the total effect.

While a significant total effect would suggest something interesting about the games themselves—and how much of the total effect can be attributed to the mediating factors say something about how well they can individually get players to think about social, moral, and political issues–the most important part of my theory rests on the indirect effect. The the direct and total effects are more focused on the efficacy of the games as individual products. What I am more interested in is testing the more *general process*. The purpose of this experiment is seeing if content, like that I highlighted in my illustrative cases, can cause people to think about social, moral, and political issues and if that then can cause them to have stronger civic attitudes. This is measured by the indirect effect. If the games cause no indirect effect, then the experiments provide no evidence that games are actually a causal force in political behavior.

To that end, I conducted a mediation analysis for all three of the above questions across all three games for a total of 9 models. Figure 5-9 visualizes the mediation analyses for all nine models. The leftmost box in each panel is the game that was played, the topmost box is whether or not the game made them think about a social, moral, or political experience, and the rightmost box is the civic attitudes scale. The path from the left to the top captures the effect of that game in particular on inspiring perceptions of relevance; the path from the top to the right captures the effect of experiencing something relevant on civic attitudes; the path from left to right captures the effect of the game on civic attitudes directly; the gray line captures the indirect effect of the game on civic attitudes as mediated by perceptions of relevance. If the total effect (the direct effect plus the indirect effect) is statistically significant, than the panel is highlighted grey. If there is no significant relationship, it is white. Bolded lines represent statistically significant

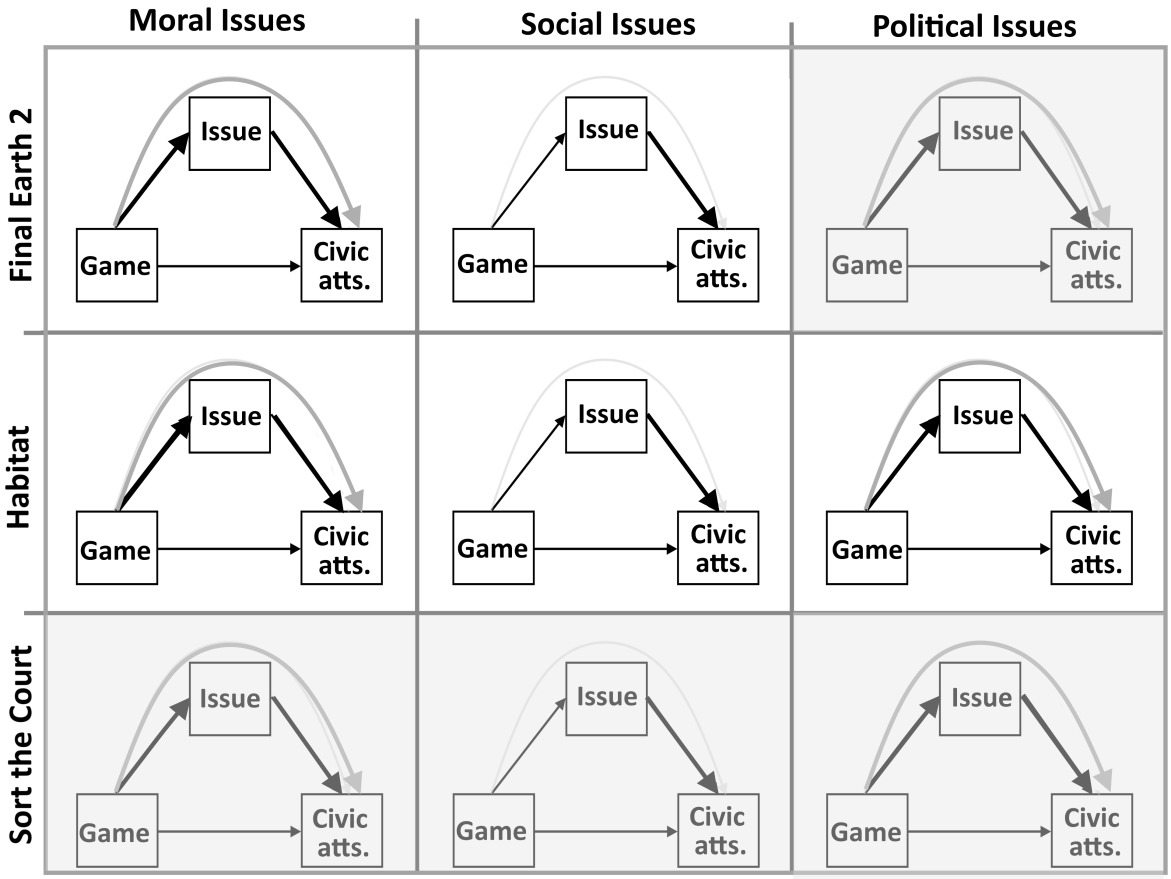

Figure 5-9. The experimental effect of games on civic attitudes. This matrix of images shows the direct, indirect, and total effect of each of the three games on civic attitudes with feeling like the game touched on a social, moral, and political issue as the mediating variable. Black lines represent direct effects, grey lines represent indirect effects. Solid lines represent positive effects, dashed lines represent negative effects. Bolded lines mean that the (in)direct effects were statistically significant and greyed-out images mean that the total effects were significant. The indirect effect was significant for moral and political issues for all three games, but not for social issues. See Table B-11 for the factor loadings for the civic attitude scale and Table B-12 for the regression results of the mediation analyses.

relationships. The most important thing about these relationships, aside from their significance, is their parity; whether they are positive or negative. A positive relationship is demarcated by a solid line and a negative relationship with a dashed line. If games really can affect attitudes through increased perceptions of political relevance, we should expect that games will positively predict

perceptions of relevance, that perceptions positively predict civic attitudes, and that the interaction of the two (that is, the mediation effect) is positive as well.

For both moral and political relevance, this is exactly what is seen. Those who played *Habitat*, *Sort the Court*, or *Final Earth 2* were more likely to see their experience as morally and politically relevant than those in the control—and those who saw their experiences as morally and politically relevant had increased scores on the civic attitude scale. As the gray lines show, this led to statistically significant mediation effects—the games had a significant and positive indirect effect on civic attitudes when the games made them think about moral and political issues. That is, through making people think about moral and political issues, games can positively affect civic attitudes.

The relationship is not as clear cut for social gaming, however—the thin gray line indicates across all three games shows in this instance shows that there was no mediated relationship here. Does this suggest that moral and political gameplay is causative but the previous relationships with social gaming were merely associational? Is there something special about games that tackle socially-relevant issues than those that tackle politically or morally-relevant ones?

While it is not technically possible to rule that out, it would be pretty difficult to come up with a theoretical justification for why—especially given what we already know about how people process fictional information. A closer look at the images suggests something more plausible. While the overall mediation effect is insignificant, it appears the path between perceiving socially-relevant content and increased civic attitudes is significant. The breakdown appears to be that none of the games made participants more likely to say that they experienced something that made them think about social issues *compared to the control*.

My first instinct was that the games simply did not do a good job at making people think about social issues, making them as **bad** as the control. I was on the right path but walking in the wrong direction. Digging deeper, it turns out that the control was **as good** as the games in making people think that their content touched on an issue in society. On average, 77 percent of the game-playing participants thought they experienced something that touched on a social issue and

73 percent of people in the control group said the same. Although I cannot be certain, it appears from some of the debriefing statements that participants saw the need to "tidy-up" and 'declutter" our lives as "an issue in society." Thus, while the current evidence cannot presently support the causal argument with regards to games and social issues, this stems from an unanticipated effect from the control condition not from a lack of efficacy in the games. Judging from the responses of 77 percent of the game-playing participants, it appears games can make people think about socially-relevant topics—and the models suggest that doing so made participants score higher on the civic attitude scale. It is just an open question on whether or not there is a difference between games and other common forms of entertainment.

All in all, though, these results present strong, causal evidence for one of this chapter's core claims: that video games, through making players think about politically-relevant issues, can cause an increase in civic attitudes.

5.3.2 Effects of Playing Games on Political Participation

I used two measures to see if the same could be said for political participation. The first is an index capturing participatory intent. After the experiment's participants played their games or watched their show—and after they answered whether or not these experiences made them think about politically-pertinent issues—I asked participants to answer how likely they were to engage in the following 10 actions: sign a petition, donate to a candidate aligned with them on the issues, participate in a protest or demonstration, join an online group or community dedicated to issues they care about, boycott goods and services, vote, talk to people online about political issues, talk to people in reality about political issues, and donate money to a charity. In addition, I also asked them how likely they were to talk with people online about the issues and talk with people offline about the issues. Respondents were given a sliding scale from "Very unlikely" to "Very likely", encoding their response with a number between 0 – 100 based on where they put the slider. I reduced these eleven items down to a participatory intent scale, which was rescaled to span 0–1.

As with the civic attitudes scale, I expected this relationship to be mediated by whether or not the respondents felt that their experience made them think about social, moral, or political

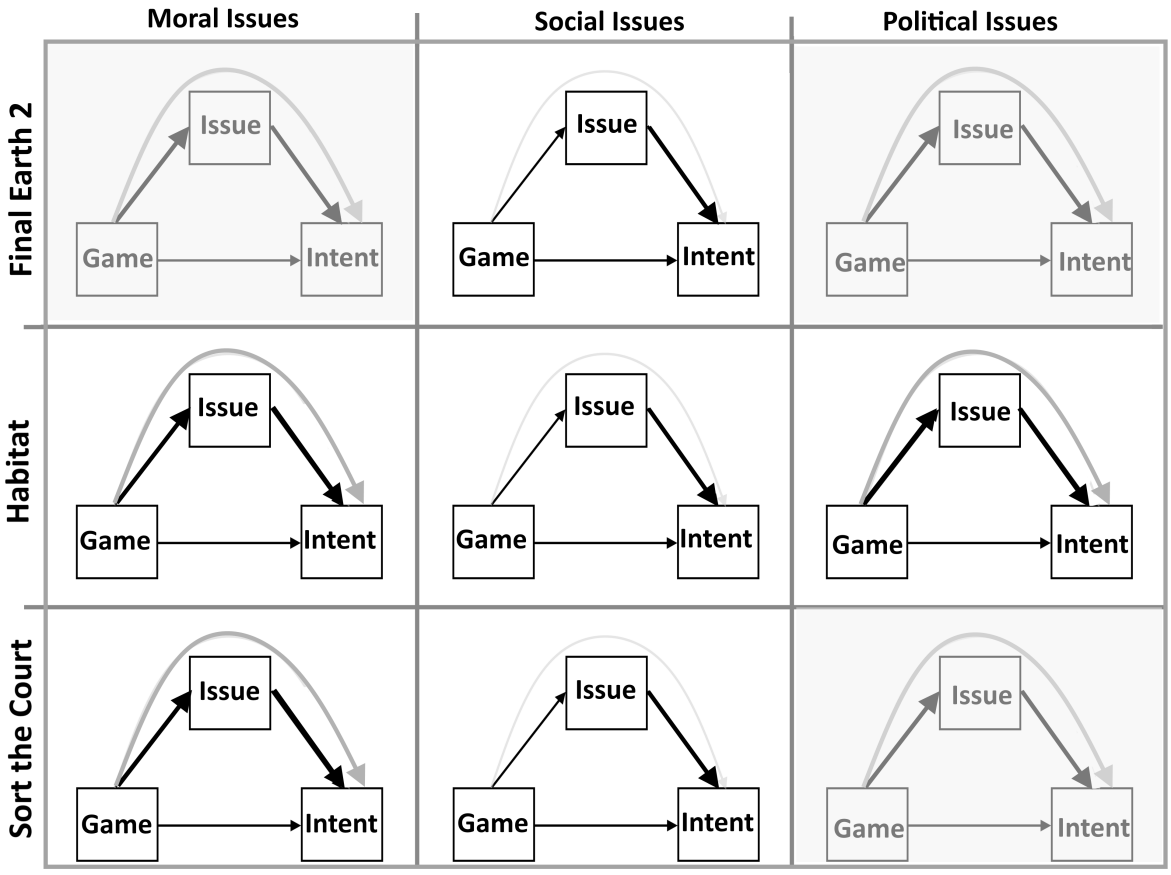

Figure 5-10. The experimental effect of games on participatory intent. This matrix of images shows the direct, indirect, and total effect of each of the three games on civic attitudes with feeling like the game touched on a social, moral, and political issue as the mediating variable. Black lines represent direct effects, grey lines represent indirect effects. Solid lines represent positive effects, dashed lines represent negative effects. Bolded lines mean that the (in)direct effects were statistically significant and greyed-out images mean that the total effects were significant. As with civic attitudes, the indirect effect was significant for moral and political issues for all three games, but not for social issues. See Table B-13 for the factor loadings for the participatory intent scale and Table B-14 for the regression results of the mediation analyses.

issues. To test this, I used the same mediation set-up as with my test for civic-attitudes, only now using the participatory intent scale as the outcome. Figure 5-10 captures the 9 mediation models I used to test my expectation that games will have a positive effect on participatory intent as mediated by whether or not the experience made the subjects think more about social, moral, and political issues. The figure uses the same scheme as figure 5-9. Lines reflect the relationship

between concepts, and bolded lines mean that the relationship is significant. As before, the most important aspect of each panel is whether or not the grey line is bolded and that the number above it is positive because this means that the mediation—the hypothesized process of games inspiring thought inspiring intent—is significant and in a consistent direction.

As can be seen, this relationship is significant across all three games and with moral issues and political issues as the mediator ($p_{max} = 0.038$). Those who played the games were more likely to think about moral, and political issues and those who thought about such issues scored higher on the participatory intent scale. As with civic attitudes, though, social issues did not exhibit a significant mediation effect—although the pathway between thinking about a social issue and participatory intent was consistently significant. This is consistent with my suspicion earlier that the lack of significance with regards to social issues stems from inadvertent issues with the control condition I selected, not something intrinsic about the contemplation of social issues over political issues.

The second participatory outcome I measured was one of participation directly. As I mentioned earlier, I offered each respondent a $15 Amazon digital giftcard as a thank-you for the time they spent on the experiment. At the end of the experiment, I asked if they would like to donate any of that money to one of five charities: The American Red Cross, The World Health Organization, The UN Refugee Agency, The Arbor Day Foundation, and Greyhound Pet Rescue of America. They were told that they could donate as much or as little of the giftcard amount as they liked; it was entirely up to them. I was interested to see if participants in the game conditions would donate more money than those in the control (with consideration of social, moral, and political content as mediators) and/or be more likely to donate anything in the first place. Figure 5-11 explores the first question in the now-familiar mediation set-up with the amount of money donated as the outcome variable of interest. Here, however, the mediation is not statistically significant in any of the conditions. The same can be said for the decision whether to donate anything at all (which I do not visualize to save space since its results are substantively identical to those in Figure 5-11. Results are shown in Table B-16 though.).

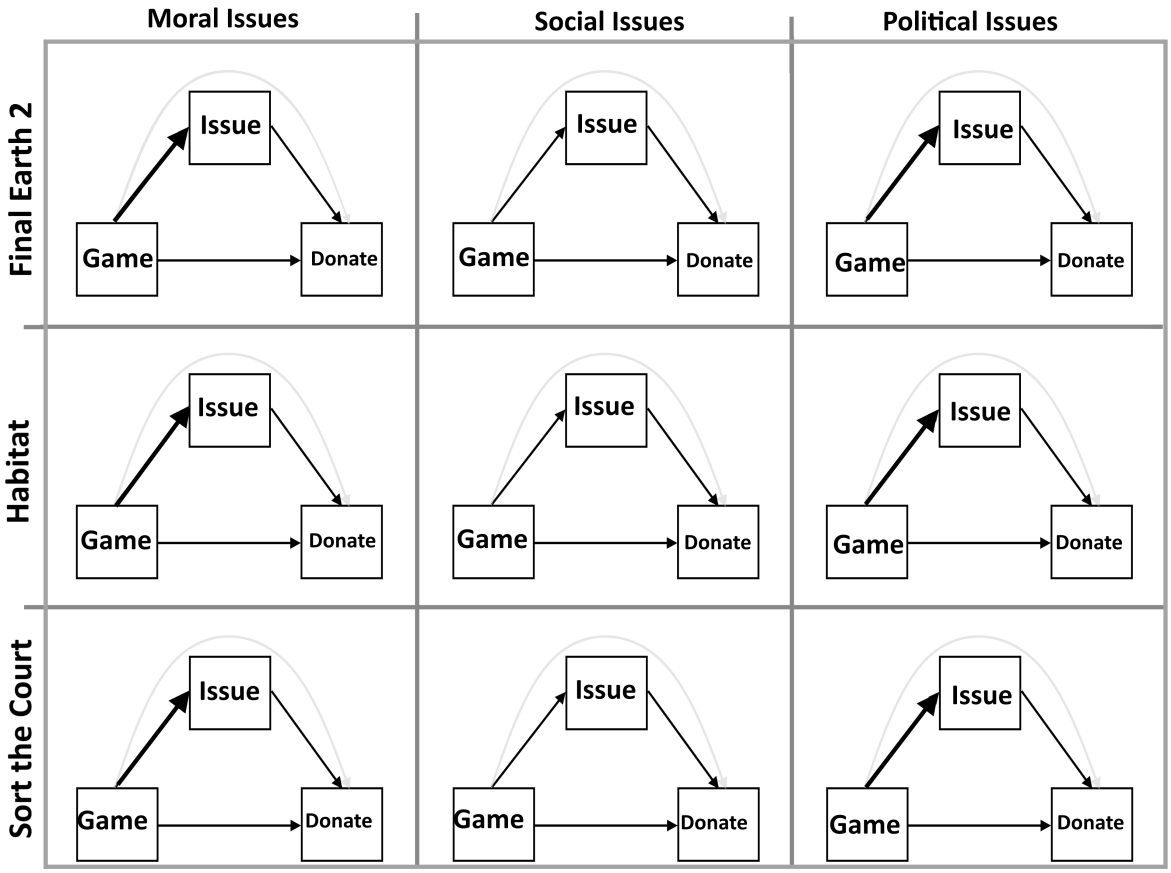

Figure 5-11. The experimental effect of games on donation behavior. This matrix of images shows the direct, indirect, and total effect of each of the three games on civic attitudes with feeling like the game touched on a social, moral, and political issue as the mediating variable. Black lines represent direct effects, grey lines represent indirect effects. Solid lines represent positive effects, dashed lines represent negative effects. Bolded lines mean that the (in)direct effects were statistically significant and greyed-out images mean that the total effects were significant. In this case, none of the indirect effects were statistically significant. See Table B-15 for the regression results of the mediation analysis. Regression output for the games' effects on the dependent variable alone (equivalent to the direct effect *sans* mediator) can be found in Table B-23.

There are a number of different reasons why the relationship was significant for behavioral intent but not for behavior. The obvious possibility is that the relationship was well and truly null—that there is no relationship between the conditions and political behavior. In order to test this, I performed equivalence tests (Lakens, 2017) to see if one could confidently pronounce these

results as precise nulls.[15] With the exception of social issues (which, again, appears to have been caused by the control also getting people to think about a problem in society), these tests all suggest that we cannot reject the assertion that there is an effect either. The tests say that there both is and is not a relationship depending on how you look at it. It is the Schrodinger's Cat of statistical results.

This paradoxical outcome is can occur when experiments are too under-powered to adequately estimate the effect. While I do not want to suggest that this is one-hundred-percent what happened in this case—it is also possible that, like I said above, there really is just a null relationship here—the fact that this occurred during the beginnings of the Coronavirus pandemic in the US at least makes it worth considering for two reasons: First, as mentioned before, the pandemic forced me to redesign the experiment in a way that made the stimulus considerably weaker than was used in the research that I consulted when deciding how many subjects to recruit. Second, the calamitous effect that the virus had on the economy might have biased respondents away from donating—not because there was not a need, but because resource scarcity (like recessions) can impel people to preserve resources so that they can weather the consequences (Roux, Goldsmith, & Bonezzi, 2015).

But it may also be possible that asking people whether or not they would donate to large charitable organizations was an imperfect measure from the start. It has become relatively well-known that most of the money donated to larger organizations tends to go to overhead and/or advertisement meant to simply self-propagate the charity as an entity.[16] Participants may have felt that their donations (limited to no more than $15) would not have done much absolute good *regardless* of how the games made them feel. Future causal work with different forms of

[15] To oversimplify things: equivalence tests are like the inverse of the standard null hypothesis tests that predominate statistical testing in the social sciences. Whereas those tests look to see if we could reject the null hypothesis that the effect is zero, equivalence tests look to reject the null that it does not equal zero—the specific bounds being specified either from prior experience or empirically from the data itself.

[16] As an example: Susan G. Komen for the Cure is under increasing scrutiny for the fact that less than 20 percent of the money it raises goes to cancer research. Most of what is raised goes towards "education", which is predominantly advertisements for the brand itself.

politically-relevant action will be necessary to get a fuller picture on the effects between games and direct political action.

Where does this leave the idea that games can directly cause political participation? The results strongly suggest that, by making people think about politically-relevant issues, video games can cause people to have stronger intents to participate. It cannot be said, however, that this intent necessarily translates into action. On the whole though, I believe that—while the field definitely needs to perform additional research that can clarify the causal direction—the most prudent thing is to lean more towards believing that a causal pathway exists. First, equivalence tests also suggest that the experiment cannot be said to have no effect either. With this conflicting information, the only thing that could be conclusively drawn is the need for more testing—preferably when there is not a global pandemic raging about. Second, even if it could be confidently declared that the effect is well and truly null, my own lack of resources limited me to testing only one kind of participatory action, Donating to charitable organizations. The behavioral intent scale, however, was constructed with multiple political actions in mind. The consistent significance attached to this measure strongly suggests that video games can be the force making people more inclined to participate in politics, more broadly understood. Thus, while we can confidently say that games can make people have stronger participatory intent, this inclination may or may not extend to donating to charitable organizations in the midst of an unprecedented economic collapse spurred on by a global pandemic.

5.3.3 Other Media Effects

The experimental setting also gave me an opportunity to test if these games could deliver other known media effects as well: namely agenda setting, priming, and changes in policy attitudes.

5.3.3.1 Agenda setting

Iyengar and Kinder 1987 brought agenda-setting effects on political attitudes to the fore with their influential book *News That Matters*. In it, they articulate agenda-setting effects as being the consequence of the news literally setting the agenda. To paraphrase Bernard Cohen 1963, the

news is not the best at telling people how to think but *what to think about*. Daniel Kahneman expounds upon this relationship in his book *Thinking, Fast and Slow* 2011, explaining that our brains have a tendency to conflate things that are readily accessible with things that are important. By simply discussing an issue, news media signals its intrinsic newsworthiness—but also puts the topic at the forefront of the mind, making it more cognitively accessible and, usually, making it seem more important.[17]

In order to test if the games I tested have the same effect, I asked respondents to rank 12 prominent national issues (such as race relations, climate change, jobs, healthcare, and immigration) on a scale from most important (1) to least important (12). I then asked respondents if their media experience made them think about any of the 12, allowing them to select as many as they wanted. The most frequent responses were infrastructure (since two of the three games featured the idea of building things), jobs/the economy, and climate change/the environment. I then made a series of binary variables based around these responses. On each, players would score a 1 if they indicated that they thought about the issue and if they were not in the control condition. All other responses were set to zero. This allows the estimates to only be based on the effects of the games, not any that might be caused by any more surprise effects stemming from *Tidying Up with Marie Kondo*. Because the variable is a ranking, I used ordered logistic regression to see if playing a game that made people think about the infrastructure, the environment, and the economy made them think that these issues were more important. Because a lower rank is associated with higher importance, if games were to set the agenda, the effect associated with them would be significant and negative.

[17]There are two interrelated, but distinct, approaches to studying agenda setting. The first emphasizes setting the agenda on the aggregate level, for broad audiences and populations as a whole (see McCombs & Shaw, 1972; Scheufele & Tewksbury, 2007) and the second is more focused on individual-level effects and is theoretically linked, although different, from priming (Carpentier, 2014; Scheufele, 2000; Weaver, 2007). The latter conceptualization stems directly from Iyengar and Kinder 1987 and is prevalent in the field of political behavior—especially given how fragmented the current media environment is (e.g., Muddiman, Stroud, & McCombs, 2014). Although there may be cases where some games penetrate the public consciousness to affect mass attitudes (perhaps during the weeks immediately after a highly-anticipated single-player campaign, like in *Doom: Eternal*, *Red Dead Redemption 2*, or *Grand Theft Auto V*), my emphasis here is on the individual level since the gaming media environment is fragmented and most games are enjoyed too asynchronously to have a mass effect (pun partially intended).

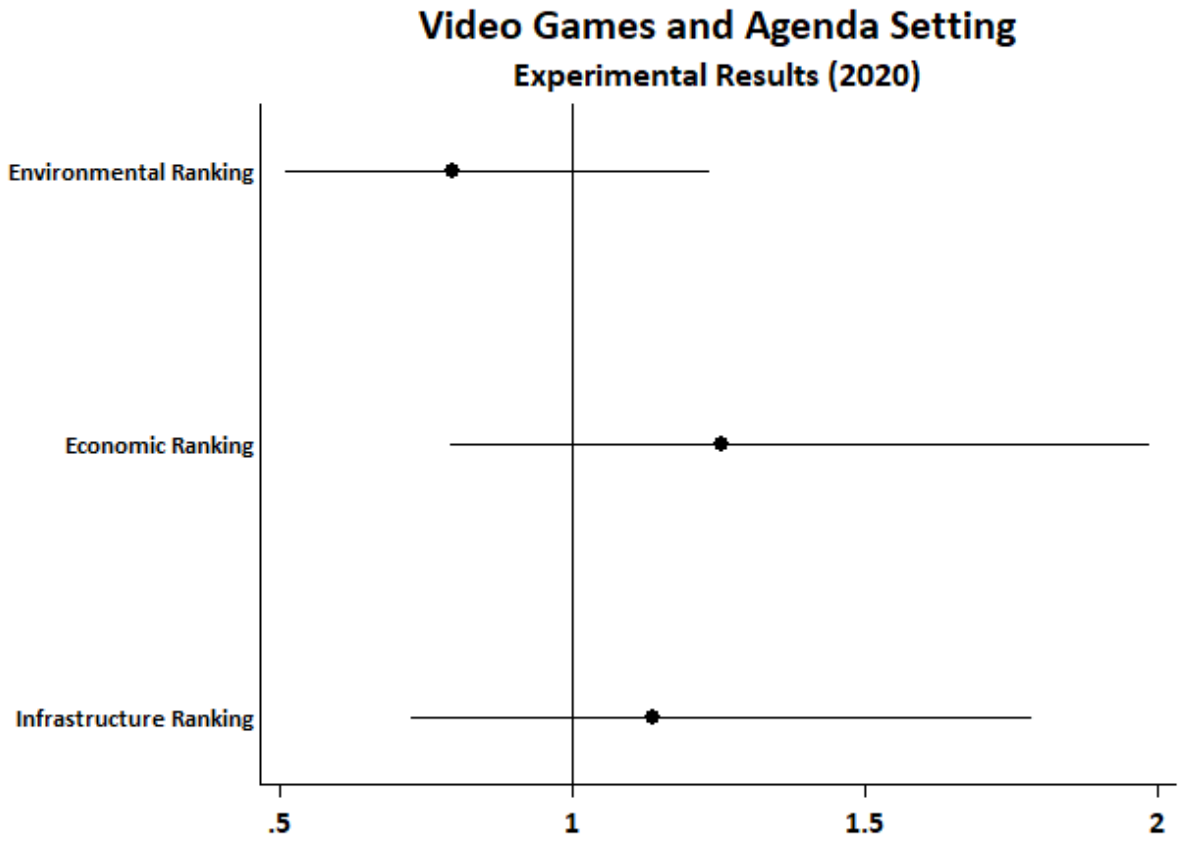

Figure 5-12. The experimental effects of games to set the agenda on three separate issues: the environment, jobs/the economy/ and infrastructure (Y axis). Points are ordered logistic model estimates, bars are 90 percent confidence intervals; the solid line at 1.0 signifies no effect. If the point is left of the line, it suggests that respondents playing a game that made them think about the issue saw it as **more** important while being right of the line means that those playing a game that made them think about the issue saw it as **less** important. All in all, the effects are not statistically discernible from zero—suggesting that these games did not have the power to set the agenda on these three issues. See Table B-17 for the regression output. Regression output for the games' effects on the dependent variable alone (equivalent to the direct effect *sans* mediator) can be found in Table B-23.

Figure 5-12 is set up similarly to Figure 5-8. The image shows three ordered-logistic regressions, stacking them along the Y axis with the X axis representing the multiplicative change in the odds-ratios of being at a higher ranking. The points are the estimates from the models and the bars are the 90 percent confidence intervals. The solid black line at 1 signifies a null effect. If games have an agenda setting effect, the points should appear on the left-hand side of the bar, less

than 1, and the confidence interval should not overlap the vertical line. As can be seen, though, the effect is not significant on any of the issues: not for infrastructure ($p = 0.637$), not for the economy ($p = 0.419$), and not the environment ($p = 0.392$). Indeed, the points are only in the anticipated direction in the model looking at climate and environmental attitudes. This means that even if the relationship was significant, it would mean that playing the game made people think the issues were less important—which is in total contrast with the theoretical expectations of agenda setting effects.

Again, it is important not to conflate absence of evidence with evidence of absence. All that can be concluded here is that brief experiences with browser-based games are not likely to set people's attitudinal agendas. It is possible that longer, more involved games, like those I explored in the case studies and like those that the survey respondents are actually playing (as I will later show in Chapter 8), will have an agenda-setting effect. But, for now, the evidence is simply not there. I cannot confidently advance the idea that video games can cause people to value issues at different levels of import.

5.3.3.2 Priming

While there is a vast (and contested) literature on priming outside of political science, namely in psychology, its most prominent conception in the study of how people behave in response to political media can also trace itself back to News that Matters 1987. Much of the priming research in the realm of political behavior has sought to see how the primed issues affect perceptions of presidential job performance (for a review and meta-analysis of this and similar veins in the media priming literature, see Roskos-Ewoldsen, Klinger, & Roskos-Ewoldsen, 2006). The logic goes that as the accessibility of an issue is raised it will, in the words of Iyengar and Kinder 1987 "[change] the standards that people use to make political evaluations" (p. 63). If people are exposed to media dealing with environmental issues, environmental issues will be at the forefront of their minds—and thus, their judgments of prominent political figures will be biased by their judgments of how the figures are performing with regards to the primed issue.

Because these games highlight environmental issues—and economic and infrastructural issues as well. Will the presence of the issues trigger a change how respondents evaluate the President?

Near the end of the experiment, I asked respondents to rank how President Trump was doing in his job overall. They could answer that they strongly disapproved, disapproved, approved, strongly approved, or did not know and/or did not have an opinion. I then asked them to rank the President's performance on the same 12 issues they had sorted by importance using the same scale. Those who did not have an opinion on the President in general or in the specific issue domain were dropped from the analysis. If priming were to happen on, say, infrastructure, then attitudes concerning overall Presidential performance should be driven by his performance on infrastructure among those who responded that their experimental experience made them think about the topic. This logic can be represented in statistical models by interacting the dummy variable I made for the agenda setting analysis with the respondents' answer of how well they think the President is doing on that particular issue and seeing how it predicts their rating of his overall performance. The parity of the estimated effect would tell us whether this priming effect raised or sank their rating of the President. If this interaction is statistically significant, then that is evidence for a priming effect.

As before, I performed the test on the three most popularly observed issue areas: jobs, infrastructure, and healthcare. The results are visualized in Figure 5-13. It has a similar logic to Figures 5-12 and 5-8, but there are a few important differences. The points are the model estimates and the bars are the 90 percent confidence intervals. But unlike before, the Y axis refers to specific OLS regression models rather than ordered-logistic models. The meaning of the specific point estimates' position along the X axis is subsequently pretty intuitive: every one unit change in the variable represented on the Y axis causes a change the size (and direction) in the dependent variable (in this case, Trump's overall approval) equal to its position on the X axis. That means that the bar suggesting a null effect is more sensibly situated at 0. If he bars cross over that point, then it cannot be concluded that the games elicit a priming effect.

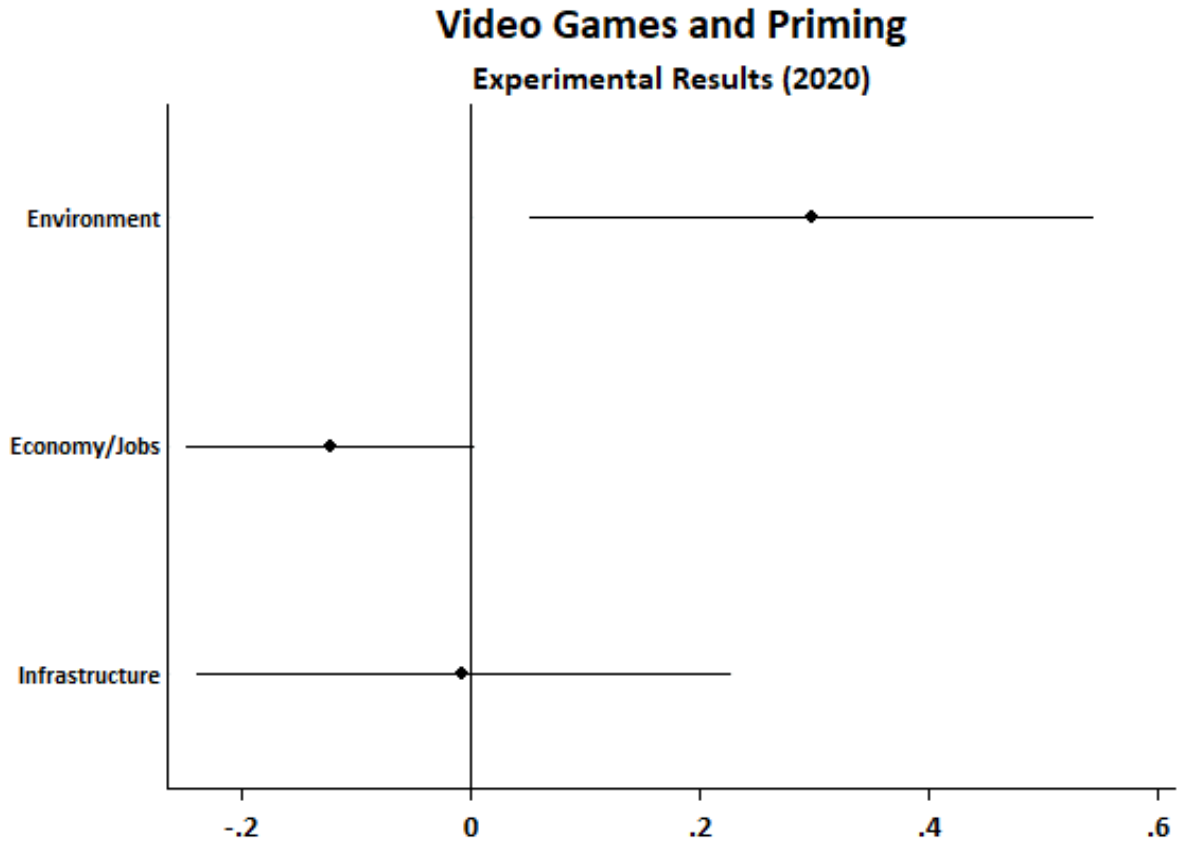

Figure 5-13. The experimental effects of games to prime political judgment on the basis of three separate issues: the environment, jobs/the economy/ and infrastructure (Y axis). Points are OLS estimates, bars are 95 percent confidence intervals; the solid line at 0 signifies no effect. If the point is significantly distant from the line (e.g. the error bars do not intersect it), it suggests that respondents playing a game that made them think about that issue were likely to have their overall opinions of the President colored by their opinions of his performance on that issue. A point left of the line means that their opinions of his performance on the issue weighed his overall performance evaluations **down** while a point right of the line suggests that their opinions of his performance were raised **up** by their considerations. The evidence is mixed with one significant effect, one insignificant effect, and one that cannot be fully determined either way. See Table B-18 for the regression outputs. Regression output for the games' effects on the dependent variable alone (equivalent to the direct effect *sans* mediator) can be found in Table B-23.

As can be seen, the evidence is well and truly mixed. The effect for infrastructure is not statistically significant ($p = 0.960$), the effect for the environment is significant ($p = 0.047$), and the effect for the economy falls just outside the bounds of significance ($p = 0.109$). As with the

donation results, an equivalence test simultaneously suggests that there is a significant effect for the economy—meaning that this design was probably too under-powered to get a consistent answer on the priming hypothesis. This points to a need to collect additional data on this question.

5.3.3.3 Policy attitudes

Finally, I used the experiment to see if the games can change people's attitudes on various policy domains. In the post-test, I asked respondents to answer questions related to a variety of issue domains including immigration, the environment, and the economy. For each question, respondents were given a sliding scale from "Strongly disagree" to "Strongly agree", which were encoded on a 0–100 point range.[18] These were then recoded into a 0–1 scale, where 0 represented more conservative policy positions (such as believing "planning is a hindrance for growth," "those who believe that climate change will cause serious harm are being overdramatic," and "We need larger income differences to incentivize people to work harder) and 1 represented more liberal policy positions ("government services are often needed for citizens to thrive," 'the government should make a serious effort to advance the development of green energy technologies"). Well, more appropriately: the larger the number, the more that the respondent felt that the state should play a role in this particular issue area. It just so happens in the United States that additional state action in these areas is more consistent with the positions held by those identifying as "liberal" versus those identifying as "conservative."

An intuitive approach would be to use the variables I used earlier that measured whether respondents who played games felt that their experience made them think about the environment, the economy, and infrastructure and see if there is a positive relationship between these thoughts

[18]The questions for infrastructure were: "A nation is only as strong as its infrastructure; "The federal government should spend more money on maintaining our nation's bridges, roadways, and dams;" "To have an economically successful state, proper infrastructure management is a must;" "Planning is a hindrance to growth;" and "Government services are often needed for citizens to thrive." The questions for the environment were: "The environment is an important resource for effective governments;" The government should make serious efforts to advance the development of green energy technologies;" "Those who believe that climate change will cause serious harm are being overdramatic;" "The government should make a serious effort to reduce our negative impacts on the planet;" and "Economic growth should be seen as more important than environmental sustainability." And the questions for economic attitudes were: "Many people in the United States are struggling to get by;" "The current tax system advantages the wealthy;" "We need larger income differences to incentivize people to work harder;" "People can only get rich at the expense of others;" and "Economic inequality is not a serious issue in the United States."

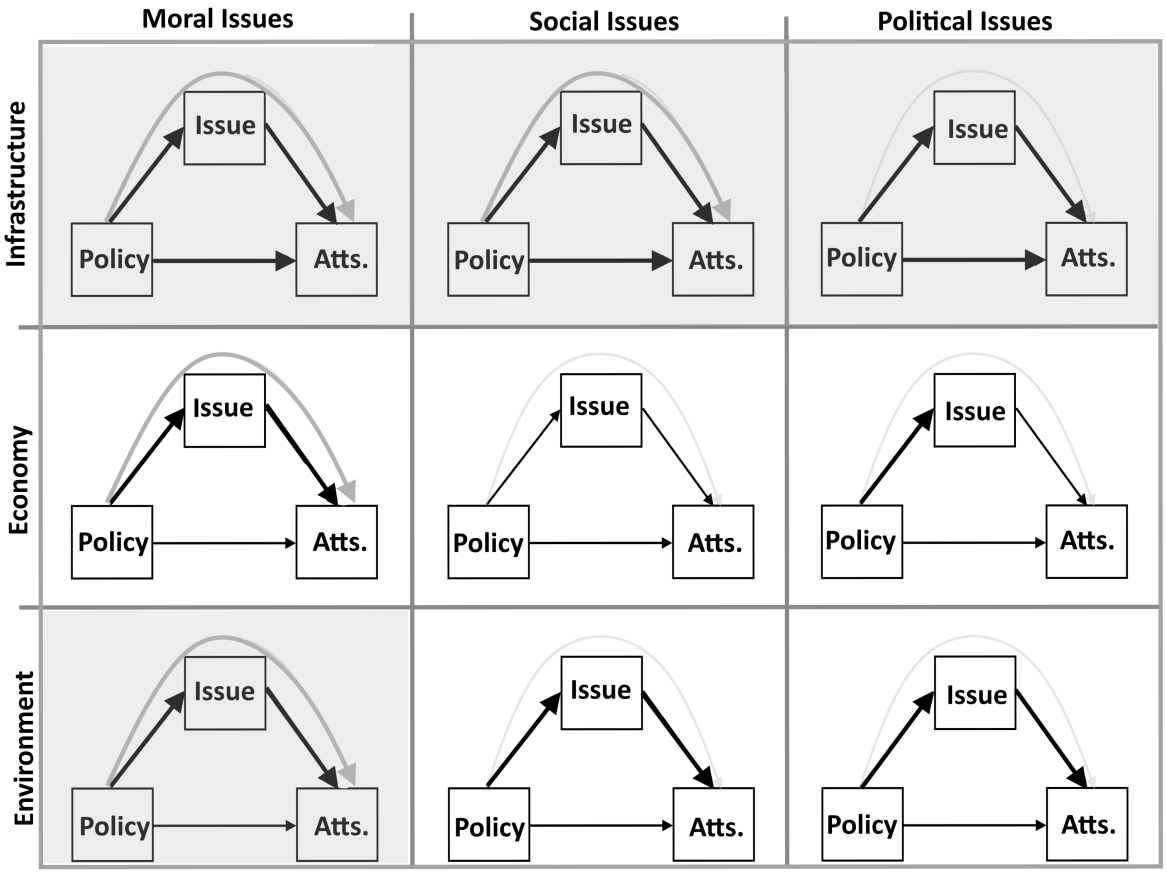

Figure 5-14. The experimental effects of games on policy attitudes. The matrix of images shows the direct, indirect, and total effect of playing a game that inspires thought on each of the three policy areas with feeling like the game touched on moral, social, and political issues as the mediating factor. Black lines represent direct effects, grey lines represent indirect effects. Solid lines represent positive effects, dashed lines represent negative effects. Bolded lines mean that the (in)direct effects were statistically significant and greyed-out images mean that the total effects were significant. Four of the indirect effects were significant, one was insignificant, and the null hypothesis of zero effect could neither be accepted nor rejected in the remaining four cases. See Tables B-19, B-20, and B-21 for the loadings on the three policy areas. See Table B-22 for the regression results of the mediation analysis.

and the policy attitude scales. However, as with the civic attitude questions, it is not so much that I expect that the mere act of recognizing that the game touched on a specific issue domain will cause attitude change. People may identify that some media touches on a particular idea and then reject the media's message and/or refuse to elaborate on it further. What matters is if the game made them think about and elaborate upon those experiences. That is, the relationship between

gameplay and attitudes will be mediated by cognitive elaboration. Cognitive elaboration can be proxied through the earlier questions on whether the experience made the participants think about a social, moral, and/or political issue since these represent broader issue categories than the particular policy questions. Those who say that they thought about a political issue and infrastructure will have done more elaboration than those who say that they simply thought about infrastructure because the former would have put in the cognitive effort necessary to recognize and categorize "infrastructure" as part of a the more general category as "political."

I created 9 additional regression models which looked to see if seeing a game's social, moral, and political relevance mediated effects for infrastructure, jobs and the economy, and climate change and the environment. The results are visualized in Figure 5-14, using the same logic as the earlier mediation analyses. The results are completely mixed. Of the nine models, four were clearly consistent with the hypothesis of a significant interaction effect, one was clearly inconsistent (the pathway of economic attitudes with politically-relevant content; $p = 0.469$), and four edge-cases that fell into the increasingly familiar paradox where neither the null for traditional significance testing nor for the equivalence tests could be rejected.

Interestingly, all of the mediation effects—significant, edge-case, and non-significant alike—all estimated positive effects on the attitude variables, which is more traditionally "liberal." News headlines communicating this effect basically write themselves: "Video games make their players more liberal." Before you know it, a whole new moral panic sets in as a full third of the country are now exceedingly worried about the brainwashing effects games have on their kids. Not because the game brainswash them to be violent. *Worse*. They brainwash their kids to be a member of the political other.

The headline and hyperbole would be premature, however. For one, the effect sizes are non-zero but they are not enormous either. The effect equates to between 1–3 points on the 100 point scale. Interestingly, this is roughly the same effect size as was seen in a recent study aggregating 59 high-powered experiments dedicated to investigating the persuasive effects of being exposed to political campaign advertisements (Coppock, Hill, & Vavreck, 2020). While

future work will be needed to pin down the effect size (and verify its existence in the first place) it is not outside the norm in political communications. Second, we are not sure how long such effects persist. Considering that the experience lasted only 45 minutes and that the games, while enjoyable, were far from platinum experiences; I have doubts that these results reflect permanent attitudinal shifts. In the survey data, the largest effects were found with those who had politically-relevant game experiences regularly. These effects have a better chance of being permanent if the games lasted longer or if players played them repeatedly over a long period of time. Third, it is important to keep in mind the rhetoric of the games—that is, what points the games were making through their narratives and mechanics. In all three, the win condition came when players were expanding the state and its power—either by building ever-taller structures (*Final Earth 2*), more settlements (*Habitat*), or, with more gold and citizen happiness (*Sort the Court*). The games were not changing minds in a way that made players more liberal—they were changing minds in ways that were consistent with their rhetorics. A far less salacious, but far more accurate, headline would be: "Some video games can cause small attitude changes in the direction consistent with the game's procedural rhetoric—for how long, we don't know." (I am sure that a specialist could find a way to make that more punchy and apt for the dopamine economy).

In any event, while future work ought to look at the possibility of partisan bias, the evidence is consistent with the idea that games can cause policy changes to shift in the direction of the game's narrative and mechanical arguments.

5.3.4 Conclusion to the Experimental Section

While these results are important and interesting initial steps, it is important to circle-back around to the core point of the experiment and hash out its main contribution to this work. This experiment was designed to clarify the direction of causality between politically relevant gaming and civic attitudes and political participation. How do the results fare on this critically important question?

If games were to affect political attitudes and participation, it is likely that they would do so by making people think about social, moral, and political issues. That is, recognition of these issues would mediate the relationship between individual games and political behaviors. I found that, compared to a control experience featuring a "standard" entertainment alternative, all three gaming conditions showed positive, significant indirect effects on civic engagement for those who thought about moral and political issues. Likewise, those who thought about moral and political issues as a result of their games were significantly more likely to score higher in participatory intent. In all instances, social gaming was not statistically significant, but that appears to be the result of people seeing socially-relevant issues in the control at far higher rates than I anticipated when designing the experiment. Consequently, the jury is still out on whether play that inspires contemplation on social issues can increase civic attitudes and behaviors.

When it came to actual participation, though, the results are inconclusive. One form of statistical analyses suggest that we cannot reject the hypothesis that there is a null effect. Another set of analyses suggests that we cannot reject the hypothesis that there is a positive effect. Same data, totally inconclusive results. The most likely cause of this kerfuffle is the Coronavirus pandemic, which not only could have biased people towards not donating due to the accompanying economic anxiety, but also by directly caused a revamping of the experimental design that diminished its statistical power. In the next chapter, I provide indirect evidence that supports this assertion and suggests that the games did, in fact, lead to increased participation when using a different measure of political relevance. But the only way to know for sure is to collect additional data. So we sit, awaiting future clarifying research, suspended in our unknowing. *C'est la science.*

One possible critique of these results is that they could be a consequence of effort justification. That is, the respondents who played games are more likely to say that they experienced something sociopolitically relevant to rationalize that they got something "worthwhile" out of their time. This is a fair issue to raise; indeed, part of this book's overall argument—fleshed out and defended in Chapter 6—is that the interactive nature of games makes

players more invested and more likely to elaborate on the experiences. I cannot entirely rule this possibility out. However, in defense of this measure, there is good reason to believe that much of the participants' response is driven by the content of the stimulus rather than just the fact they were acting it out. Recall that at the end of the experiment, I asked respondents to report what issues the games made them think of specifically. If it was a matter of game players being more likely to report thinking about issues to justify their effort, they should be more likely to report considering issues that were not prominently featured in the narratives of the games or control group, such as racism, education, defense against terrorism, and women's rights. However, with the exception of defense against terrorism, the pattern is actually *reverse.* More people reported thinking about these issues in the *control group* rather than the experimental group. (Even in the case of defense against terrorism, the difference is entirely driven by players of *Sort the Court*.) Further evidence against this comes from the fact that a full 27 percent of control-group respondents reported not thinking about any issue compared to just 7 percent of people who played the games. A future experiment may strive to explicitly test against this competing hypothesis.[19] For now, though, while I cannot deny the possibility that effort justification plays a part in these results, it does seem unlikely that they are **the** driving force.

With this possibility and mind, and apart from the aforementioned exceptions, these results appear to validate the hypothesized causal path. It is not just that gaming is associated with increased civic attitudes and participation. It appears that games can be said to cause higher values on these outcomes as well.

5.4 Conclusion: Games and Media Effects

Since time immemorial, humans have been crafting narratives in order to explain the world and their place in it. Over the hundreds of thousands of years that modern humans have existed, the way that these narratives are conveyed has evolved. Some modes have remained in use: We

[19] One possible design might test a control group against those who play a video game and against those who simply watch the game being played out. If the effort justification hypothesis is correct, we would see that only those who played the games are affected. However, if my theory is correct, we would see separate effects between the control condition, the play-through condition, and the experimental condition—with the second having stronger effects than the first and the third having stronger effects than the second.

still look to respected individuals to tell us stories of the way things were, are, and ought to be. Others have been outmoded entirely (do you ever wonder if paleolothic parents would chide their kids to "stop watching that damn wall, it'll rot your brain and spoil your imagination?"). Some, like video games, are entirely new. If all of human history were compressed to the span of a day, video games would have only been around for the last 26 seconds. But it is carrying on a tradition going back eons. And as the most recent manifestation of our nature to be affected by stories, there is good reason to believe that they can influence our political behaviors and interest.

In the first part of this chapter, I used three games—*Celeste*, *Civilization V*, and *Fallout: New Vegas*—to illustrate how games address a variety of socially, morally, and politically relevant issues. Through both their mechanic and narrative elements they are able to show topics as varied as mental illness and coalition building, and do so in ways that encourage players to elaborate on what they are seeing. They show, in short, how these games can matter. Previous research suggests that political content can have an effect on attitudes and behavior. Demonstrating that games can also deliver this content shows that they have the same potential.

In the second part, I look at data from a 2008 Pew Research survey of American teens as well an original 2019 survey investigating patterns of gameplay and civic engagement among a representative sample of American adults. I used these data to construct a series of statistical models that investigated how playing games that made respondents think about social, moral, and political issues. In both and the Pew survey's multi-item civic engagement scale and the GAmEPLS' more spartan single measure, I found that playing these kinds of games more often made players report stronger, more pro-social civic attitudes. Those who played such games every day were substantially more engaged than those did not play games at all, or those who played games but that did not make them think about these issues. I also found that increased play made people report engaging in more political actions as well as made them more likely to engage in these actions more frequently.

The results of the experiment largely comport with these findings. Compared to those who were randomly assigned to watch a popular Netflix show, those participants who played games

exhibited a significant indirect effect on civic attitudes and participatory intent, by virtue of the fact that they recognized the game's moral and political content. Games can make people want to be more involved by encouraging them to think about political and moral issues. When it comes to social issues and whether or not this translates to actual participation, we will have to await for the outcomes of a future experiment: preferably one that did not have to be fielded in the midst of a historic pandemic.

Of course, not every game is going to have this effect. Not all stories are so relevant or so moving as to inspire increased civic engagement and political participation. Over ages of telling tales, a few of them are bound to be duds. But these results strongly suggest that there are certain kinds of gameplay experiences that can cause people to have more pro-social attitudes and have stronger intentions to perform political actions.

But games are also fundamentally different than other forms of story-driven media—and not only due to its relative novelty. While all forms of media require some form of active involvement and choice (Neuman et al., 1992), games exceed what is threshold by conceptual orders of magnitude. Games require far higher degrees of interactivity than other media. After all, they are also a collection of rules, (dis)incentives, and player-driven outcomes. And, as the next chapter will show, the process of engaging with these elements can themselves raise levels of civic engagement and participatory intent.

CHAPTER 6
INTERACTIVITY EFFECTS

In 2007, 12 year old Hans Jørgen Olsen and his little sister were out for a walk in the woods near their Norwegian home. After some time playing among the trees, they came across an animal that was as particular to Norwegian forests as an alligator is in Florida swamps—and equally worrisome. They had stumbled across a moose (or an elk, for those preferring the Queen's English). Unfortunately for them, at least if current statistics are to be believed, they would have been safer with the gator.[1]

To be clear, most moose (and gators, for that matter) are generally pretty passive around humans. Moose tend to avoid direct contact, preferring to amiably graze on the twigs, bark, and leaves of shrubs and trees. If they go out of their way for anything, it is for the aquatic vegetation that they seem to find so delicious. This is not out of a sense of fear or intimidation towards the funny little apes that they come across from time to time: more like indifference. The animal's considerable size (up to 7 feet tall and 1,500 pounds) leaves it with very few things to be afraid of. Startle or cross a moose in its territory though, and it could prove to be one's last mistake.

Hans and his sister were unlucky. Coming across the moose had spooked it, and it was not in a very forgiving mood. It began to charge at them. They were two young children with over half a ton of angry muscle and antler barreling towards them. But there was one fortunate thing about their situation—a small fact that manage to save both of their lives: Hans was an avid player of the massive only role-playing game *World of Warcraft—WoW* for short.

In *WoW*, players construct in-game avatars and build up their power and adroitness, level by level, by fighting monsters, attacking enemy factions, and completing quests and challenges. The higher the level, the stronger the player. But, also, the stronger the opponents as well. Players who are "under-powered" relative to whatever they are facing are likely to get defeated. But in *WoW*, as in life, people do not always get to decide what challenges they have to face and when they have to face them. Players are sometimes given challengers who, if the encounter was a prizefight, they would have zero business being in the ring with. The match-up between two

[1] Government statistics suggest that there have been roughly 10 American alligator attacks in the 2010s. In contrast, there are approximately 10–15 moose attacks per year. Both are incredibly rare events and can best be avoided by not intentionally antagonizing either animal and being alert when traveling through areas that they are known to inhabit.

children and an angry bull moose was as abysmally one-sided as it could get. Generally, this is where the "flight" part of the "fight or flight" response tends to kick in—but in *WoW*, flight will only get you so far. Some opponents have a faster movement speed and trying to run away will only manage to make them angrier. A modestly fast moose would trounce Usain Bolt in a race, let alone a couple of kids in the woods. And the moose was demonstrating this fact to Hans by charging towards his little sister.

In cases like these, veteran *WoW* players know not to flee but to *manage* their opponent's aggression. In groups, relatively stronger players would "tank" the damage, absorbing the hits to spare the weaker players, or otherwise distract the aggressor from the more vulnerable party members. Hans later reported that he tried to "aggro" the moose away from his sister by making noises and taunts as he had learned in the game. The good news is it worked. The bad news is that it worked too well—the moose began charging at Hans.

But, again, *WoW* had prepared him. His character had recently reached level 30 and unlocked a move that caused opponents (especially "beasts") to become disinterested. The move was called (and still is) "feign death." He mimicked his character, collapsing to the ground, laying as still as he could possibly manage.

The moose stopped charging. It slowly approached his still body, sniffed him, and quickly grew uninterested. It turned and lumbered off into the woods, leaving the children alone. In interviews he gave following the event, Hans told reporters that the only reason he even had a sense of what he needed to do is because of the time he spent in *World of Warcraft*. That sense was enough, though. It saved his and his sister's lives.

Hans is not the only player who extended what they had done in a game to help someone. In 2014, a 10 year old boy was traveling with his grandfather when the older man passed out, his foot pressed firmly on their car's accelerator. The boy quickly took control of the steering wheel and, despite the traffic on the road, managed to bring the car to a safe stop. He told reporters that the only place he had come across driving mechanics up that point was *Grand Theft Auto* (Quigley, 2014). In 2008, an avid player of *America's Army* came across a car accident with the

victim bleeding profusely inside the vehicle. The game is praised for its verisimilitude; the U.S. military had a large role in the game's development and designed it to work as a recruitment tool. The man had no medical training to speak of—but had completed the game's stylized medic training modules several times. That was enough for him to safely extricate the victim from the car and stabilize them until help could arrive (Mezoff, 2008).

These are incredible stories, surprising and delighting people as they gained international attention. "Who would have thought that all that time gaming could be *useful*," many seemed to say—incredulous at the concept that people could take something from these virtual worlds and constructively apply it to the physical one. The players should doubtlessly be commended for their quick-thinking and desire to act in the service of others. But should we be so shocked and agog that what people experienced in games could actually be used? That the skills and lessons they picked up through play could be executed—or at least roughly approximated enough that it got something beneficial accomplished? That the echos of the actions they perform while in other worlds could carry with them into the one they share with the rest of us?

Games are perhaps the most interactive mass-entertainment medium: They only work by dint of our continued choices and actions. As I described in Chapter 2, our brains construct cognitive patterns based off of what we did in the past, predisposing us to act a certain way in the future. Indeed, researchers believe that this is the very purpose of play: To provide our brains and bodies a space to experiment with "real-world" circumstances in an environment that mimics its conditions *sans* the threat of actual consequences (Brown & Vaughan, 2009). These actions do not even need to have been physically embodied by us. Research in psychology shows that actions that are deliberately imagined can activate the same neural circuitry as when the action is physically performed (Iacoboni, 2009), which can affect future performances related to that task (Eckert, 1989; Ranganathan et al., 2004). Additionally, research into the Proteus effect demonstrates that identification with our in-game avatars can drive us to pick up on attitudes consistent with the character's "physical" characteristics (such as sex, race, and weight), condititoned on the overall context of the experience (Ratan et al., 2019). As it turns out, the true

gap between the game and "us" is smaller than the thickness of the screen. To our brains, the differences between behaviors we undertake in game and those we undertake in reality are not as cleanly discriminated as we might intuitively think.

There is good reason to believe that the interactive nature of games can affect our political behaviors. After all, if games have political content that they encourage us to act through, and our brains see the avatars as more-or-less us (or at least take seriously the actions we perform through them while at play), then it follows that we ought to be affected by the virtual actions we take towards political ends. To date, however, no one has investigated whether our transportation into these avatars, and into these worlds, affect our political inclinations. While some of the current research touches on factors that are certainly politically relevant (such as race and sex) they do not investigate how this intrinsic emphasis on interactivity affects our political behaviors more broadly understood.

That is the aim of this chapter. Here I present the results of two studies that jointly argue that players' actions in these worlds manifest themselves as real-world political behavior. First, I return to the experimental evidence that I introduced in the last chapter to show how the relationships described are partially mediated by perceived level of immersion. This will show that interactivity is indeed a factor in the positive causal relationship between gaming, civic attitudes, and political participation. That is, the sum of these games' impact lies not just with what they present but the fact that said presentations are fundamentally *experiential* in nature. Second, I present illustrative case studies of the three games I explored for sociopolitical relevance in the last chapter: *Celeste*, *Civilization V*, and *Fallout: New Vegas*. These will look at both narrative and ludic factors to provide concrete examples of how games foster feelings of action and immersion in politically relevant circumstances. These illustrative examples will also, hopefully, provide a deeper understanding of the mechanisms undergirding the causal effects seen with the experiment.

6.1 Experimental Evidence

As a brief recap, in the last chapter I presented the results of a laboratory experiment I fielded in April of 2020. I recruited 222 participants from the Department of Political Science and the College of Journalism and Mass Communications at the University of Florida to spend 45 minutes either watching *Tidying Up with Marie Kondo* (the control condition) or playing one of three browser based games: *Final Earth 2*, which tasks people to rebuild society on a floating asteroid after being told that humanity caused the failure of Earth due to environmental collapse; *Sort the Court*, where players take on the role of a regent trying to build up their society's population, gold, and happiness by answering the questions of the subjects who approach them; or *Habitat*, a game where players manage resources to build up their settlements while avoiding errant bear attacks. Afterwards, I gave the participants a post-test in which I asked them the extent to which they felt that their content made them think about social issues, about moral issues, and about how a society should be run (political issues). Additionally, the post-test allowed me to construct a civic attitudes scale, a participatory intent scale, and policy attitude scales for infrastructure, the environment, and the economy. I also was able to test if the games were likely to prime their attitudes towards President Trump, if they modulate the importance of issues by setting their attitudinal agendas, and if they made individuals more likely to donate money to charity—or at least some of the balance off of a $15 Amazon digital giftcard that I gave to them in appreciation for their time. This experiment found strong support for the idea that video games can increase civic-attitudes in a more pro-social direction, can increase player's intent to participate in politics, and modestly push players' policy positions in the direction suggested by the game's narrative and procedural rhetoric. I found mixed support for priming effects, no support for agenda-setting effects; and inconclusive results on the donation to charitable causes.

Those results, however, were solely focused on the content of the game; they basically showed that games could inspire the same processes as had been seen in other politically-relevant media. But the second argument of this book is that games *are not* like other forms of media, due to their interactivity. This interactivity inspires players to feel more involved with the game

because it reinforces the reality that *they* are the ones performing the action. As a consequence, players can often feel like they are more engaged, that they have leverage over what happens in the game-world, and that they are, temporarily, a part of the world itself. While related to the effects of the content, it is its own separate effect and thus requires its own tests to tease out.

To trace out the causal chain, I expect that the games will cause individuals to think of socially, morally, and politically relevant content and that will cause its own mediated effect on the outcome. I also expect interactivity itself to play a role. Regardless of how much thinking and cognitive elaboration one partakes in: because the games in point of fact *are* having players do actions that would be considered politically relevant if they played out in reality, I also expect perceptions of interactivity to positively influence levels of civic engagement and participation. In conjunction with these other two hypotheses, I expect that the content's effect on the outcomes will *also* be mediated by the extent of the interactivity perceived. That is, in addition to the effect studied in the last chapter, there is also a path where gaming's effects are on political behavior is mediated by two factors—one following just after the other. This can best be modeled, statistically, with a sequential mediation model.

I briefly discussed sequential mediation in Chapter 4 but, to briefly elucidate here, the model works by adding another variable into the causal path. This results in the introduction of three new connections: First is the connection from the second mediator to the outcome; Second is the connection from the first mediator to the second one; and Third is the pathway from the main variable (gaming) directly to the second mediator. Figure 6-1 visualizes the pathways. The solid black lines are the direct effects and the gray lines are the indirect effects. I hypothesize there will be both a positive effect due to the political relevance of the games but also due to the interactivity that is inherently a part of this medium.

How to capture feelings of interaction, though? I turned to the path-defining work of Melanie Green and Timothy Brock. In their article "The Role of Transportation in the Persuasiveness of Public Narratives" 2000, they described and validated a narrative transportation scale, consisting of 11 items. Of these, I adopted three items that most closely

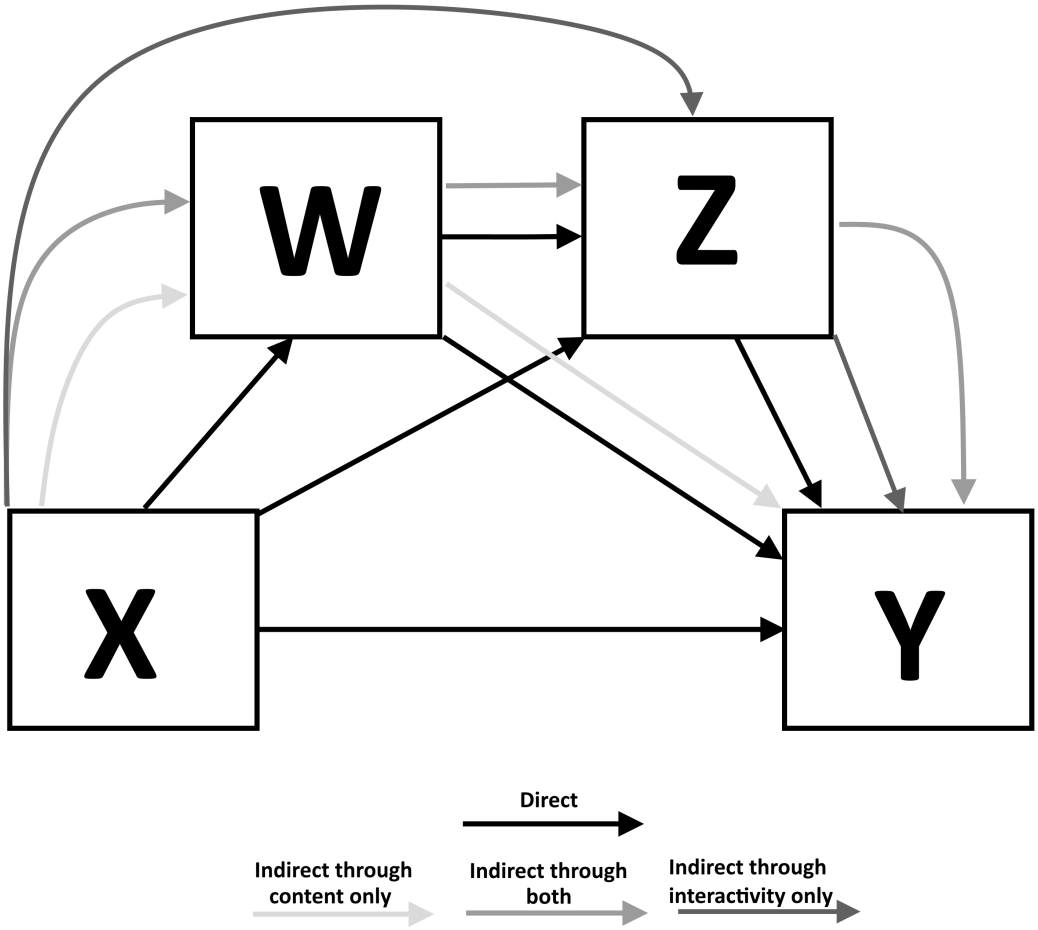

Figure 6-1. The conceptual model for the sequential mediation analyses I use throughout the experimental section of this chapter. Arrows extend from the causal variable to the variable it is effecting. In my application, **X** represents one of the three games, **W** whether participants perceive something socially, morally, or politically relevant, **Z** is the interactivity scale (factor loadings reported in Table C-1), and **Y** is the dependent variable.

mirrored my understanding of interactivity, fleshed out in the case studies in the next section. These items were: “I found myself thinking of the ways the experience could have turned out differently;” “I was mentally involved in the game while playing it;” and “at times, I felt like I was present in the experience rather than simply observing it.” It should be noted that these variables do not technically measure ”interactivity” as generally understood in communications

and games studies; normally defined as a feature of media producing noticeable output in response to user input. While I am able to get at this more fundamental understanding a bit by dint of the fact I am comparing three interactive stimuli with a non-interactive stimuli, the three measures are picking-up on respondents' *perceptions* of how interactive the experience was.

Respondents were given a 7 point scale with Strongly disagree and Strongly agree at the ends and were asked how much they agreed with each of the items. These items could then be reduced using factor analysis onto a single interactivity scale, tapping into the singular, subterranean sentiment embedded in all three of their responses. This could then take the place of the second mediator while the three measures of relevance could each play the role of the first. With this solved, I could readily construct a series of statistical models that tested the relationships in a similar way to how I did so in Chapter 5—only with the interactivity score added into the mix.

As I mentioned in Chapter 4, while it may ultimately turn out that increased presence influences policy preferences or priming and agenda-setting effects, only its effects on civic attitudes and participatory outcomes were fleshed-out enough to not be tantamount to an atheoretical fishing-expedition (complete with all the standard salty, post-hoc exaggerations). Consequently, I leave the effects of immersion and presence on priming, policy positions, and agenda setting for future works and focus on civic attitudes and participation here.

6.1.1 Civic Attitudes

I first look to see the effects of transportation on civic attitudes. As mentioned in Chapters 4 and 5, the experiment contained five questions originally run by Pew in its 2008 survey on teens' gaming behavior designed to tap into participants' civic attitudes. These five questions included things like "it is everyone's responsibility to be involved" and "I am interested in politics." These were reduced down to a single variable, scaled between 0–1, that tapped into the latent attitude towards civic engagement embedded within them. Numbers closer to 1 means that respondents have stronger and more pro-social attitudes than those with scores closer to 0. From the results of the last chapter, I expect that the mediated pathway from the conditions to civic

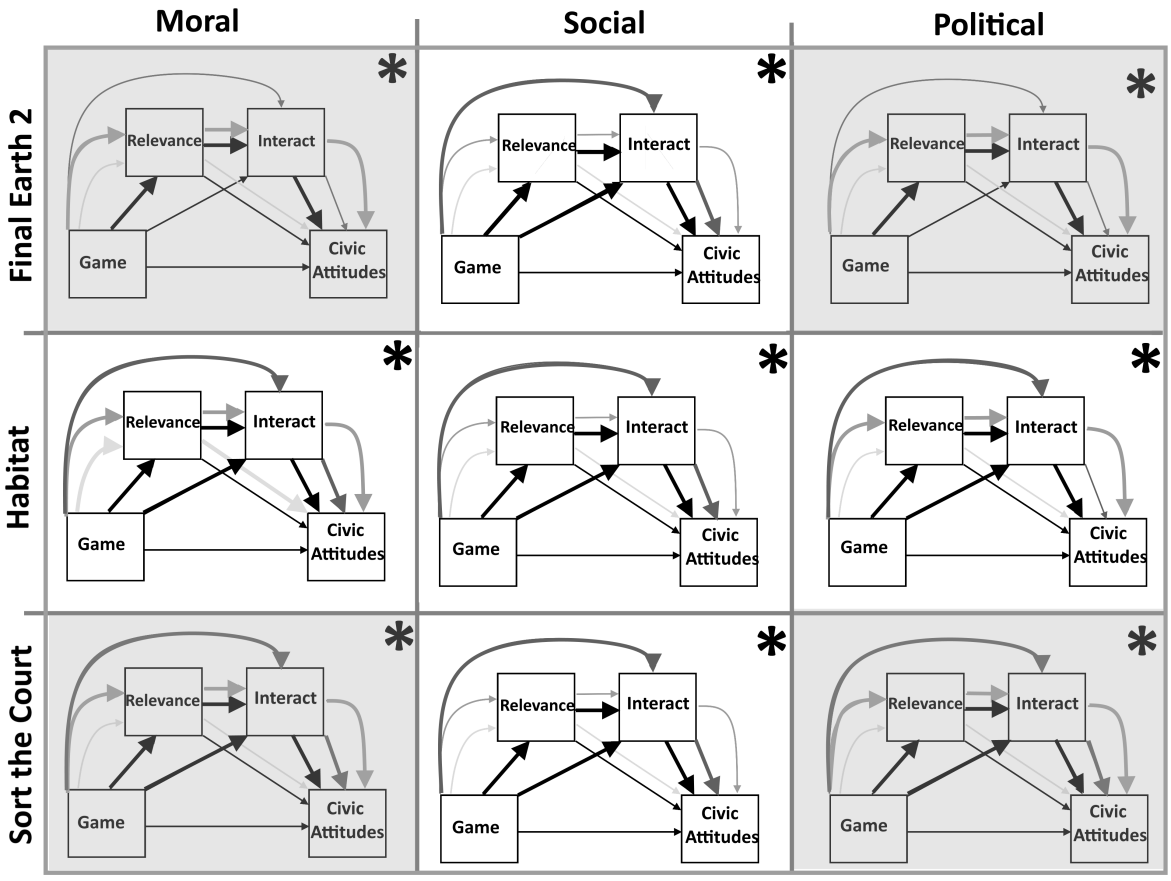

Figure 6-2. The experimental effect of games on civic attitudes. This matrix of images shows the direct, indirect, and total effect of each of the three games on civic attitudes when going through sociopolitical relevance indirectly, interactivity indirectly, and through both sequentially. Black lines represent direct effects, the darkest-grey lines represent the indirect effect of interactivity alone, the lightest-grey lines the indirect effect of relevance alone, and the middle-grey lines the sequential path through relevance and interactivity. Bolded lines mean that the (in)direct effects were statistically significant, an asterisk means that the total indirect effect was significant, and greyed-out images mean that the total effects were statistically significant. Here, the sequential effects and effects of interactivity alone in most models were statistically significant—but not relevance alone. See Table C-2 for the regression results of the mediation analysis.

attitudes through relevance alone (the lighter-gray line in Figure 6-1) will be significant and will have a positive value, as will the mediated pathway through interactivity alone (the darkest-gray line in Figure 6-1). This means that civic attitudes will be independently strengthened by the recognition of game's content as politically relevant (e.g., elaboration) and also by acting upon

that content (e.g., interactivity). I also expect that the mediated pathway through civic attitudes continuing on into

interactivity (the middle-gray line in Figure 6-1) will also be significant with a positive value. If that is the case, then the effects on political behavior are not only found in the content of games but also how immersed participants are after having recognized the game as relevant. Or, more briefly: Interacting in the stuff that matters, well, matters–and matters more than were interactivity not at play.

Figure 6-2 provides the results for all three of the games tested in the experiment across moral, social, and political issues. The paths represent the effect of the leftmost-connected variable on the rightmost-connected variable. Although the specific estimates for each path are somewhat informative, what matters more is their parity—whether they are positive or negative—and whether the connection is statistically significant. For clarity then, I use solid lines to signify a positive relationship and dashed lines to signify a negative relationship. Consistent with the results found in the last chapter, the mediated pathway from the games through relevance into civic attitudes was positive in all nine cases. However, unlike in the last chapter, these effects were not significant for any of the nine cases ($p_{min} = 0.108$; $p_{max} = 0.485$). However, as with so many of the results found in the last chapter, equivalence tests suggest that it is inadvisable to reject the null hypothesis of there being a positive effect for many of these cases either. Specifically, the equivalence tests were insignificant for the figures resulting from the moral and political mediators. As has often been the case, further analysis will be required before anything conclusive on this front is determined. In this case, the additional evidence is to see if perceptions of relevance remains a significant factor when also accounting for levels of interactivity.

That kind of ambiguity is not found with the interactivity effects alone. Here, the mediated pathway from the games to relevance through interactivity and on to civic attitudes are positive and significant for all three games when both considering perceptions of whether or not the game touched on moral or political issues ($p_{min} = 0.008$; $p_{max} = 0.049$). However, this effect was

insignificant when considering perceptions of whether or not the game touched on social issues ($p_{min} = 0.190$; $p_{max} = 0.490$).

Why the breakdown on social issues? In the last chapter, the evidence appeared suggested that it was because the control stimuli (*Tidying Up with Marie Kondo*) made people think of social issues such as consumerism and the overall amount of "stuff" people seem to have. That appears to be the case here. All three games led to greater perceptions of interactivity ($p = 0.021$ for *Final Earth 2*; $p = 0.008$ for *Habitat*; and $p < 0.001$ for *Sort the Court*) and perceiving the stimuli as relevant was significantly associated with the degree of interactivity felt ($p_{moral} < 0.001$; $p_{social} < 0.001$; $p_{political} < 0.001$) but those who played the games were not more likely to say that they experienced something that made them think of a social issue—solely because so many of those watching the show felt this way too.

In all cases with significant effects, the effect through both content and interactivity amounted for a relatively modest part of the overall mediated effect—only about 10 percent for *Sort the Court* and approximately 20 percent for *Habitat* and *Final Earth 2*. However, the effect is estimated to be roughly as large as that as caused through the relevance indirect pathway alone. This suggests that, for civic attitudes, the perceived relevance of the game matters as much as the degree of interactivity felt. However, larger sample sizes will be needed in order to estimate these sizes more precisely and, thus, determine their relative importance.

These models also provide the opportunity to see if feelings of interactivity independent of content imparted an effect apart from perceptions of relevance. Because these games were selected because they contained relevant content, this can be understood to be the effect of interactivity inculcated by the fact that people were performing politically relevant actions without ruminating upon them (e.g., playing without identifying them as "relevant"). This effect was significant for all but two models: The model concerning *Final Earth 2* and moral issues ($p = 0.188$) and *Final Earth 2* and political issues ($p = 0.348$). It was positive and significant in the remaining seven models ($p_{min} = 0.004$; $p_{max} = 0.051$). This suggests that the significance of interactivity is not only in the additional rumination that it can inspire but in the fact that people

are performing actions that would be considered relevant had they been taking place outside the bounds of an internet browser.

But the importance here is less the specific figures spat out by the regressions and more what they mean for this chapter's hypothesis. Or, to quote a famous line from *Call of Duty: Black Ops*: "The numbers, Mason! What do they mean?!" The positive and statistically significant effect for all of the pathways concerning interactivity suggests that games can make players have stronger civic attitudes by virtue of the interactivity present in the games. Those who saw the experience as relevant and interactive, as well as those who simply saw the experience as interactive, scored higher on the civic attitude scale than those who had simply watched *Marie Kondo*. It is not just the content of games that seem to matter but that they are performed by the hands of the participants.

6.1.2 Political Participation

The experiment leveraged two measures of participation: Participatory intent and direct participation. Participatory intent was measured with a 10 item scale that asked people how likely it was for them to participate in 10 political actions: Participating in a protest or demonstration, engaging in a boycott for social or political reasons, volunteering for a political party or candidate, donating to a political campaign, volunteering with a charity, donating to a charitable cause, signing up to receive information from a candidate or campaign digitally, contacted an elected or government official, talking to people online about the issues, talking to people in reality about the issues, and voting. Their responses on these items were reduced down to a single 0–1 scale using factor analysis, where 1 represented the strongest amount of overall participatory intent and 0 represented the lowest amount. The second measure was how much money—out of the $15 they were given as a thank-you for their participation—did they donate to any/all of the following 5 charities: The American Red Cross, The World Health Organization, The UN Refugee Agency, The Arbor Day Foundation, and Greyhound Rescue of America. As with civic attitudes,I expect that the mediation pathway dealing with both relevance and interactivity and the mediation pathway for relevance alone will be statistically significant.

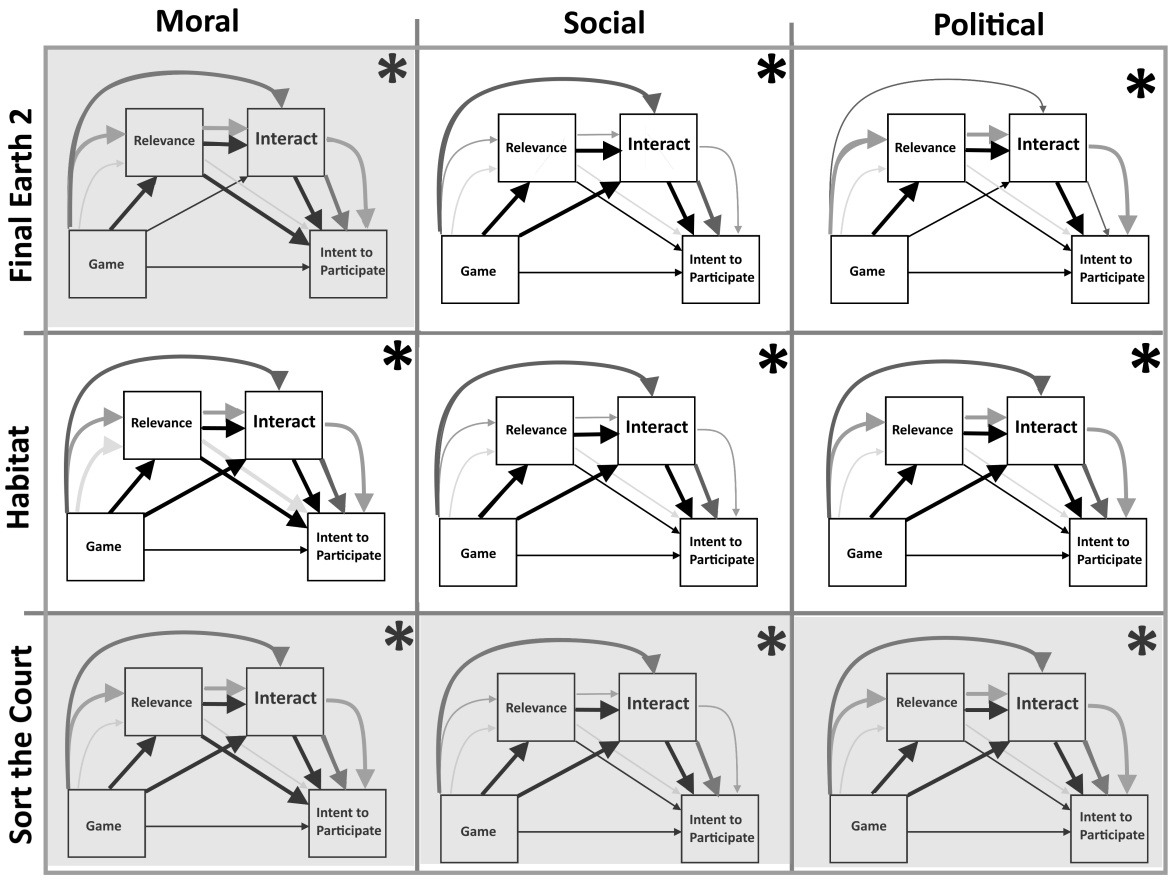

Figure 6-3. The experimental effect of games on participatory intent. This matrix of images shows the direct, indirect, and total effect of each of the three games on intent when going through sociopolitical relevance indirectly, interactivity indirectly, and through both sequentially. Black lines represent direct effects, the darkest-grey lines represent the indirect effect of interactivity alone, the lightest-grey lines the indirect effect of relevance alone, and the middle-grey lines the sequential path through relevance and interactivity. Bolded lines mean that the (in)direct effects were statistically significant, an asterisk means that the total indirect effect was significant, and greyed-out images mean that the total effects were statistically significant. Here, the sequential effects and effects of interactivity alone in most models were statistically significant, while relevance alone was indeterminate. See Table C-3 for the regression results of the mediation analysis.

Looking first at the effect of perceived relevance alone on participatory intent, Figure 6-3 visualizes the results. The effect as mediated by just perceptions of the game's political relevance was positive for two cases and insignificant for the remaining seven. However, of those seven, four were unable to be rejected by virtue of the equivalence tests. The remaining three were with social relevance as the first mediator. As mentioned before, this may have had more to do with the

selection of the control stimuli rather than an inherent inability for games to inspire considerations on social issues—and for said considerations to then influence their participatory intent. All in all, this analysis provides little additional support for the results found in the last chapter. However, it also does not add much in the way of negative information either.

Looking to the results at the heart of this chapter's question, the mediated pathway through both relevance and interactivity was positive and statistically significant for 6 of the models (again: all of those excluding social issues. $p_{min} = 0.013; p_{max} = 0.058$). The effect of this path alone accounted for approximately 15 percent of the total effect in all three games (range: 11–22 percent) and the estimated effect was approximately 50 percent as large as the pathway through relevance alone. This suggests that the interactivity player's perceive is also an important driver in the effect stemming from games to participatory intent. Players who perceived the game as relevant and felt that the experience was interactive scored as having higher levels of participatory intent than those in the control condition.

How about the effect of interactivity alone? Again, this can be interpreted as the effect that performing relevant actions in a virtual space has on participatory intent regardless of deeper contemplation of their sociopolitical meaning. Here again, the results were positive and statistically significant in seven of the nine models ($p_{min} = 0.008$; $p_{max} = 0.059$) The two exceptions were the models that looked at *Final Earth 2* with moral relevance ($p = 0.384$) and political relevance ($p = 0.697$). In Chapter 2, I argue that the evidence suggests that even imagined actions, deliberately "performed" can affect future outcomes. These results strongly support that claim. Those who felt that they were experiencing something relevant and that it was interactive, as well as those who felt like they were interacting without much additional thought into the content, were estimated to score higher on the participatory intent scale than those who were randomly assigned to watch *Marie Kondo* rather than one of the three games.

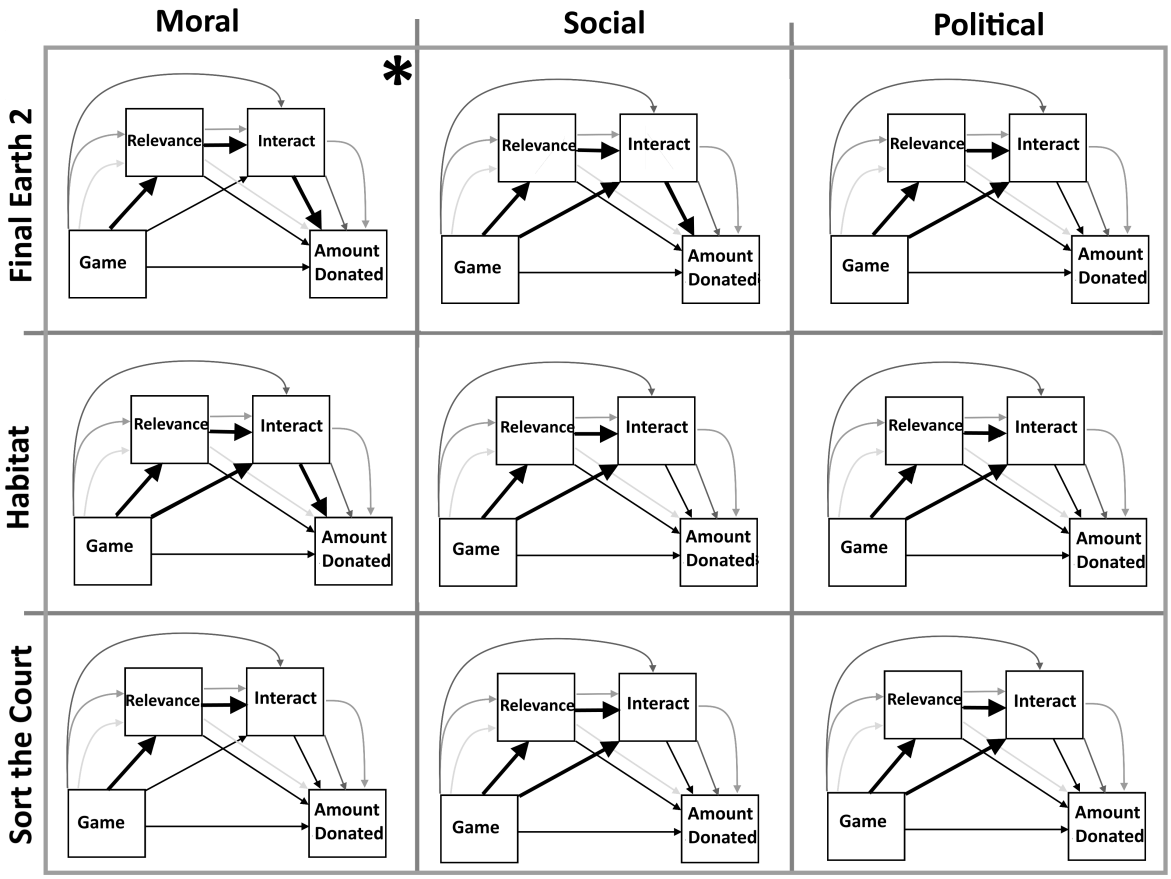

Figure 6-4. The experimental effect of games on donations to charity. This matrix of images shows the direct, indirect, and total effect of each of the three games on charitable donations when going through sociopolitical relevance indirectly, interactivity indirectly, and through both sequentially. Black lines represent direct effects, the darkest-grey lines represent the indirect effect of interactivity alone, the lightest-grey lines the indirect effect of relevance alone, and the middle-grey lines the sequential path through relevance and interactivity. Bolded lines mean that the (in)direct effects were statistically significant, an asterisk means that the total indirect effect was significant, and greyed-out images mean that the total effects were statistically significant. Here, none of the mediated pathways were significant in any of the models. See Table C-4 for the regression results of the mediation analysis.

But will these feelings make people actually participate? In the previous chapter, I found that the mediated effect for most forms of politically-relevant content could neither be accepted nor rejected. Traditional statistical tests did not provide enough support to reject the hypothesis of no effect but the result of equivalence tests did not provide enough support to reject a non-zero effect, either. Here, however, the results are fall less ambiguous. In all nine models, the indirect

effect through the perception of a relevant issue is not statistically significant–and equivalence tests sustain that these results can more confidently be declared null in all but two cases ($p_{min} = 0.135$; $p_{max} = 0.485$). While it is still important to remember the overarching context that the Coronavirus pandemic undoubtedly played in generating these results (both its effects on people's economic standing and its effects on the choice of stimuli), this finding suggests that—in such circumstances—games do not have the ability to encourage people to donate to charity.

Looking finally at interactivity: the mediated path through both variables is not significant in any instance of the nine models ($p_{min} = 0.195$; $p_{max} = 0.485$). Equivalence testing on these results also suggested that we can reject the idea that these results really did have an effect other than zero ($p_{max} < 0.05$). While this does not rule out that the experiment was under-powered to pick up a true effect—these results are often sufficient rather than necessary indicators of that research malady—it does suggest stronger evidence for a null than an insignificant path alone. Much the same can be said with regards to the effect of interactivity alone: Not one pathway was significant among the nine and equivalence tests suggest that all of them can be more comfortably dismissed as nulls.

In sum, it can be said that games can increase people's self-reported desire to participate in various political actions through increased feelings of presence within the game. However, the results also strongly suggest that this cannot be extended to actual donation behaviors—at least during periods of extensive and widespread economic stress.

6.1.3 Conclusion to the Experimental Section

Throughout this project, I have argued that part of the power of games comes from the fact that we, their players, are ultimately responsible for what transpires in them. At their best, games make it feel like we are engaged with what is happening, that we can change the outcomes, or that we are driving the action from within them. We can feel transported to the worlds they offer us and bear witness to events caused, at least in part, by our presence there. Decades of research shows that partaking in politically-relevant behaviors increases the likelihood of future actions. If

that is the case, then it should be that feelings of presence in games recognized as politically relevant ought to also have an effect on political behavior as well.

When it comes to civic attitudes and participatory intent, this is what the data show here. Extending the mediation analysis from the last chapter, I show that games can inspire interactivity-based effects that raise levels of civic engagement and participatory intent. The results from most of the sequential mediation models strongly suggest that games can inspire people to think about relevant issues and that this elaboration is deepened by perceptions of interactivity. Furthermore, the preponderance of models in this analysis suggest that simply performing relevant actions–regardless of whether or not they are recognized as sociopolitically-relevant–also increases civic attitudes and participatory intent. However, contrary to the last chapter, the evidence is far muddled here on the ability of sociopolitically-relevant content *alone* to cause increases in either civic attitudes or political participation. .

Why is it that the inclusion of interactivity seems to detract from the significance of sociopolitical content on one's civic engagement? In the last chapter, there was robust evidence to support this contention but, here, most of the models are inconclusive.

There are a few possibilities. First, there is the fact that additional statistical interactions requires more experimental power to discern results accurately. The effects of content alone may be weak and/or noisy enough that the introduction of an additional interaction is too much to detect significant effects. Second, a closer analysis reveals that perceived relevance also significantly relates to perceptions of interactivity. This covariance might mean that the "true" effect is smaller than estimated in the last chapter. If either, or both, of these explanations are true, then the effects of interactivity are more consistent than those of content.[2] This makes an intuitive amount of sense. Perceptions of relevance may be driven by factors such as political sophistication and need for cognition—which can vary greatly among people. Action, however, is less ambiguous: especially in cases where it takes place in a context pre-selected to contain

[2]This is because the estimated effect size of interactivity was roughly the same if not less than the effect of relevant content, If two effects are the same size but one is significant, or one is smaller and the smaller of the two is significant, then—statistically speaking—the standard error must be comparatively smaller for the significant factor compared to the insignificant factor.

relevant content. Additional research with more high-powered samples will be needed to more confidently advance this interpretation. All in all, though, these results suggest that civic attitudes and participatory intent can be positively affected by video games. The evidence suggests that it works to deepen the amount of cognitive elaboration inspired by the content—but the evidence also suggests that the sheer act of *doing* engenders effects alone as well.

The story is more complicated for actual donations. Here, the effects were statistically insignificant regardless of whether it was the indirect effect through relevance, the indirect effect through interactivity, or the the effect that went through both. One possibility is that feelings of presence are causing an unanticipated interaction between the game's rhetoric and the coronavirus pandemic. Previous work has documented that feelings of resource scarcity can weaken tendencies to donate (Roux et al., 2015). In the games featured in the experiment, players are faced with resource constraints as they try to attain victory. Indeed, the resource constraint is a core part of the challenge in all three. It is possible that those who simply observed the content elaborated on the meaning of the games' narratives while those who felt present more acutely felt the lack of resources. Without putting too much faith into null results, future work ought to consider the ways that actual behaviors may be sensitive to the context of the game (see, e.g., Yee & Bailenson, 2007; Yee et al., 2009) and/or the broader moment that the measurements were taken in ways that may run contrary to the game's narrative components.

In most models, the effects inculcated through interactivity were smaller than those inspired by the content—but it is important to remember that the degree of interactivity possible in these games were quite limited. This experiment used games that were freely available on participants' web-browsers—and that these games were only played once for 45 minutes. As I will soon show with the illustrated case studies, games can employ a variety of sophisticated narrative and mechanical techniques that take advantage of the interactivity of the medium to impress politically-relevant content upon the player. However, these techniques may not be as easily translatable to short free-to-play browser games, the development of which face numerous technical and economical constraints. It is possible that the effects of interactivity will play a

larger role for those playing higher-quality games for a longer period of time. But even under these conditions, intentionally designed to be a conservative test for video game effects—which was then made even more conservative through the vicissitudes of fate—I still find that games can strengthen participants' civic engagement and participatory intent by dint of the fact that they made them feel like they were a part of that world.

Ultimately these results are broadly consistent with the idea that games can inspire political behaviors through the fact that they can make us feel like we are the ones performing the actions. But while this section demonstrates that there is a positive, statistically significant causal effect, it does not show how the interactivity effects of video games can encourage such feelings. What do games do, what sort of narrative and mechanical techniques are employed, to make this effect appear? To answer this question, I now turn to my illustrative case studies.

6.2 Case Studies

In the last section, I demonstrated that a fair portion of the game's total effect on political behavior appears to stem from feelings of interactivity and immersion. In this section, I turn to *Celeste*, *Civilization V*, and *Fallout: New Vegas* to give flesh to the kinds of experiences that make this relationship possible. As I mentioned in both Chapters 4 and 5, these games were selected because they are industry best-sellers, highly acclaimed by fans and critics alike, or both. While far from representing the totality of the gaming universe, and also non-exhaustive with regards to exemplifying the tools of the interactivity trade, they are relatively typical of the kinds of games that people frequently play. They can thus give us a decent appreciation for how the medium's interactivity influences political behavior outside the laboratory.

What do I mean by interactivity? As I explore in Chapter 2, past actions matter to future behavior—even when those action that did not technically occur in in "reality." But a close reading of the evidence reveals that what might be called 'interactivity effects" is actually a more general label covering three related but distinct effects—all transduced by both mechanical and narrative means. They are joined by their emphasis on player input as being critical, but they differ in their implications for how they impact the state of the game world and the state of the

player's mind. They are interactivity as **engagement**, interactivity as **leverage**, and interactivity as **presence**.

Interactivity as engagement refers to the process of performing deliberate actions, as outside actors, within the game world. For the purposes of this project I focus on such actions undertaken for some socially, morally, and/or politically relevant in-game means or end. Engagement means that the player is using their controller—or keypad, mouse, joystick, whatever their electromechanical input of choice—to interact with objects, characters, and environments within the space of the game. In response, these objects, characters, and environments must exhibit some kind of meaningful state-change that can be directly linked to the player's actions. (As examples: an object may now be where player's "dropped it," objects ignited by gunfire either explode or stay alight, or clicking on an item might cause a menu with new information or options to appear).

Another way of thinking about this is interactivity as *practice*. Players undertake relevant, in-game actions and, despite feeling like outsiders, actually gain a modicum of experience thanks to things like mirror neurons and automatic simulation occurring behind the scenes. This is what was seen with the examples at the opening of the chapter and drives the logic behind "serious" games designed for things like medical and military training. Consequently, players need to perform some sort of substantive work to be considered "engagement" and receive a response for that work.

This response should not be confused with simple feedback, such as a controller rumbling when a player crashes into the wall or a "Game Over" message when a jump ends up on the bad end of a Goomba. Players are hardly gaining any practice if they, as the title of the book ironically suggests, simply press the "B" button to begin protesting. Complex actions require more complex input—input which is made complex either due to the technical skill required to complete the task (manipulating the buttons and levers in the right speed, direction, and sequence) and/or in performing relatively simple actions towards that culminates in a more complex end-goal after an extended period of time. To continue the analogy of protesting, an example would be having to

use a thumbstick to guide your character through a march while pressing buttons to recruit additional protesters (as in *Detroit: Become Human*) or by pressing a single button to inject inflamatory gossip into a small crowd, but doing so multiple times to attain the critical density needed to rile up a full-blown mob (as in *Assassin's Creed II*).

Interactivity as leverage differs from interactivity as engagement in that the action is believed—either factually or through narrative and mechanical slight-of-hand—to substantively impact future states of the game. The research that touches upon this effect can be seen with the work that argues that simulated events can affect outcomes when they are imagined in ways that give us greater control—such as the basketball experiment led by Lori Ansback Eckert 1989 where players performed better if they visualized their shots than those who merely practiced (although those who did both performed the best overall). Although games are technically closed systems, being fundamentally limited to the parameters set by their code and narrative scripts, that does not stop developers from imbuing many titles with the flexibility to give the impression that players' choices *now* are paramount for what happens *next*. This encourages a sense of investment where they think about causal processes of change which, ultimately, can lead to changes in behavior.

Again, it is important to distinguish between superficial and meaningful change. A player may shoot an opposing soldier and that soldier remains dead (as in *Call of Duty*, *Battlefield*, and most other war-based shooters) but the loss of "generic enemy grunt number 67" does not mean all that much. Mourners do not pour out into the street; the player's screen does not warp to reflect the haunting guilt of taking another human life. More often than not, they are swiftly replaced by "generic enemy grunt number 68." The show goes on. However, sometimes a misplaced insult can preclude players from visiting entire parts of the game-world or experiencing parts of the story (as seen in titles like *Mass Effect*, *Fallout*, *Skyrim*, *The Walking Dead*, and many more). Many such games pain themselves to make it clear that this is a direct consequence of some previous action the player took. Others, such as *SimCity*, *Civilization*, *The Sims*, *Cities Skylines*, and *Tropico* use player choices as variables in complicated, pre-programmed equations which spit out new values

and configurations for the players to tease around. Of course, players do not usually input these variables directly into an equation: The maths are hidden behind visual user interfaces where players drag, click, and press to answer questions like "where should I put this building", "should I hold free and fair elections," and "should my Sim hit the treadmill or gorge themselves on week-old macaroni and cheese?" These techniques allow players to develop a sense that their actions have leverage over the future of the game's environment and characters—helping their minds construct the kinds of subconscious causal narratives that cause them to consider the consequences of their—often politically, socially, and morally relevant—decisions.

Interactivity as presence differs from the forms before because it it works to make the players feel transported into the world that they are interacting with; to feel like, in some meaningful respect, the world and its characters are real—and, maximally, that they are a part of that reality too. This kind of presence is best elucidated by the research on the Proteus effect discussed in Chapter 2 (Ratan et al., 2019; Yee & Bailenson, 2007; Yee et al., 2009). The line between the player and the game blurs if not fades away completely. The fact that it feels "real" to them affects them directly and also provides them with intrinsic motivation to elaborate on the experiences they undergo.

It should be noted, though, that presence goes above and beyond mere customization. Many games allow players to customize the physical appearance of the bodies, homes, vehicles, accessories, voice patterns, pets, and weapons under their in-game control to make them feel more invested. While customization can absolutely be a viable means of engendering presence, it is neither sufficient nor necessary. *Overwatch* players can change the default skin of a peg-legged pyromaniac to look like a scarecrow, but this does not make them feel either a greater affinity for starting fires or shooing away various corvidae. However, many people strongly resonate with Master Chief from the *Halo* series due to the consistency with which they occupy his body—paired with the game's economical use of spoken dialogue and its emphasis on a first-person point of view and control scheme. It is less about exerting leverage over the form and

appearance of player-controlled objects and more about being made to feel the game reflects reality and that, ideally, they have at least one foot within it.

There are games that emphasize one of these interpretations of interactivity over the others: *Battlefield: Hardline* makes players feel like they are engaging with the world but the linear narrative denies feelings of leverage and its numerous cinematic cut-scenes emphatically identifies the player-character as not being whoever is holding the controller; *The Wolf Among Us* changes notable elements of its story and world based on player's past actions, but demands relatively little mechanical engagement (most action is resolved through a single button inputs) nor causes players to feel like they have somehow become a gritty *noire* re-imagining of the Big Bad Wolf; and *Doki Doki Literature Club* is a psychological horror game that definitely makes the player feel like they are present in the world, but there is very little mechanical input required to advance, and the narrative starkly reveals that all "choice" is nothing but a thin illusion in the end.

But even in these games where one form is predominant, it is more that the other forms are muted rather than totally absent. Games that overwhelmingly focus on just one form of interaction are rare; acclaimed or popular games that do so are even rarer. Most games use two, or all, of these forms in various amounts.[3] *Celeste*, *Civilization V*, and *Fallout: New Vegas* fall into this last category, using all three to add depth to the user experience. In the case studies that follow, I show how each game employs these styles of interactivity towards amplifying the impact of games' socially, morally, and politically relevant experiences.

The treatments that follow assumes that you, the reader, are familiar with the sociopolitical content of the three games, either from the case studies in Chapter 5 or from personal experience. If not, I suggest that you read those case studies or gain some personal experience (your choice) before moving on. While this is not strictly necessary—the examples provide all the detail needed to understand the influence of interactivity—familiarity with the games provides a deeper appreciation of the impact of these experiences.

[3]Indeed, many game-experiences are a bit fuzzy, blurring the line between categories—although these will generally still lean more towards one over another.

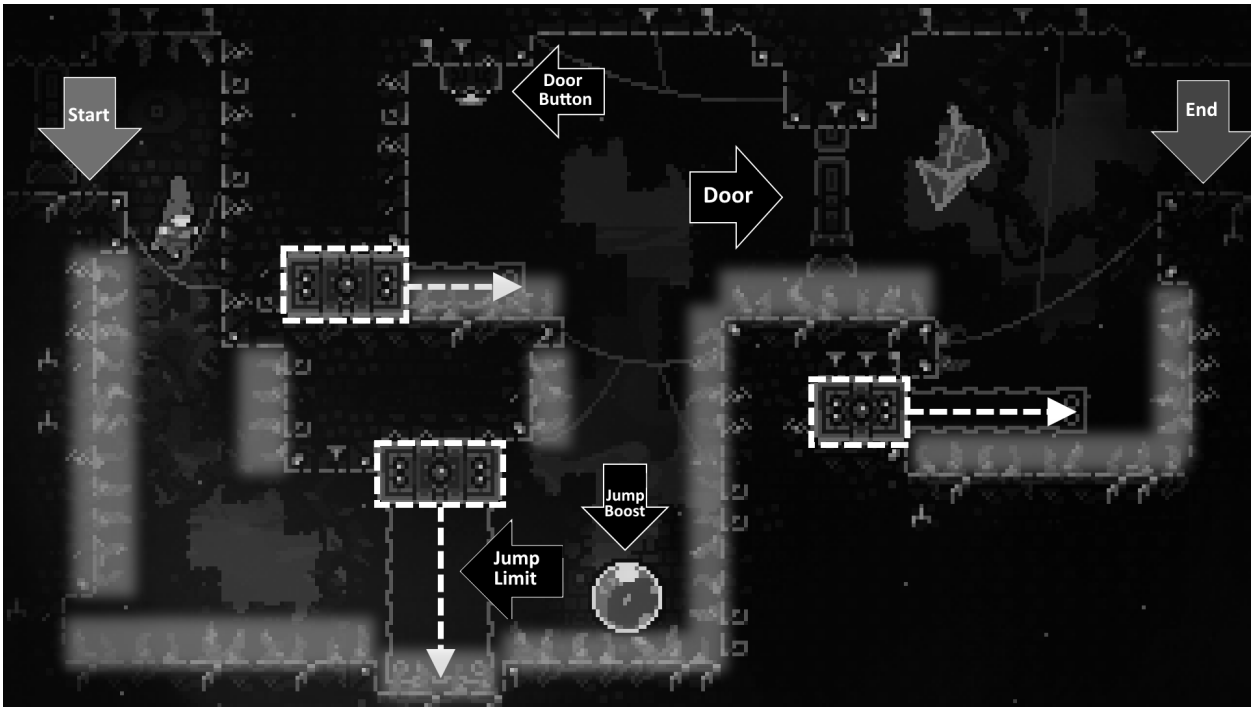

Figure 6-5. An annotated snap-shot of a screen in *Celeste*, illustrating the game's procedural rhetoric. The highlighted flagella will kill Madeline immediately if the player touches them. Their dash skill will only take them to the jump limit—well short of the end. But activating the dash will cause all of the platforms (elements with the white-dashed borders) to move immediately to the endpoint of the arrows before gradually returning back to their starting position. The players, then, must rest (for half-a-second) on the first platform, touch the jump boost, dash into the door button, fall onto the second platform, dash-jump through the now-opened door to where the third platform *will be* and then jump to the end—all while avoiding the omnipresent deadly flagella. This is one screen of several in level 4 but the difficulty is typical for the game overall. This technical difficulty reinforces for players the challenge of living with anxiety and depression.

6.2.1 *Celeste*

In Celeste, players aim to help a young woman named Madeline overcome her mental illness by surmounting the daunting Celeste Mountain. The mountain's challenge is not only in its steep and treacherous ascent, but also in its mystical ability to conjure physical manifestations of the mental and emotional challenges that its climbers need to overcome in their own lives. In the case of Madeline, the mountain conjures a dark reflection in a magic mirror, an embodiment of all the things she despises in herself, and then sets it loose upon the world. Madeline is not alone in her climb or in struggling with herself; she makes friends along the ascent and must face her

anxieties head-on in order to assure their safety. She comes to the conclusion that she must abandon this darkness in order to improve—a position that is not taken well by the mirror-self, who tosses Madeline down to the beginning of the mountain. It is only when she learns that she must accept the parts of herself that she previously disdained that she can gain the skills needed to summit the mountain.

6.2.1.1 Interactivity as engagement

In *Celeste*, the main thing that the players engage with is Madeline herself. For all but a brief moment in the game, the controls only allow the player to move and manipulate the pixelated sprite that represents Madeline's presence in the game.[4] While the controls are relatively simple and straightforward, navigating Madeline through the seven base levels is quite difficult. As mentioned in the last chapter, people often die **thousands** of times before they are able to summit the mountain. But that is, in fact, the point. Narratively, Madeline is struggling with trying to come to grips with her mental illness. Anyone with mental illness can tell you it is not an easy task.

In Chapter 2, I discussed the idea of procedural rhetoric: Occasions when the game's mechanics are designed in a way that reinforce the narrative message. As a consequence, all parts of the game's rhetoric are cohesive and concertedly working towards imparting the same point. Celeste is an example of procedural rhetoric at its most excellent. At the end of the first level (after the player has had plenty of opportunities to die and feel the game's difficulty for themselves), Madeline reflects that climbing the mountain "may have been a mistake" due to how hard it has already been. But the difficulty is then linked to the game's overall message of acceptance and self-growth when an on-screen message advises players to "be proud of your deathcount. The more you die the more you're learning. Keep going!"

Madeline frequently expresses that she has to complete the climb not *despite* its difficulty but **because** of its difficulty—and that this directly correlates with her mental health. In this way,

[4]For the curious, the brief moment comes in piloting a monster that is borne from Madeline's insecurities. Because the rest of the game is entirely from Madeline's perspective, it is quite likely that this reflected an artistic choice on the part of the game designers to reinforce that this thing, while monstrous, was in some meaningful way also Madeline.

while the player only engages with Madeline, that engagement is quite meaningful. It is the cumulative sum of *all* the player's actions—their many deaths and retries—that builds towards the outcome of Madeline making peace with herself and being able to summit the mountain.

6.2.1.2 Interactivity as leverage

As mentioned above, many games give the impression of leverage by allowing past choices to inform future states of the game-world. Players may go down a completely new storyline or the environment may change to reflect a decision that they made earlier. In this regard, *Celeste* does not have as much of this kind of leverage as the other two games. There are only few instances where players are meant to feel like their mechanical output affects future parts of the story or world. After Madeline and Theo conquer a temple constructed with their deepest fears and insecurities in mind, the two sit down and discuss their reactions, feelings, and mental states. Here, the player is given multiple text-boxes that allow them to control the flow of the conversation with Theo from Madeline's perspective. However, choosing one option does not prevent others from being chosen later in the discussion—players can come back to a dropped thread if they choose—nor does a choice change something substantive about the Mountain, Theo, or how Madeline relates to either.[5]

The leverage that players have in *Celeste* is more narrative than mechanical. The best way to illustrate this is in how it contrasts with other, mechanically similar games. Many level-based narratives have a simple, single rule in order to advance: Make it to the coordinates on the map that marks the end of the level. Many games are agnostic to the route that the player takes to get there or whether the player tackles all of the challenges that were put in their way. In *Super Mario World*, you do not have to stomp on every last Koopa before you are allowed to cross the finish line. None of their shells, no matter how many are kicked off the edge, weigh into the progression

[5]The only other prominent instance of mechanical interactivity comes from the bonus strawberries that the player is able to collect throughout the game. The number of strawberries determines which one of the five final endings the player receives. Madeline bakes a pie for her friends and the more strawberries she collects, the more her friends enjoy the pie. Even if the player gets the "worst" ending, the Old Woman merely gently ribs Madeline: "Strawberry pies are supposed to have strawberries in them, dear." Not exactly the kind of biting commentary that will fill players with regret over not exploring more of the map.

of the story;[6] their defeat at Mario's gloved fist holds no narrative leverage. Oftentimes, entire sections of world and story can be skipped by enterprising players trying to get to the end as quickly as possible. Indeed, so-called "speed-running" is a vibrant part of the gaming community that celebrates trying to accomplish difficult tasks as quickly as possible, often by avoiding unnecessary engagements or exploiting bugs in the games' engine, map, and/or code.

That is not the case with *Celeste*, though. The game's climax and mattering is predicated on Madeline coming to accept the parts of her she previously disdained; doing so is the only way she will be able to successfully summit the mountain. The only way that she can do *that* is by the player interacting with the game and conquering the various challenges conjured up by the mirror-self. The player is encouraged to draw a straight causal line from: 1) meeting the mirror-self; 2) Madeline being tormented by her mirror-self; 3) Madeline's repudiation of the mirror-self (and being cast down to the mountain's base as a consequence); and 4) the reconciliation that made completing the final challenge possible. Those narrative actions are inextricably linked to the player's progression over the mechanical challenges; it would not be possible to draw this path without the player trying again and again to best the technical trials. This kind of narrative leverage is used in many games (*Little Missfortune*, *Ori and the Blind Forest*, and *Braid* to name a few) that eschew true alternate endings but still makes players feel that their time and input was meaningful. In *Celeste*, the players are made to feel responsible for Madeline's acceptance and transformation, allowing her to be an exemplar for the developer's potent message towards mental health and self-acceptance.

6.2.1.3 Interactivity as presence

Unlike *Civilization V* and *Fallout: New Vegas*, little is done to make the player feel like the character herself. There is the option for players to insert a name of their choosing instead of "Madeline"—which changes the name that the other characters use when addressing her—but that is the limit to the customization. Players do not get to model Madeline after themselves or after an image of someone held in their mind. The lack of mechanical leverage limits the feeling that the

[6] Indeed, many *bosses* can also be skipped on the way to rescuing Princess Peach if the player knows the right secrets to unlock.

players are, themselves, exerting their own agency in the world. This effect is further reinforced by fact that said world is rendered as through a 2-D perspective with pixelated graphics. There is a sense of being outside looking in when playing, like staring out at the ocean through a glass pane. While the players are performing the daring jumps, dashes, and vaults through well-timed button mashing, it is clear that it is through or as Madeline—not as themselves.

But the players do feel a lesser kind of presence though, that there is something real and relatable about this world. "Lesser" here should not be thought of as being pejorative or diminutive; the choice merely reflects the fact that it is a lower degree of presence than feeling like the one doing the physical actions. Feeling like one is an *observer* in a world is still a form of presence. It is a feeling of presence that, in part, relies on the same narrative magic that makes the worlds of Harry Potter, Wonder Woman, Chidi Anagonye, and Old Woman Josie seem real but for the pesky inconvenience of being conjured from raw thought. Madeline's world is filled with enchanted mountains and irascible doppelgangers but even the mystical has its roots in real and relatable worries: Depression, aimlessness, and self-doubt.

But while it uses such tricks, it has an intrinsically deeper reach. The procedural rhetoric mentioned above is not merely a fascinating design decision: It encourages empathy. The difficult mechanics reinforce the narrative magic in such a way that the players experience something semantically similar to what the characters vocalize. Life is hard for the characters. Even if life is not hard for the player, the game itself certainly is—priming them to at least feel a semblance of their conveyed emotions. The world feels real in part from being relatable but, in part, because empathy is mechanically encouraged through the game's difficulty. Although it is expertly done in *Celeste*, leveraging both story and mechanics to increase empathy is common in story-based games as well and can be observed in the likes of *Horizon Zero Dawn*, *Detroit: Become Human*, and *Bury Me My Love*.

6.2.2 *Civilization V*

In *Civilization V*, players try their hand at guiding a civilization from the dusk of the paleolithic era to the dawn of humanity's future. Players construct and manage cities erected on a

Figure 6-6. An annotated snap-shot of a screen in *Civilization V*, illustrating its interactive nature. All of the highlighted elements are directly within the player's control. Clicking on a unit (the grey circles) will allow them to issue commands that change the overall game state. This could involve instructing workers (dashed grey circles) to modify land within their civilization's boundaries to adjust the resources it passively provides or ordering soldiers (solid grey circles) to attack the units owned by a different player. If the player clicks on a city (black circle) a menu appears on the left which allows them to prioritize what that icty is producing. Hovering over a "production" will note its costs and how it will affect their resource yields. Each decision changes the state of the game-world. Turn-by-turn, these differences may not be imminently visible but they compound over the course of the game.

large, procedurally generated world-map peppered with everything from deserts to rainforests, mountain ranges to lakes and grassy plains. In doing so, they manage their empire's form of government, its civic policies, citizen needs, resources, and diplomatic relationship with international competitors—all in the aims of trying to satisfy one of the five possible victory conditions: A scientific victory, where they are the first civilization to colonize Alpha Centauri; a diplomatic vicotry, where they are effectively voted world leader; a military victory, where they are the last civilization to retain control over their own capital; a cultural victory, by completing a particular world wonder after satisfying all cultural requirements; and a time victory, by playing

500 turns and having the highest score compared to the other civilizations (often AI) that are present on the map.

6.2.2.1 Interactivity as engagement

In *Civilization V*, most of the interactivity as engagement comes in the form of pop-ups and click-button menus that play a prominent part in the overall experience. Players can click on a city and be given a suite of options for what building, military/civilian unit, or world-wonder to construct—as well as determine the extent that they want to prioritize the generation of gold, food, science, and production points. They can click on a previously constructed unit and decide to heal them, put them on alert, move them to a different part of the map, engage with an adversary's unit,9 or remove them from the game. They could also click on an opponent's city to navigate to a diplomacy menu where they can trade gold (as well as other strategic and luxury resources), enter into strategic agreements (research agreements, open-border deals, and defensive pacts), learn about other payers, or denounce them and start a war. Players can also navigate to separate menus that allows them, at a glance, to see the diplomatic actions of all the civilizations that they have met. And, when they have enough points built up, they can click to decide what scientific advancements and civic policies they want to focus on.

Once any of these actions are instituted (as well as the myriad of others that were nixed for the sake of brevity), they remain at work until they are completed—say, after a unit has moved to where they were directed or a production-intensive wonder has finally been constructed—or until the player manually changes it again. These represent noticeable, important state changes that were caused by the player, in a highly politically-relevant context.

6.2.2.2 Interactivity as leverage

As I previewed when introducing the idea of "leverage" a few pages ago, if there is one form of interactivity *Civilization V* has in spades, as do most resource management and "sim" games for that matter, it is leverage. In many games, changing the position of an object or interacting with a non-player character is as memoryless as a roll of the dice. (Indeed, many non-player characters have got to have some form of amnesia given how they prattle out the same

piece of dialogue over and over again). Not so in *Civilization V*. Most of the engagement mentioned above actually serves as input for complex equations going on behind the scenes that determines everything from rates of border growth, citizen happiness, resource generation rates, and how hungry the AI characters are for war. These equations are effectively "solved" turn-by-turn and, once they are, the AI responds to them in ways that are conditioned by the game's overall difficulty setting and their individual "personalities."[7]

This solution, and these responses, produces a new world state for the next turn where the player gets the chance to respond with their own choices. This process repeats until one of the characters satisfies the conditions for the diplomatic, militaristic, scientific, or cultural victories, or until the turn limit expires which triggers a time victory. Indeed, the fact that there are multiple win conditions, that many can be pursued simultaneously, and that they can be triggered by infintitely many move-response permutations, testifies to the emphasis of leverage in the game's core appeal. Each condition comes attached to some socially, morally, and politically relevant goal: Getting a winning vote at the United Nations, conquering competitor's capital cities, reaching our nearest interstellar neighbor, or enacting a constellation of social policies. At some point, the player must direct their inputs into this game-play equation towards one these ends if they do not want their empire to end up, in the words of the screen that pops up upon the player's loss, "overwhelmed by [the civilization's] many foes."

It is not as if players are blind to this process. While they are spared from having to stare down the equations themselves, the game provides them with more narrative forms of feedback to help them draw the connection between what they did and some outcome. When the player goes to make a choice of building, unit, scientific advancement, or policy, the game provides a brief narrative description and also a short blurb about how it will affect resource generation. Likewise, the player can also hover their mouse over the resource panel at the top of the screen and see what

[7] Some character AI are naturally more bellicose, others more predisposed towards pursuing culture and/or science. These tendencies are reflected as general programmatic states in the code that respond to other conditions in the game.

positive and deleterious factors are leading to the specific values.[8] Feedback is also provided in more subtle ways. For example, the game's AI have two responses when engaging in diplomatic actions: They can say "yes" to the proposal or "no." But the flavor of this response changes based upon whether the AI "likes" the player, "hates" them, or "feels" neutral towards them—which is caused by previous deals and acts of peace/aggression. When the player pushes buttons in the world, the world pushes back.

6.2.2.3 Interactivity as presence

Unlike *Celeste*, *Civilization V* tries (and often succeeds) at trying to make the player feel like *they* are the ones involved in the governance of this virtual world. While the player initially selects a world leader to play as when starting the game, the leaders are merely a proxy for the civilization that their real-world analogue represented, led, or came from. The game does virtually nothing to emphasize the distinction between this character and the player. The greetings of the AI characters are general and non-descript: They do not use the name of the character but address the player directly (e.g., "Give us what we demand if **you** want **your** wretched country to survive;" "Friend, does this seem good to **you**;" "I greet **you**, stranger! If **you** are as intelligent and tactful as **you** are attractive, we'll get along just fine."). This emphasizes that their business is with you, the player, directly—as you are the one making the choices that affect the state of the world that they will have to work around as much as you do (albeit with a pronounced decrease in actual consciousness).

The narrative is not the only tool used to make the player feel present in the game and in the world. Feelings of presence are also encouraged through the game's perspective and movement mechanics. The player is given a near-omniscient view over the map, a view that is relatively unencumbered by menus or user interfaces until the player chooses to open one. The feeling is like what one would have staring at a board game like *Risk*, except the screen takes the place of the table and the map extends beyond its bounds. The mechanical input to change perspective

[8] As a hypothetical example: Hovering over the happiness value of 5 could reveal that the empire has -6 happiness due to having two cities, -8 for a total empire population of 8, but also have +4 for possessing a luxury resource, +2 for its buildings, +4 for its policies, and +9 for game difficulty.

over the map is intuitive and easy to implement: Move the mouse to the right or left and the screen pans in that direction; the scroll wheel zooms in when pushed up and out when pushed back—just like when viewing most online mapping tools; and unit selection is as simple as a click. This substantially reduces the amount of effort that the player has to exert to navigate the space, enhancing feelings of spacial presence.[9] When players interact with another character, they do so directly; the character appears as if they and the player were sharing the same (highly stylized) room, which also gives the feeling that the screen is serving as their eyes in this space.

All of these mechanical and narrative techniques coalesce into the feeling that they are not only looking in at a separate virtual world, but that they are *there*. Just as our brains adapt and ignore the constant smells, sights, and sounds to focus our attention, players often shed the constant, physical sensation of being plopped in a chair in order to play "just one more turn." The physical world melts away, relegated to the back-burner of the minds, as players enter a state where their focus and presence are almost entirely towards interacting with the game. In other words—and to hearken back to the discussion in Chapter 2—they are lost in a sense of flow. Their eyes and hands are not guiding the movements of an avatar across the world, they are, themselves, engaging the world. And the bulk of this direct engagement is done in interaction with politically relevant means and ends.

6.2.3 *Fallout: New Vegas*

In *Fallout: New Vegas*, players awake in the home of a small town's doctor—a town nestled in the wastelands of a post-apocalyptic Mojave desert—after getting shot in the head and buried-for-dead in the irradiated sands nearby. The world they wake into is one with incredible scientific advancements—fusion technology, advanced artificial intelligences, ray guns, health packs that revitalize exploded limbs—but is still all-too-human: It has friendship, comedy, alliances, kindness, and persevering hope, but also bigotry, addiction, violence, greed, and war. This world, different yet deeply resonant with our own, is contested by three powerful factions: The upstart New California Republic (NCR), the rapacious Caesar's Legion, and the Four

[9] See, for additional detail on such "natural mapping," Skalski et al. 2011.

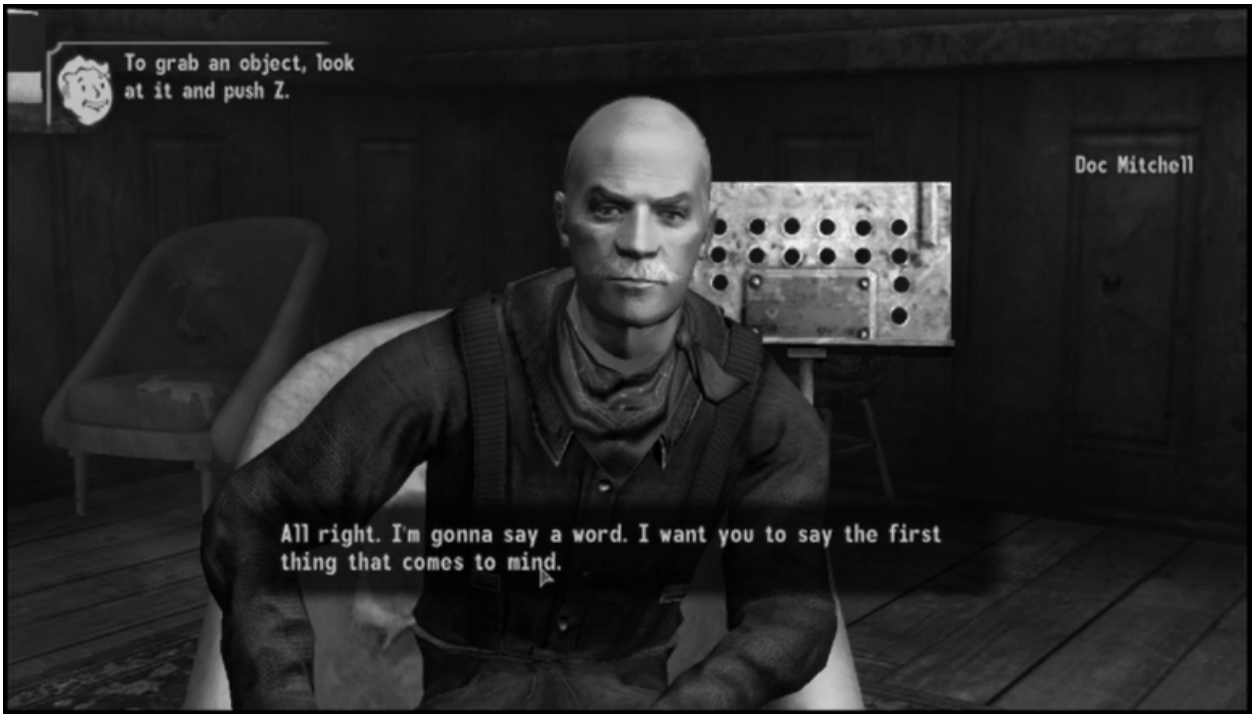

Figure 6-7. A look at the methods used to inculcate feelings of immersion in *Fallout: New Vegas*. In this scene, after the players have customized their character's physical appearance, Doc Mitchell has the player answer a personality quiz. The answers are used to adjust the player's base stats and skills, which strongly influence how they are able to interact with the characters and environment in the game. These decisions help make the player feel like they are immersed in the world of the Mojave wastelands and that they are the ones, ultimately, present in the world.

Families led by the cunning and enigmatic Mr. House, vying over the area surrounding the New Vegas strip. As the player ventures out into the desert to gain answers, they also gain notoriety and/or prestige with the regions many factions depending on their choices. By the time they learn who tried to kill them and why,[10] the player becomes a pivotal actor in the future of the entire region. They side with one of the three factions at a final battle to decide the region's fate or, if they perform certain choices, they create a faction led by themselves and become the region's ruler. The consequences and fallout of their choices (pun most certainly intended) are revealed to them in a post-game narrative sequence that varies based upon their decisions. It is not a game with a linear story or fixed ending. It is up to the player's choice.

[10]The "who" is the leader of one of the Four Families, Benny. The "why" is to steal a platinum poker chip belonging to Mr. House that you were transporting—because even in an apocalypse someone is always eager to play Judas.

6.2.3.1 Interactivity as engagement

In *Fallout*, much of the interactivity as engagement comes from the ability of the player to interact with many of the characters, items, and environments in the game. Players can approach the game's non-playable characters (NPCs) and, quite often, are given the opportunity to enter a conversation with them. These can be purely transactional discussions, purchasing or selling materials to help with survival, but they can also provide direct information about the world or quests that allow them to get their virtual hands dirty—usually with some form of incentive attached like money, points towards leveling up, a new weapon, influence within the group, access to new areas, or information about a faction or notable character (including the man who tried to kill you).

It is important to note that these are, in fact, discussions. Players are usually given several possible topics of conversation and have multiple dialogue options within each topic. Impressively, the game's writers crafted these dialogues with the identity and group loyalties of the NPCs in mind. Strike-up a conversation between members of two rival groups and you get two separate descriptions of a shared event, distorted by in-group favoritism and out-group hostility. The quests often encourage players to spend time completing a task with social, moral, and political relevance. Some take very little time to accomplish: In one mission, players spend about 10 minutes in the city of Freeside persuading drug addicts to seek medical treatment offered by the Followers of the Apocalypse. In another, players can spend about 5 minutes negotiating a cease fire between the NCR and a gang called The Great Kahns, who is holding some NCR soldiers hostage.

Other tasks take substantially longer, such as spending close to two hours helping a contingent of ghouls repair the nuclear warhead they aim to embark on to their religious paradise, or the two hours convincing the leader of the Great Kahns to abandon their support for Caesar's Legion by sabotaging the Legion's reputation and doing favors for three members with access to the Kahn's ear. They can also interact with objects in the environment such as notes, books, posters, and computer terminals, gaining additional information. While these are frequently used

for world-building and/or comedic effect, some hint at deeper sociomoral and political meaning. These include the computers in Vault 19 which revealed that its inhabitants were part of an experiment to induce paranoia through stoking group-hostilities. They also include the posters in Vault 11, which showed people running negative campaign ads a*gainst themselves* to avoid being elected vault Overseer. It's a comical enough scenario, until computer entries and audio logs reveal a dark truth: The residents were manipulated into thinking that they had to kill one of their own every year to stay alive and had decided that their sacrificial lamb ought to be the Overseer. In that sort of circumstance, it is no wonder that people would avoid being elected like the plague. The game-world of *Fallout* itself is massive and, thus, replete with characters, items, and environments that encourage players to engage with concepts and tasks with social, moral, and political relevance.

6.2.3.2 Interactivity as leverage

Fallout: New Vegas employs a number of ludic and narrative devices that make the player feel like their decisions have weight over future outcomes. Gleaning the summary above reveals the most obvious way the game does this: Having multiple possible endings that depend on the player's choices in-game. This is a common technique among many story-driven games and can be seen in titles developed by AAA studios (*Skyrim*, *Mass Effect*, *Heavy Rain*, and *The Walking Dead*) and so-called "indie" studios (*The Stanley Parable*, *Paper's Please*, *Undertale*, *Oxenfree*, and *What Remains of Edith Finch*). The fact that there are multiple viable endings, emerging as the compounding consequence of player's actions throughout the game, emphasizes that what the player's do has a big part in the region's ultimate fate.

Choice is not just present at the climax but also in the moments leading up to it. The outcomes of the in-game moments sampled above—assisting the addicts in Freeside, negotiating a ceasefire between the Kahns and NCR, helping the evangelical ghouls, and persuading the Kahns to repudiate the Legion—are not written in stone. They reflect *possible* quest outcomes and victory conditions, not the only ones. Players have options in how they want to encourage the addicts to get clean (wean them off with different drugs, kill their dealer, or inspire them with a

surprisingly effective pep-talk)—and these could all prove for naught if the players don't ensure that the addicts don't get jumped and killed on their way to getting clean. The players can fail to secure a detente between the NCR and Kahns—either by not being skilled enough (or not having enough money to make a bribe) or by choosing to side with one faction, attacking and killing the other. The player can kill all the ghouls rather than help them or, even if they help them, change the rocket's trajectory in a way that further helps (or harms) the travelers. And the player has to make numerous choices in attempting to sway the Kahns away from the Legion—including whether or not to engage in this diplomatic route at all. The pretense of the mission is that the players are ordered by a commander in the NCR to assassinate the head Kahn; peace is an option that the players have to initiate themselves.

The consequence of any of these choices results in different levels of fame/infamy among the groups. Violent actions against a group causes a player's infamy to go up, while helpful and beneficent actions towards causes their fame to rise instead. Players can have points towards both their fame and infamy allowing them to have a "mixed" reputation within that group. These reputations, in turn, have consequences for the player's experience: Dialogue choices with NPCs change as a result of previous interactions with them but, also, based upon the player's standing with the NPC's group; some NPCs may totally eschew conversation in favor of immediate combat if the player's standing with their group is too negative. Thus, even if the player is not doing a mission that is explicitly socially, morally, or politically relevant, the more meta actions directed towards navigating their reputation among groups are themselves highly relevant and can encourage players to think deeply about their decisions.

6.2.3.3 Interactivity as presence

Although clearly strong in the areas of interactivity discussed so far, if there is one form of interactivity where *Fallout* shines the brightest it is in encouraging feelings of presence. The game, like many others in the broader role-playing genre, focuses on trying to make the players feel like they are the ones navigating all the perils of the wastelands—both those from the environment and those from its occupants.

The game starts out with the emphasis in its very first moments. Once the players awake in the house of Doc Mitchell, the movements and perspective of the camera makes them immediately aware that the game takes place from a first-person point of view. As they come-to, they look upon a character model of an older man, Doc Mitchell, who expresses bemused surprise that they are still kicking. He tells the players that they've "been out cold a couple of days now" and that he wants to "check the damage" by having the player provide their name.[11] Once they type that in, he asks the character if he "left anything out of place" when he was "digging all the pieces of lead" out from their skull. This is a pretext to decide what their characters will look like. Players decide the color of their avatar's skin and eyes, the color and style of their hair, the musculoskeletal contours of their face, the presence or absence of facial hair, tattoos, or scars—they are given all the tools and opportunities to make their character in whatever image they choose. Quite frequently, they make it in theirs. Empirically, many players in games with character customization design their avatars based off how their real-world bodies look now, how they *wished* their bodies looked, or—if the character is non-human—how they imagine their current/wishful self would look if translated to the character's species (Van Looy, Courtois, De Vocht, & De Marez, 2012).[12]

Once the players decide their appearance, Doc Mitchel asks them to "walk" to the other side of the room (allowing the player to get a sense of what it takes to move and direct their digital homunculus), and decide their avatar's proficiencies in seven primary statistics: Strength, Perception, Endurance, Charisma, Intelligence, Agility, and Luck. These affect how the character engages with the overall game-world—and how the game world engages with them.[13] After they make their decisions, Doc Mitchell directs them to a nearby couch to ask a "few questions—to

[11] While the specific name choice does not matter much in Fallout, other games will use this to have the other characters refer to the player by their chosen name, increasing the feeling that the characters are addressing the player directly.

[12] This ability to customize their avatar increases feelings of enjoyment, presence, and immersion (Schmierbach, Limperos, & Woolley, 2012; Teng, 2010; Turkay & Kinzer, 2014)

[13] For example: Players with more strength are stronger with melee attacks and can take more hits before dying; players with higher perception can see enemies at a further distance and can also notice certain things in conversation; and players with higher charisma can barter for goods at lower prices and boosts the stats of any in-game companions they pick up along the way.

make sure [their] dogs are still barking." It becomes quickly apparent that it is a personality test. Players have to do word association with concepts like "mother" and "light," answer how much they (dis)agree with statements like "conflict just ain't in my nature," and interpret the shape and meaning behind Rorschach blobs. The game takes those answers and automatically invests points into three of 13 character skills such as "science," "speech," "medicine," and "lockpick." The three that are chosen are based upon the answers to the personality tests. The higher the points invested into a skill, the more adroit the player-character is at said skill—which unlock opportunities for quests, items, and conversations down the road.[14] These skills are selected based on player's own personality, as ascertained by the game with a "personality test" in these first few minutes. The similarities the player has with their in-world avatar run more than just skin deep. Embodying an avatar that resembles the player's physical appearance and personality shrinks the psychological distance otherwise instantiated by the screen.

But the game encourages feelings of interactivity throughout the entire experience through mechanics that, while subtle, are incredibly common among many first-person adventure and shooter games. The camera serves as the player's eyes and is set in the skull of the character model, so they look out onto the world as if they were standing in it. They can look down and see a body and hands—just as they would should they care to cast their gaze down from the screen. But it is not a static view into the Mojave; the designers strove for more verisimilitude than that. When the player drinks too much or sustains head damage, their sight will blur. When they decide to go to sleep, it fades to black. When they walk along the road, down a path, or up a mountain, it jostles in accordance with their movement.

Sound design also plays a big role in navigating the world. Footsteps scrape along the sands, breathing becomes haggard as players sprint or take on too much damage, guns fire off with commanding retorts, activated generators whir and whine, things *puht*, *thud*, and *splat* when they're dropped into the dirt. These are just a few of the very deliberate design choices that were made to make the world feel alive. It would have been eerie and jarring if a world as large and full

[14]These can be incredibly consequential for gameplay. For instance, I maximized my character's speech skill and was able to talk my way out of the game's main final boss fights, rather than using my energy weapons, guns, or fists.

as that made for *Fallout* was entirely silent—and it would have been disruptively uncanny if the sounds were not properly timed or matched with the on-screen stimulus. Part of what makes a world feel real is if our actions, small or large, provide sensory feedback. The designers of *Fallout*, and many others, intentionally include this feedback in their products to increase feelings of presence—and, in so doing, they substantially reduce the distance between the entity performing the game's many relevant actions within its world and the person holding the controller.

6.2.4 Case Study Conclusion

The purpose of these case studies were two-fold: First, as with the last chapter, they provide tractable examples for readers who may not be as familiar with video games. Not everyone plays games themselves, or plays frequently enough, to appreciate the mechanical and narrative depth that many of them can offer. These vignettes were constructed in ways that (hopefully) illustrate how interactive these games are and how this interactivity can intersect socially, morally, and politically relevant topics. Second, It is one thing to acknowledge that feelings of immersion and interactivity strengthens the effects of the content—that much is evinced and made clear in the experimental evidence—but it is another to fully appreciate and understand what it is about these games that engenders this relationship.

These three games, *Celeste*, *Civilization V*, and *Fallout: New Vegas*, demonstrate three kinds of interactivity: Interactivity as engagement, as leverage, and as presence. Through a combination of narrative and mechanical techniques, video games allow players to effectively "practice" thinking about important political issues and acting in response to them, they encourage players to elaborate further on their choices since they appear to have causal sway over future events, and they make players feel like the world and characters are somewhat realistic and resonant—sometimes they can even make them feel like they are inhabiting the space and bodies portrayed beyond the screen. All of these techniques are common in games beyond the three I sampled here and, just like these three, they are often employed towards ends and means that are politically relevant.

6.3 Chapter Conclusion

One of the core arguments of this dissertation is that, while video games convey information like any other story-telling medium, they are also fundamentally different in that they are more dependent upon player choice. The difference is seen in the way that we describe the simple act of partaking in them. We do not say people "watched" video games. We say that they "played" them or "experienced" them—both phrases implying a level of interactivity and engagement that is not seen in other mediums. At their best, games provide players the opportunity to visit incredible worlds, mix with unforgettable characters, and take an active role in incredible events. And when these worlds, characters, and events intersect with the political, they have the potential to affect our real-world behavioral propensities. Just like with Hans' experience with the moose in the Norwegian woods, things we do inside of games can find their way into reality.

This chapter aimed to substantiate this point through two studies. The first was an extension of the experiment I showcased in the last chapter. I extended the mediation models used there to be able to simultaneously include how feelings of presence, that one has been temporarily transported into the world of the game, can affect civic attitudes and political participation. I found across all three of the games that I tested that feelings of presence incurred a positive, statistically significant effect on civic attitudes. The more that players felt involved in the world, the more that they agreed with feeling that they are interested in the civic happenings of ours. This effect extended to political participation as well. Those who felt more transported reported higher amounts of participatory intent—they scored higher on a composite measure that captured their intent to participate in a variety of different actions such as voting, talking with others, volunteering for a campaign, and protesting. These effects did not extend to actual donation patterns but future work will be needed to see if this was a consequence of the games chosen, the idiosyncratic times that the experiment was fielded in, or an interaction of both forces. In sum, though, the preponderance of the evidence is consistent with the claim that interactivity can impart its own effect on those who play games that matter.

The second study featured three vignettes that looked deeper into **how** games can use interactivity to impart politically relevant content—leading to the kinds of effects observed in the experiment. I elaborated upon the different threads found in the theories of interactivity I presented in Chapter 2 and identified three different forms that can all have an effect: Interactivity as engagement, as leverage, and as presence. I then use three popular games to illustrate a variety of narrative and mechanical techniques associated with each kind: From feelings of narrative leverage found in *Celeste*, to the incalcuably many ways to engage with the content of *Civilization V*, to the deep immersion induced through sound and sight in *Fallout: New Vegas*—games have a variety of tools at their disposal to make interacting with politically-relevant content impactful.

The past two chapters, however, have been investigating the effects of games as they play out on individual people. But games are more than just single-person endeavors. They are also social experiences. Indeed, one of the big appeals to the game that Hans played, *WoW*, is that there are multitudes of others that the player can meaningfully interact with. The third argument of this dissertation is that social interactions can affect players' political behavior independent of the content or feelings of presence. Instead, they transpire due to the space that games make available to friendships and talk. I turn to the evidence for this position in the next chapter.

CHAPTER 7
SOCIAL EFFECTS

On a brisk, overcast morning in October 1958, the Department of Energy's Brookhaven National Laboratory opened its doors to the public for first of that year's visitors' days. Normally "visitor's day" connote a certain amount of excitement and verve—a buzz in the air at the DOE, as it were. But these were ironically unenergetic events. They had their start earlier in the decade to give local reporters and residents a peak into the otherwise secretive nuclear research facility. After being shown around the lab's reactor, accelerators, and scientific departments, the visitors would be corralled into the laboratory's gymnasium to look at the staid, static booths staffed by sober-minded physicists and engineers. It was almost like a science fair, except that the ant colonies and model volcanoes were replaced by abstruse technical details and equipment specifications. It is hard to imagine that people expected to be captivated by what they would see on that cloudy October day. Interested, certainly—we are still talking about nuclear energy just a few years following the end of World War II—but not enraptured.

But they would be captivated. And the culprit was a curious device constructed by one of Brookhaven's resident physicists, William Higinbotham.

Higinbotham intimately knew the power of nuclear energy. He was a physicist in the Manhatten project and witnessed the infamous test of the atomic bomb in Los Alamos. He was dedicated to the use of that power for peace, and he wanted visitors to be just as engaged in the projects at Brookhaven as he was. So he designed an interactive exhibit to impress how the research they were conducting could be applicable to people's everyday lives. When reading the schematics of an analogue computer housed in the lab, he became inspired by a particular configuration of relays and capacitors that allowed an oscilloscope to display a simulated ball bounce. It reminded him of how a tennis ball moves, and he, as well as Brookhaven technician Bob Dvorak, spent three weeks constructing a multiplayer game based on that insight. Come visitor's day, it was immensely popular. Hundreds of people crowded around the massive machine's dimunitive five inch screen to play and re-play Higinbotham's creation. Strangers, acquaintances, and friends alike challenged each other to game after game of virtual tennis. It was so popular that it made repeat appearances at visitor's days for the next few years.

Neither Higinbotham or the enthusiastic participants knew it at the time, but there were was more than just effective science communication going on. They were playing the world's first video game.

A re-creation of the machine using is now on display at the Strong Museum of Play in New York. Numerous dials and exposed wires make the instrument look at once ingenious and primitive; if there was a platonic form for things designed by and for government researchers in the Department of Energy, this would come close. The game itself, featuring blocky paddles, a rectangular net, and a ghostly green ball, is reminiscent of Atari's *Pong* or its earlier, lesser-known inspiration, Magnavox's *Table Tennis*. But it actually predated these breakout hits by nearly 15 years. And although electronic play devices had been around for decades at that point, this his was the world's first true video game—and it was intended that people would play it together. Its name, aptly enough, was *Tennis for Two*.[1]

Video games have always been a social experience. Advertisements and developer interviews dating back to the 1980s show that the social aspect of games was one of the medium's strongest selling points. Participant observation research of video game arcades in the late 1970s and early 1980s showed a strong social motivation underlying people's decisions to burn through their hard-earned quarters (Braun & Giroux, 1989). As the technology underpinning at-home internet access became more affordable in the 1990s and early 2000s, game developers sought to expand the pursuit into the digital realm with social gaming at the forefront of their design decisions (Fanzine Collection, 2001; Don Daglow Papers, 2009; Williams' Sierra On-Line, 1990). Designers knew then as they know now that the relationships facilitated by games could be very deep and meaningful. Stories abound, spanning the medium's decades-long history, of how the communities around games lead to new friendships, marriages, and even help people escape from abusive situations. What remains to be seen, though, is if these relationships can translate into increased political participation and civic engagement.

[1] See Higinbotham 1976 and Video Game Hall of Fame 2018 for additional details on the creation of *Tennis for Two*.

That is the question I address in this chapter. As I expounded on in Chapter 2, scholars in multiple academic disciplines have found that video games can generate social capital and political scientists have known for decades that group involvement and social capital can lead to an increase in political activity and increased civic attitudes. What is left is to investigate is the natural question lounging in the lacuna these findings—to see if social gaming can increase political participation and bolster civic attitudes.

This chapter proceeds as follows. First, I use illustrative case studies of four popular multiplayer games (*Destiny 2*, *Fortnite*, *Super Mario Party*, and *Quiplash*) to illustrate how different kinds of video games, and styles of play, affect social capital development and political talk. There have been several studies that look in-depth at how games like *World of Warcraft* can engender social ties among their players (see, e.g., Meachem, 2009), but there has been little to illustrate how this can occur in games that are not tantamount to living a separate life (or a *Second Life*). These will help in making clear the expectations I have from my quantitative data and provide concrete examples for how games are delivering the effects they show. I then look to my cross-sectional evidence, using data from the 2011, 2013, and 2015 waves of the Youth Political Participatory Survey Project (YPPSP) as well as data from my original Gaming and American Engagement in Political Life and Society (GAmEPLS) survey to determine if there is a significant statistical association between playing video games socially and civic attitudes as well as social game play and political participation. Fnally, I turn to the causal analysis. This involves using the longitudinal component of the YPPSP to see if social gaming can be said to cause participation. I then use structural equation modeling (SEM) on this data as well as the data from GAmEPLS survey to look at how these relationships are mediated by social capital and political talk.

7.1 How Games Can Encourage Talk and Generate Social Capital

Throughout this dissertation, I have argued that games can encourage political participation and heighten civic attitudes through the social ties they help develop. But these ties are not wrought through some kind of arcane force or some sort of impenetrable black box of social magic. While humans are naturally adept at forging group bonds, it is also the case that the

structure of the games themselves can encourage the emergence of new connections and facilitate those that already exist.

In order to investigate how they can do so, I analyzed (read: Played extensively and obsessively) *Destiny 2*, *Fortnite*, *Super Mario Party*, and *Quiplash*. Two of these games—*Destiny 2* and *Fortnite*—are played online while the other two—*Super Mario Party* and *Quiplash*—are played with people gathered in the same room.[2] Those interested in the specifics of why I chose these particular games are encouraged to read the case-study section of Chapter 4. But, broadly speaking, I chose these games because they are some of the most popular games in the world (making them typical of the games people are playing) while also being diverse enough in what they offer—and how they offer it—that the findings can be translated to other multiplayer experiences. This is not intended to be, nor should it be interpreted as, an exhaustive list of all the multiplayer games that can engender social capital or encourage political behavior. I chose these four titles because I believe they are representative of different ways that games can generate and facilitate social capital among its players, not because they exclusively do so.

Social capital, as I understand it, has four structural requirements: It arises in networks of multiple people, the network exists in a space that allows interpersonal communication, there exist opportunities for cooperation and reciprocity between members, and there also exists processes that engender trust. Thus

- While it must be demonstrated that games are capable of hosting groups of people, that is not the sole requirement. Grocery stores host multiple people at once but we would not call them hubs of social capital development. There must be something less fleeting; the groups ought to have a longer lifespan than the produce. Games must facilitate or otherwise allow genuine player interaction and long-term cohesion.
- The games must also allow interpersonal communication between players—and that communication needs to be about more than just the game. In order for this communication to facilitate political action, the game must either provide the opportunity for players to talk freely (as research has shown that people tend to cycle around to things seen in the news [see Cramer 2004]) or itself present something political, social, or moral to talk about.

[2] In the age of Coronavirus, many enterprising people have found ways to play games like *Super Mario Party* and *Quiplash* online due to the health risk of being gathered in the same room. While there may be interesting and important differences in the way these games play out in venues that are different than those they were primarily designed for, this section analyzes these games through the lens of normal times. Or, at the very least, times without a highly infectious public health risk.

- Games must provide opportunities for cooperation and reciprocal action. To provide cooperation, there must be something mechanically about the game that orients players towards the same goal. For games to be shown to encourage reciprocity, it must be possible for players to react to the actions of others and for said (re)actions to offer something of value.
- These case studies must be able to demonstrate that games feature trust in a procedural sense as opposed to trust as an outcome—although both are critical for understanding social capital. I define this kind of trust as those processes necessitating faith that others will exercise their in-game autonomy to act towards something mutually advantageous without causing harm.[3] More concretely, the games must present something that individuals are incapable of achieving alone; something that requires them to place faith in the capabilities and intent of others.

I will look at how the four games engender these four elements. My emphasis is on illustrating how they do so individually, but I hope that these treatments also convey a sense of how multiplayer games do so in general.

7.1.1 *Destiny 2*

7.1.1.1 Game summary

In *Destiny 2*, players take on the role of Guardians: resurrected beings equipped with both magic and technology advanced enough to be the functional equivalent of magic. These endowments are bestowed upon them by the Light and its physical manifestation, the Traveler—a white, city-sized sphere parked in low-Earth orbit. The Guardians are ultimately tasked with defending the Traveler, the Light, and the entire solar system from existential threats that are both extraterrestrial and extradimensional in origin. In the process, players travel across planets, moons, and dimensions to gain more powerful gear and abilities—all in the pursuit of tackling the evermore difficult threats to come. Guardians assume one of three classes (Hunter, Titan, or Warlock) with exclusive weapons and gear, as well as one of three elemental sub-classes where they either harness the blazing power of a star, the unruly ferocity of electricity, or the elemental chaos of the space-time void. Players can wield these tools and powers to battle other players

[3] One might feel that the term "mutually advantageous without causing harm" is a bit redundant. However, I have had too many games of Halo where I have been accidentally (or "accidentally") killed by members of my team as they pursued an overall win. (My favorite instance is when a dear friend decided to try and win a game by sniping two enemy players with the same shot, knowing full well that I was standing directly between them and was thus in his line of fire. He landed the shot.) The distinction is necessary.

Figure 7-1. A group of players confronting Kalli, the Corrupted—the first boss in "The Last Wish" raid. In order to summon her, players must coordinate to activate six ceremonial plates, withstand the enemy assault that comes from doing so. Once summoned, they must communicate and work together as a team to reduce her health to zero.

(PvP) or to overcome quests, monsters, and other so-called environmental challenges (PvE). *Destiny 2* strives to make players feel like the game is a doorway to an entire, expansive universe ready for them to inhabit, explore, and protect.

7.1.1.2 Hosting groups

Mechanically, Destiny 2 offers a number of ways for preexisting groups to connect. Like many online multiplayer games on Xbox, PlayStation, and PC, players have the ability to invite people from their friends list[4] to join their fireteam and the adventure. For most activities, a fireteam can consist of up to six people, but there are exceptions in both directions. The game offers a bounty of challenges and activities. Some can be completed quickly (5 – 30 minutes) while others require hours (if not tens of hours) of investment to attempt let alone complete.

[4] "Friends lists" are exactly as they sound: Curated lists of other people on that platform who the players somehow know. Players must acquiesce to being included on these lists and inclusion is generally reciprocal.

Many activities, regardless of duration, are only possible in groups. The game also allows up to 100 players to join user-created and -managed clans, which offers additional opportunities for powerful gear in the form of clan-based challenges and by rewarding the actions members achieve cumulatively.

The game also offers opportunities for strangers to meet and become acquainted. The primary way to do so is through match-making,[5] which features in all PvP and PvE activities. Many if not most of these encounters are fleeting and transient. However, players have the option to invite the people they meet through match-making into their fireteams, clans, and/or onto their friends list. Even if it is a relatively infrequent occurrence, the tremendous size of the player-base[6] means that relatively rare events are still relatively commonplace. Additionally, players will use platforms such as Reddit, Twitter, or the official Destiny web forums to create "Looking for Group" (LFG) or "Looking for Player" (LFP) posts. These posts will typically state what kind of activity the poster is looking to do and any requirements they are looking to fill. Others will come across these posts, and join the fireteam. Recruitment through LFG/LFP posts are common for the game's multihour raids and other difficult tasks that require several people and extensive cooperation. It is not uncommon for players acquainted through this method to be invited into clans and/or friends lists—especially if they are highly skilled.

7.1.1.3 Interpersonal communication

Although face-to-face communication is impractical if not downright impossible (*Destiny 2* only allows one player per console at any given time), players are nonetheless still able to talk with each other. The main way that they do so is through "voice chat"—effectively online-hosted multi-person telephone calls. Players may not physically see each other, but they are able to talk freely in real time.

[5]Match-making is virtually ubiquitous across online multiplayer games. Many game-modes will require a certain numbers of players to start but it is rare for full groups to want to do the same activity at the exact same time. (In some games, it is impossible to be part of a group large enough to meet the minimum player requirement.) As a result, games will take all of the individual players and smaller groups queuing to play and algorithmically match them together until the minimum threshold is met. Oftentimes, these algorithms try to match people by approximate skill level and distance to server—but these are not universal across online games.

[6]Recently estimated at about six million people (Tassi, 2019).

The game's content offers a multiplicity of politically relevant topics. All of the PvE activities are extensions of the game's narrative: To defend the Light, the Traveler, and the solar system from the debased, the corrupt, and the evil. Players encounter rulers, rival political factions, monsters with morally complex motivations, and other such things with the potential to spark conversation.

Importantly, though, *Destiny 2* also provides players with ample opportunity to have these discussions—or discussions about anything else for that matter. The game often demands very little of a player's attention or otherwise makes it easy for them to zone-out and talk to others. This is both an incidental and purposeful consequence of the game's design. Regarding the incidental, players often spend several minutes waiting "in orbit" for the match-making algorithm to work its magic and for the environment hosting the next activity to load. Towards the more purposeful end, game designers strive to keep players engaged in their content by modulating the kinds and difficulties of the challenges to be faced. While players may not be doing much talking during a fight sequence, they may be more inclined as they solve simple puzzles by jumping onto floating platforms. It is during these quieter moments, of ebbing difficulty and lackadaisical travel, that players find time to talk with each other about things they just experienced or things in their day-to-day lives.

7.1.1.4 Cooperation and reciprocity

The opportunities for cooperation and reciprocity in *Destiny 2* largely depend on whether people are engaging with the PvP or PvE content. Most PvP activities involve teams of players competing against each other towards some objective (most kills or bases captured) with the winners getting better loot more quickly (on average) than the losers. Players leverage voice-chat to exchange and relay information to other members of the party, saying things like "heavy-weapon ammo spawning near me soon" or "I'm going to capture objective B."[7] They will also use voice chat to coordinate the class and sub-class specific abilities to bolster the team's

[7] It's important to note that players are rarely that long-winded and explicit. These are instead translations of far more common call-outs (e.g., "heavy on me," and "capping B"). Different games, and even different regions playing the same game, develop their own abbreviated means of conveying vital information.

overall performance. Players under heavy fire may ask for Warlock teammates to deploy a "healing rift" to mitigate the damage and the Warlock, in turn, may ask for Titans to erect a barricade to duck for cover. Reciprocal actions are not always that immediate, but it is possible for players to request some form of assistance and for them to respond to future requests with aid in kind.

The opportunities for cooperation and reciprocity in PvE eclipses what is seen in PvP in both intensity and scope. PvE activities also incorporates the use of voice-chat for information exchange and task delegation, but the necessary information and tasks can be orders-of-magnitude more complex than before. To see how, here is a not-too-uncommon scenario featuring three players, an overpowered boss, and hoards of weaker enemies. One player jets up into the sky to clear weaker enemies by repeatedly crashing into the earth below. The second collects materials dropped by the scattered foes to create a space that both heals teammates and bolsters their attack power. Standing in the space allows the third to use a weapon which afflicts the boss with a deleterious effect, boosting the effectiveness of the others' gear. A few cycles of this strategy and an otherwise unconquerable foe is defeated and all three players revel in their new loot. While not every PvE activity requires teams to be this in-sync, many actually demand more of players than this. Further, players have additional actions of worth that they can perform on behalf of their teammates. Most notably, Guardians can revive players who were slain in the midst of the encounter. Teammates are able, asked, and, to an extent, expected to rush over for a rescue when a teammate has fallen. In the course of a challenging encounter, it is common for players to be overcome by enemies—and it is concomitantly common for players to be revived by, and to revive, others in the pursuit of the larger objective.

7.1.1.5 Procedural trust

Perhaps the most striking example of procedural trust comes from the game's raids—extensive encounters incorporating challenging puzzles and fights with powerful enemies that can take experienced teams several hours to complete. Indeed, these are the most involved and time-consuming activities featured in any of the games I review. To get a glimpse of the

procedural trust needed to complete these activities, here is a synopsis of what is generally accepted in the community as the easiest of six total encounters included in the raid "The Last Wish."

- Six players enter a subterranean level featuring a large well in the center and nine sizable plates embedded in the uneven terrain surrounding it. Above or near each plate is one of four symbols with each symbol featuring on two plates apiece. (The ninth plate is left blank.) Above the well are three of the four symbols, randomly selected.
- Players must activate the six plates corresponding with the symbols featured above the well. The plates are divided into three sections and are activated by players standing on them for a period of time. While they stand, two of the plate's sections will spawn an energy bomb that will immediately kill the player if they do not make it to the clean section. These bombs will randomly reappear on two of the sections several times. While this is happening, throngs of weaker enemies will swarm the plate and the level's boss will randomly appear to force players off. At this point, this boss cannot be damaged. Her interference must simply be endured.
- Once the player survives the bombs, one of the game's stronger enemies will spawn. If this enemy is killed, the plate is activated. If the wrong plate is activated (e.g., a plate without a symbol or with a symbol that was not featured above the well), an especially difficult monster will spawn and attempt to kill all the players on the map, forcing the entire team to clean up the mess. The correct plate will then need to be activated.
- Once all of the correct plates are activated the boss awaits the six players near the well, which is revealed to also be divided into three sections featuring an almost honeycomb-esque array of 16 doors per section. She hovers over one section, and can now be damaged—but only for approximately 15 seconds. She has an abundance of health; that time limit is not enough. Afterward, a random six of the 16 doors located in the section she hovers over will open, revealing safe-rooms. Players have 10 seconds to rush into a safe-room that will only fit the first person to reach it. Players unable to find an unoccupied room die immediately after the 10 seconds.
- Survivors are greeted by large hoard of enemies who have spawned in the middle of the well. Another 15 second damage-phase begins as the doors open and it is revealed that the boss has rotated to a different section. After the 15 seconds expire, six new doors open and players have 10 seconds to enter an unoccupied safe-room. New enemies spawn and players repeat the process one last time as the boss rotates to the final section of the well.
- If the boss has not been killed by this point, players must exit the well to re-activate the plates. The whole song-and-dance repeats until either the boss or the last of the six players is slain.
- Players who are killed at any stage can be revived, but each only has the ability to revive one other person for the entire encounter. If at any point all six players are slain, then the encounter resets from the beginning.

It ought to be evident that procedural trust is practically omnipresent throughout the experience. The encounter has players engage in separate, difficult activities with very small room for error. Although players are allowed to help each other once they have finished their own tasks, players have no choice but to trust that the others will perform their tasks well-enough for the entire team to advance to the next stage (or at least well-enough to not exhaust the team's supply of revivals), trust that other players will not do something that will harm them (e.g., accidentally summon a powerful enemy by activating the wrong plate or kill them by locking them out of a safe-room), and trust that they are able to undertake the even more challenging tasks in the remaining five encounters. The raids are not the only experience that requires trust—similar amounts of coordination can be found in much of the game's PvE and PvP content. This gives *Destiny 2*'s players of varying skill levels and preferences opportunities to forge closer connections.

7.1.2 *Fortnite*

7.1.2.1 Game description

Whereas *Destiny 2* offers an expansive, in-depth and internally-consistent world for groups of players to immerse themselves in, Epic Games' *Fortnite: Battle Royale* offers players a world with little rhyme or reason and absolutely zero apologies for it. The entirety of the world, for all intents and purposes, is limited to a single, moderately-sized island with an implausible mishmash of environments.[8] A meteor crater lies in between an active tropical volcano and an arctic wonderland—which is itself separated from a sprawling arid desert by a couple-minute's walk through a serene little town with Japanese-inspired architecture. 100 players, dressed in everything from military fatigues to bunny-rabbit onesies, are transported to this island in a floating blue school bus kept aloft by a hot air balloon strapped to the roof. Their goal is to skydive from the bus, soar to the best strategic position, and use the weapons they discover and materials they reclaim from the environment to build, hide, and fight their way to victory. While

[8]It is important to note that, since the time this chapter was originally written, a lot has changed with Fortnite's map. While it remains an implausible mishmash, some of the more zany elements have been erased and replaced with a map that it is a tad more plausible—at least by video-game standards (there is still a leaking nuclear power plant 2 minutes away from an oil rig and maybe 3 minutes away from a farm as well as a superhero agency).

Figure 7-2. A group of players stopping in the middle of a confrontation with an enemy team to revive a downed player. There is an expectation, fueled by a mixture of community norms and pragmatism, to revive players when they are knocked-down by enemy gunfire. In addition to reviving each other, players can provide guns, ammunition, building material, and health items to one another.

all of this is taking place, a purple electrical storm slowly rolls in, shrinking the playable areas on the map as the game progresses.

As participants play each 5–20 minute game, they are able to pursue additional challenges such as "visit all Pirate Camps" or "deal damage with a Shotgun and an Explosive Weapon in a single match." Completing these challenges helps players gain in-game cosmetic attributes for their characters (new costumes, dance moves, gliders, melee weapons) as well as in-game currency called "V Bucks." They can use V Bucks purchase additional cosmetic attributes or a "season pass" which unlocks bonus challenges for roughly three months. These, in turn, let players gain additional in-game cosmetics and currency. Rinse, wash, repeat.

7.1.2.2 Hosting groups

While *Fortnite*'s most popular game-mode has each player face-off against the remaining 99 (hence the name "Battle Royale"), most of the other modes are designed for multiplayer

interaction. In such modes, groups are hosted as they are in *Destiny 2*: Players can invite people from their friendslist into parties[9] and/or meet through match-making where they can be later added to their friendslist. Indeed, the game directly incentivizes group-based play through its challenges, many of which are either easier to achieve when playing with another person or explicitly requires it (e.g., the "play a game with a friend" challenge). *Fortnite* also features cross-platform play,[10] a rarity in online multiplayer games, and is relatively unique in that it is free to download and play. This inclusivity and lack of expense makes it easier for groups to engage with the game and for people to make new connections.

Additionally, *Fortnite* features other ways to host groups. For instance, the game's "Creative" mode grants players access to their own version of the island which they and their friends can alter and edit to imagine their own maps and game modes for either their personal use or for the community writ-large. Indeed, a good portion of the game's most social content was not created by Epic Games itself but was facilitated by opening up the game as a space for creative, undirected play. Further, the game offers in-game special events that encourages people to come together and witness something that can only be seen once and only for very brief windows of time. This includes a 10 minute electronic music concert hosted by real-life electronic music artist Marshmello in early 2019 or rapper Travis Scott in 2020. Over 10 million people (or at least their avatars) were in attendance over the game's numerous servers for the first concert and over 12 million people for the second.

7.1.2.3 Interpersonal communication

As with *Destiny 2*, players are not generally communicating face-to-face;[11] most players predominantly use voice-chat to communicate with members of their party and others in the

[9] Unlike *Destiny 2*, *Fortnite* allows up to 16 players to be in the same party. Party size can preclude players from some activities, though. For instance, groups of 16 are unable to join games of Squad (25 teams of 4) since they exceed the maximum team size by 12.

[10] Currently, *Fortnite* is available on the Xbox One, PlayStation 4, Nintendo Switch, and even Android and IOS devices. Cross-platform play means that one player can play with another regardless of the device either party plays it on. In most multiplayer games, players are only able to join others playing on the same console.

[11] I would be remiss in not mentioning the opportunities *Fortnite*-adjacent events (such as real-world tournaments and expos) have for face-to-face communication. Indeed, these are gaining in popularity in the US in tandem with the promulgation of professional gaming.

game. But players are not limited to their voices for expression. Players can have their characters "emote" to others via a variety of pre-programmed movements (e.g., waving hello, taking a bow) and dances.[12] They can conjure emoticons in front of other players and, in multiplayer games, use special emotes which signal to their teammates that they need ammo, materials, items to restore their health or shields, and/or that they have spotted an enemy. These are relatively simple to perform and are intended to either augment voice-chat or provide a means of communication for those who are not in the same party or unable to use voice-chat.

Players have ample opportunities to talk about things in real life during normal gameplay. *Fortnite*'s premise may make it sound like constant, action-packed chaos, but the bulk of a player's time is spent in the proverbial (and literal) calm before the storm. Because of the map's size, most of a match is spent moving to different locations, waiting to find other players, or trying to avoid them. In these moments, teammates have little else to do than talk and/or entertain themselves through emotes. That is not to neglect the creative modes, which allow players the option chat without worrying about winning a match or what is over the horizon.

However, it is not likely that the game itself will be prompting much political talk. *Fortnite* traffics in spectacular absurdity but it is sanitized absurdity, scrubbed clean of things overtly social and political. While one cannot discount the willingness of the community to inject its own politically-infused meaning into the game (one of the game's tallest, shiniest buildings is routinely called "Trump Tower" by players despite having no true name at all), the designers appear to have concluded that it is smarter to let that be a bottom-up process rather than a top-down one. Indeed, *Fortnite* seeks less to direct conversation as to provide a space for it to flourish. Indeed, this is a common approach to many online-multiplayer experiences. While some games allow people to play through the story-heavy campaign with friends, even normally story-heavy experiences will scale it back in multiplayer to give players room to play-out the "stories" that define their relationship to each other. In this way, *Fortnite* is fairly typical.

[12]Emotes and dances are also featured in Destiny 2 as well. However, their meanings are generally less explicit; they are primarily an extra form of in-game entertainment.

Although (as we saw with *Destiny 2* and as we will see with *Quiplash*) there are also many games that do directly deal with relevant content in their multiplayer gameplay.

7.1.2.4 Cooperation and reciprocity

The opportunities for cooperation and reciprocity systematically differ depending on if one is playing Creative versus one of the other multiplayer modes. Unlike *Destiny 2*, the difference here has less to do with degree and more to do with kind. Those playing Creative have relatively unfettered access to the game's environment. Players build large structures together, imagine new ways of play, and host each other in their own private islands—but it is difficult to be much more specific since objectives are self-directed. The cooperation and reciprocity found here is not drastically different than that seen in recreation centers and on playgrounds—and are consequently equally variegated and complex.

In the other game modes, however, the objectives are provided by the game itself, making it possible to provide more concrete examples. Those objectives, almost invariably, encircle the aim of being the last team standing—and there are multiple opportunities to cooperate and reciprocate towards that end. Players use voice-chat to coordinate drop locations, make strategies, announce the location of enemies, and otherwise exchange useful information. Players who are killed can be revived by teammates with the expectation that help will be administered the other way when needed. The game also allows players to give away weapons, ammunition, shields, health, and building materials to their teammates. Indeed, since the team loses if all players are killed, there is an incentive to keep teammates alive and to keep them well-stocked. The exchange of items and information is thus a strategic necessity in the game and crops us frequently—even when people are playing with total strangers.

7.1.2.5 Procedural trust

Procedural trust in *Fortnite* comes less from there being a single, overwhelmingly powerful monster and more from there being monstrous odds to contend with. It is the player and their team against numerous others of roughly equal ability. Although some players are skilled enough to win multiplayer matches by their own solitary efforts, they are exceptionally rare. For most,

multiplayer victories are only possible when the team cooperates. That is, when teammates share information, when they are willing to revive each other, and when they are not stingy with their equipment. Players have to trust in their teammate's capabilities as well as their generosity.

Additionally, *Fortnite* has moments that seem to extend beyond procedural trust and become what social scientists would deem generalizable trust—or faith that total strangers in a broader population will uphold behavioral norms in the absence of official enforcement (e.g., Putnam, 2001). This can be seen in the aforementioned in-game special events. With limited exception, Epic Games does not deactivate the ability for players to eliminate competitors during special events. Weapons are still available and melee attacks still deal damage; in theory, all bets are off. However, it is a common occurrence for players to gather to witness whatever is happening and not harm each other. Those who try to break this temporary truce are often targeted and eliminated so that the rest can enjoy the show.

Interesting enough, there are parallels here with the spontaneous truces that emerged in the trenches of World War I. As Axelrod 2006 notes, it was a frequent occurrence that enemy combatants would spare each other with a sort of "live-and-let-live" attitude. Axelrod conceptualized this as an iterative prisoner's dilemma—a stylized game comprised of two players who could each either "cooperate" or "defect." If both cooperated, both lived; if both defected, both died; but if one cooperated and one defected, the cooperator has been made a sucker—and this ill-fated gambit will be their last. In situations where the "game" is played once, defection is common. But in situations played out multiple times (and without a certain end-date), cooperation tends to be a stable norm. Axelrod demonstrated that this is reinforced by a common behavioral strategy that tends to deliver the greatest overall utility across time. The strategy is called "tit-for-tat;" all players start off as cooperators and, if betrayed, will defect in the next round as both an act of retribution and as a signal to the other player to demonstrate that future times will be harder than needed for *both of them* unless they return to cooperating. In the trenches of Europe, coordination between enemy soldiers emerged due to repeated contact and a certain appreciation for the mutual hardships endured—but also because the soldiers recognized

that acts of defection will inevitably incur hardships upon *themselves* that otherwise could have been avoided. In *Fortnite*, special events are only available at a set time; players do not get the opportunity to re-watch or re-experience the events at their own leisure. (They can often find a bootleg clip on YouTube, but that involves additional effort—and they still do not have the ability to interact with whatever happened directly.) Most players do not shoot at each other out of a mutual respect and understanding that they are all there to watch something bigger, and more interesting, that a short firefight. But would-be-defectors are also discouraged by recognizing that if they started shooting into the group, *they* would become the target of the whole group's hostilities and *themselves* miss out the special event. To put it simply: Trust and cooperation emerges here in part because most players can appreciate their shared purpose in being there but also because it will be hazardous and costly to violate the norm of cooperation.

These are not is not a common occurrences in *Fortnite* (after all, these are **special** events), but they demonstrate a curious way that trust can actually be observed in-game—or at least directly inferred.

7.1.3 *Super Mario Party*

7.1.3.1 Game description

Nintendo's *Super Mario Party* is the eleventh installment in the *Mario Party* franchise, which began with the series' eponymous forerunner in 1998. Players take on the role of characters from the Mario universe (heroes and villains alike) to, in the narrative of the game, "decide who is the biggest superstar." Perhaps the best way to think of *Super Mario Party* is to analogize it to a bundle of board games crammed into one package, except the boards and pieces are vibrant and fantastical. Four players roll digital dice and move their characters around a game board, embedded with multiple routes. The aim is to collect gold coins and ultimately make their way towards a "star space," where they can cash-in their coins to purchase said star. Players select if they want to play for 10, 15, or 20 turns and the player/team with the most stars at the end wins. At the end of every turn, participants play a short "minigame" for a chance to win more coins. As they progress, they can land on spaces that will give them coins, take coins away, provide them

Figure 7-3. A group of four players join for a game of river survival in *Super Mario Party.* If the timer expires before the players reach the end, they lose. In order to win,the players must coordinate their strokes with the motion-sensitive game controllers to navigate their craft down the river. Obstacles on the route can further impede their progress. The players must seek out time bonuses and cooperative minigames to extend the clock and make it to the end.

with temporary power-ups, give them AI[13] allies to help with dice-rolls and minigames, transport them to different parts of the map, or change the map itself so that the rules of movement have changed. Games can last anywhere from 30 minutes to approximately 3 hours (depending on how many turns were selected) and are extremely dynamic and unpredictable. Indeed it is not uncommon for players to win/lose at the last second—a fact often caused by the "Bonus Stars" the game capriciously doles out based on a randomly-selected metric (e.g., "player who won the most minigames," or "player who landed on the most red squares").

[13]Characters in games who are not played by another person but are instead guided by artificial intelligence software (hence, AI) included in the game.

7.1.3.2 Hosting groups

Unlike *Destiny 2* and *Fortnite*, the main way that people come together to play Super Mario Party is to play it in the same room.[14] The game accommodates one to four human players—but because the game requires four total participants, it will provide up to three AIs to fill the gap. While *Super Mario Party* features a number of different boards, the considerable duration of play often means that people will go for one game and then tap out until the next session. The game does offer rewards for completing all the maps and minigames in the form of additional in-game content, but there are no mechanisms encouraging people to do that all at once—or to even encourage it to be the done by the same core group. Mechanically then, *Super Mario Party* does not offer much for new groups to form and for them to stay together over the long term.

However, since people are not generally comfortable inviting total strangers into their home, the game is better understood as being oriented towards people who already know each-other. It is colorful, whimsical, and piggy-backs off the popularity of gaming's undisputed juggernaut, Mario, and the company he keeps. It also strives to be accessible and easy to pick up. There is no complex sequence of moves or strategies to master; players just amble around the map collecting stars and playing simple minigames. And doing so is often as easy as moving one's arm[15] and/or following the game's intuitive button-layout. Its mechanics and narrative elements then, are focused on making it an appealing space for people who are already acquainted to deepen their mutual affection through play.

7.1.3.3 Interpersonal communication

Since *Super Mario Party* is played in person, players can communicate with each-other as anyone could in face-to-face interactions. Talking, singing, interpretive dance; the sky is the limit. And the game provides ample opportunities for people to pursue their method of choice. Players have the opportunity to talk while others roll their dice and take their turns. Or, as is common

[14]The game does have an online mode where people can play with friends over the Internet. However, the only game-type available to players comprises a short burst of five minigames. Subsequently, it is not as popular as the game's other content, which is what I focus on here.

[15]The game is exclusively available on the Nintendo Switch, which features accelerators in its controllers to allow movement-based gaming in addition to button inputs. Indeed, Nintendo has been at the forefront of this style of play since the Wii exploded onto the scene in 2006.

during team-play (discussed below), players will talk before they begin to move. Even if this is not a lot of time (turns are self-paced but generally take less than five minutes), gameplay is not so demanding that people are unable to carry on a conversation. Once the dice are rolled, characters move themselves and generally need minimal input from their players.

However, any political talk that occurs will probably not be directly inspired by the game. Despite the fact that some form of diplomacy certainly had to occur—Bowser has been kidnapping Princess Peach at every chance he gets for the last three decades, but they are apparently on good enough terms to play board games together—players are not privy to the details. Similar to *Fortnite*, the game is scrubbed clean of substantial moral, social, and political commentary. But this is arguably part of the appeal. It is a space for simple, accessible fun. People can talk about whatever they want; the game makes no impositions.

7.1.3.4 Cooperation and reciprocity

The opportunities players have to cooperate and reciprocate depends on the type of game they choose to play. Super Mario Party has three multiplayer game modes: **Mario Party**, **Partner Party**, and **River Survival**.

Mario Party is the classic jaunt around the board that I have been describing and is predominantly competitive. Players as individuals are trying to accrue the most stars by the end of the game and there can be only one winner. However, the minigames played after every turn will often require cooperation in order to win. Minigames can be two versus two players, one versus three, or free-for-all—depending on where everyone finished out their turn. Premises include mini-tricycle racing (free-for-all), trying to jointly draw characters from memory (two v. two), or dodging mallets wielded by a mechanical crab (one v. three). It is often necessary for teammates to coordinate their actions if they want to maximize their chances of winning. To use the mechanical crab game as an example, one player moves the crab, one player controls the mallet in its left claw, and another controls the mallet in its right. They have to coordinate to smack the fourth player, who is running around on a boardwalk in front of them, before time expires. Competitors will often have to become allies, at least temporarily, to advance their own interests.

Partner Party is roughly similar to Mario Party except the entire game is played with two teams of two. Additionally, players no longer progress on a linear route but through an open board. (The analogy would be like shifting from a game of chutes-and-ladders to chess.) The emphasis is on both players working as a cohesive unit. Teammates' dice-rolls are added together to give the number of moves they must each make and any item picked up during that movement can be shared. Finally, just like before, minigames are played at the end of every move. This time, though, all the minigames are two versus two. The same coordination is required in order to win, except now it is being performed by a more stable set of partners. This version tries to drive home that players are acting as one group, going as far as to offer more coins to teams that simulate a high-five with the motion controls after winning a minigame.[16]

River survival is a unique mode that eschews a game-board in favor of having all four players work together to pilot a raft down a wild, branching river. Players are given 60 seconds to do so but it is impossible to reach the end in that amount of time. The players must then steer the raft to floating stopwatches, which gives an additional three seconds, or to red balloons hovering above the water, which triggers a fully cooperative minigame. The amount of time added to the clock depends on how well the players work together. Cooperation is a must at all stages of play—even in navigating the raft, as the game's motion controls captures the essence of rafting in reality—down to the frustration of people on one side paddling harder than those on the other. Success can only come through continual cooperation with the highest points being earned by those groups cooperating the most effectively.

7.1.3.5 Procedural trust

As with opportunities for cooperation, the opportunities for procedural trust are to some degree contingent upon the mode that is played. In River Survival, it is impossible to navigate alone. Players must go both right and left to gain more time, but they are only able to push the raft in one of those directions. Players thus rely on each other to steer the boat towards the clocks and balloons to earn more time. And in Partner Party, it is literally impossible to move unless both

[16]This also happens in Mario Party when players win team-based games. However, it is far less frequent than in Partner Party, hence why I discuss it here.

players roll their dice. Although this hardly a big ask, players must also have faith that their partner will stick to whatever plan was developed as opposed to gallivanting around without rhyme or reason.

But across all of the game modes, the main way procedural trust is expressed is through the minigames. Most of the minigames involve some form of cooperation, whether one vs. three, two vs. two, or entirely cooperative. Some games are structured so that victories are more on behalf of the team than because of the team. For example, one two vs. two minigame involves all four players piloting a plane, dodging obstacles. The team of the last plane standing wins—but teammates are also trying to outlast each other. Many if not most cooperative minigames, though, require players to act independently but in complementary ways. In the aforementioned two vs. two minigame where players sketch characters from memory, one teammate controls movement on the vertical axis, the other controls movement on the horizontal axis. It is impossible for one to win without the other and both must have faith that the other will pursue this shared goal. Ultimately, players need to trust each-other's capabilities and intent in order to succeed—whether the aim is to gain more stars or add more time to the clock.

7.1.4 *Quiplash*

7.1.4.1 Game description

Like *Super Mario Party*, *Quiplash* (developed by Jackbox Games in 2015) is considered a party game. That is, it is played by a group of people occupying the same physical space. Unlike Super Mario Party, however, *Quiplash* does not contain a single-player option. *Quiplash* requires three human players before the game begins and does not feature any AIs. After connecting to a dedicated online server via their phone, tablet, or computer, players are provided with a series of open-ended prompts for them to answer. They have approximately 45 seconds to answer questions like "[give] a name for a brand of adult diapers," "what would you do if you were left alone in the White House for an hour," and "a not-very-scary name for a pirate." Two human players are randomly chosen to receive the same prompt on their internet devices and have to give a competing answer. Those who did not receive that particular prompt serve as judges, who will

Figure 7-4. Audience member (Player 1) selecting which of the two options to the prompt (top-middle) they prefer. Players are provided with prompts on a personal internet-connected device which are secretly also provided to another player. The audience will vote for their preferred response and the answer with the most votes gets the most points. Some questions explicitly deal with moral, social, or political issues. Sometimes, though, the mattering comes from the content of the players' responses.

vote to determine which of the two is the collective favorite. The game encourages these answers to be funny and ludicrous, so players are ultimately competing to see who can have the funniest zinger given the group that they are playing with. A virtual host, a character by the name "Schmitty," reads out the prompts before presenting the answers created by the players. Points are doled out based on the percentage of judges supporting an answer. Players will go through three rounds, answering one or two questions per round, and the player with the most points at the end of the game wins.

7.1.4.2 Hosting groups

Although *Quiplash* requires an internet connection, the game does not feature match-making. Participants can only play with those who were also given the unique "room code" provided to the host when the game is booted-up. Access to the code, and therefore the

ability to play the game at all, is at the host's discretion—usually by virtue of deciding to allow the other players into their home. And if people are not comfortable inviting total strangers into their homes, they are undoubtedly even less comfortable giving them the wifi password. In terms of its ability to host social groups, *Quiplash* is most similar to Super Mario Party in that it is focused more on providing a space for groups of people who already know each other to strengthen members' connections to each other through play. As is often erroneously attributed to Plato (the earliest evidence for it comes through writer Richard Lingard in 1670): "If you would read a man's disposition, see him play, and you will then learn more of him in one hour, than in seven years' conversation." This is especially true when finding out just what one would do if given an hour in the Oval Office alone—or at least the first humorous thing that they can imagine themselves doing given the opportunity.

7.1.4.3 Interpersonal communication

It is a good thing that play is a more economical way to learn about someone than conversation, because *Quiplash* does not leave much space for talking. While players are able to communicate face-to-face, the game does not give them enough time to get in more than a few quips (pun intended) during the actual game. All players are instructed to type their responses to the prompt at the same time and, unlike rolling a dice and watching their avatar automatically run around the map, answering unusual questions in a creative and comedic way can be a surprisingly intensive cognitive task. Even if players answer their prompts early, the maximum amount of time they have to converse while in the game is generally less than a minute. The players are then all shown one of the prompts, the competing answers flash on the screen, judges are told to vote, votes are tallied, players are awarded their points, and the next prompt is shown—all in about 90 seconds. This rapid-fire pacing is what allows entire games to be finished in 10-15 minutes. Unfortunately, it also strongly discourages any substantial conversation from transpiring.

Where *Quiplash* manages to best encourage communication is not during the game but, ironically, after it ends. Or, since its brevity and humor easily lends itself to repeated play, during the time in-between games. After the final points have been tallied and a winner is declared, all

players are shown a credits sequence and the player who initiated the game is given the option to play again or return to the main menu. This decision is entirely self-paced and, in my admittedly anecdotal experience, people tend to spend at least a few minutes talking before making their decision. These topics will often include, or at least be tangentially related to, things brought up during the game. Indeed, as if to directly encourage this, the credits also cycles through a list of the most popular answers from the previous game as well as the prompts that inspired them.

The political, social, and moral relevance of the answers (and, by extension, the relevance of the ensuing conversation) is undoubtedly related to how politically in-tune the audience is. But the prompts themselves also play a role in the likelihood of political conversations. Aside from the "what would you do if you were left alone in the White House for an hour" example from earlier, other prompts include "Jesus' REAL last words," "George W. Bush and Dick Cheney's rap duo name," "The best part about being Donald Trump," and "USA! USA! America is still number one in..." Not all questions contain such topics—and since the game randomly selects its questions from a massive pre-constructed bank, it is theoretically possible for an individual game to offer zero politically-relevant questions at all. But they are frequent enough that repeated play will all but guarantee that one such topic will be presented to the players for their comedic consideration.

7.1.4.4 Cooperation and reciprocity

Of all the multiplayer games I analyzed, *Quiplash* undoubtedly has the lowest ability to encourage cooperation and reciprocity. There are no parts of the game where players are instructed—or even subtly encouraged—to work together. Players are individually trying to come up with their best answers and, at the end of the game, only one can sit atop the leaderboard. Further, there are clear design choices that actively reduce opportunities for reciprocal action. Players do not know who else received their prompts and judges are not given the identities behind the competing answers until after the votes are tallied. Players cannot do things like swap votes or enter mutual-support pacts. Even if they could, the fact that competitors are randomly assigned makes any coalition unstable.

While *Quiplash*'s structure is unique to the games I study here, it is not unique in gaming. Many sports games, for example, are predominantly competitive and there are not many opportunities for anything of value to be exchanged. If players are not expressly working towards the same in-game goal and they do not have anything of value to give to each other, one might think that it is impossible for these kinds of games can facilitate social capital. This view reflects how social science disciplines like economics, psychology, political science conceptualize cooperation and reciprocity. I would argue, though, that it ought to be expanded with insights from sociology.

The predominant view of many social scientists is that reciprocity entails the direct exchange of something valuable between people or groups. Person **A** helps Person **B** fix their car, **B** is a reference for **A**'s next job search. **B** gifts **A** a lasagna during a trying time, **A** buys things from **B**'s kids' school fundraiser. Whether it is information or tangible goods, value is exchanged in a sort of tit-for-tat fashion. But reciprocity can involve less-direct and less-bilateral methods of exchange (Molm, 2010; Torche & Valenzuela, 2011) and the things exchanged need not have such obvious utility (K. S. Cook & Rice, 2003). The thing exchanged could simply be positive feelings; people agree to undertake a course of actions that will make others in the network happy for the sake of happiness itself. We can understand cooperation and reciprocity in *Quiplash* and games like it to follow that general principle. People agree to a low-stakes competitive game with the overall intent of having fun. Although the actions players take are against (or at best indifferent to) each other's in-game interests, they represent cooperation towards this meta-game goal. The effects stemming from this kind of cooperation will undoubtedly be less effective than explicit reciprocal exchange and will originate from preexisting social capital, but that does not mean it is not there and that it is not worth at least mentioning.[17]

[17]One concern about this argument is how easily it can be applied to every game involving multiple people. After all, a ubiquitous phenomenon, or one purported to be everywhere and explain everything, is of no use to understanding human behavior. On the one hand, I aver that we should be prepared to apply this to a large proportion of video games because, at the end of the day, they are still games—things that people play to get some kind of enjoyment. But I would also like to reassure that it cannot apply to every multiplayer game. Part of this comes from the fact that not all games anchor long-term groups, making player interactions largely anonymous. Even when games do facilitate group play, it could be structured in a way that encourages "othering." (This might be seen in team-based shooters like C*all of Duty* or *Battlefield*.) Just as importantly, not all competitive game experiences are as low-stakes as *Quiplash*. The

7.1.4.5 Procedural trust

Similar to its level of cooperation and reciprocity, *Quiplash* has the lowest level of procedural trust of all the games I analyze. Because the game does not involve any cooperative elements, there is very little cause for players to have faith that others will do something in-game. In fact, it is more about having faith that others will not do something. You have faith that other players will not look at each other's screens, that they will not help each other come up with funny answers, or abuse the fact that their device is connected to the internet to search for a killer punchline. However, this is is really tantamount to hoping that other players will not cheat—which is really just the baseline expectation in any game involving multiple people. Additionally, there are no mechanics that encourage players to rely on each other. The only thing that participants are relying on is for at least one player to submit at least one answer per round. Anything less (that is, doing nothing) will cause the game's virtual host to throw a tantrum and send the players back to the main menu. But one step above doing nothing is a very low bar and can hardly be considered a mechanism encouraging procedural trust in the players.

While these low levels of procedural trust may offer a minuscule contribution to social capital, trust in such games is probably most productively understood as an outcome rather than a process. Of course, trust as an outcome is also incredibly important for understanding social capital. However, as mentioned at the beginning of this section, it is not something that can be reliably revealed through these in-depth case studies. All that can be said is that *Quiplash*'s level of procedural trust is low, but that the other factors still suggest that it is capable of generating and maintaining social capital (albeit, perhaps not as well as the other games).

7.1.5 Summary

The ultimate point of these case studies is to illustrate how multiplayer games can encourage the kinds of social connections political scientists know to be relevant in political action. Looking to the four necessary criteria for social capital, I show that all four games

higher the stakes, the less players will presumably care that they are all there for fun and the more that they will be preoccupied acquiring gains and/or avoiding losses. (This might be seen in games with competitive leagues like *CS: GO* and *Overwatch*.) There is, then, a large universe of games where this generalized reciprocity argument would be misplaced.

facilitate group play, allow communication, encourage some form of reciprocity, and all but *Quiplash* demonstrate substantial elements of procedural trust. The point I want to stress most from these treatments is that there is no singular, cookie-cutter way that games facilitate social capital. No two games met the criteria in the exact same way but, with the aforementioned exception of *Quiplash*, meet all the criteria they did. This is good news for my social gaming hypothesis. If there was only one way that games facilitated politically relevant connections, then the overall link between social gaming and political action would be rather fragile. The multiplicity of paths, twisting and turning in line with their own idiosyncrasies but ultimately arriving at the same place, bolsters the logic linking the two; it suggests a robustness to the phenomenon that is not visible through the quantitative analyses alone.

That is not to say that there are not meaningful, structural differences. Games played in physical spaces tend to be more focused on hosting preexisting groups while online games provide a space for such groups and opportunities to join new ones. Online games tend to have a higher focus on strictly verbal communication. Although online play allows other kinds of communication, and can simulate physical gestures through things like emotes, they do not allow for the same depth that is found when games are played in the same physical space. In a similar vein, online games provide greater chances for talk (political and otherwise) with those outside one's network through match-making algorithms. However, unless players make the next step to include those they meet into their friendslists, these connections are generally short-lived.

The opportunities for cooperation and procedural trust have less to do with the space that the game occurs in and more to do with the structure of its objectives. Of the four, *Destiny 2* tends to have the most cooperative content—in terms of amount as well as intensity, followed by *Super Mario Party* and *Fortnite*. Procedural trust flows roughly in that order too. *Quiplash* is the least cooperative out of the four as its scope is more about the meta-pursuit than the in-game experience and it is also the only game totally lacking in elements of procedural trust. These differences reflect the varying ludic elements of these games—their rules, structures and constraints. The ability of players in *Destiny 2* and *Fortnite* to revive each other stems from

concerted choice on the part of the games' developers. The same can be said of the inability of *Quiplash* players to form alliances or swap votes. The variation in these opinions is less about the space that these games take place in and more about what players are encouraged (or even permitted) to do once they get there.

It is difficult to imagine that these structural differences will have zero influence on one's political activity. Games with more cooperation and reciprocity may, in general, encourage additional political actions. Games relying solely on voice chat as the medium of communication may have a more difficult time convincing people to do more costly activities since it is easier to lower various costs of engagement when one is physically there. It is hard to carpool to events when you and your prospective protest-buddy live in entirely different hemispheres—although discussions of things happening thousands of miles away may yet increase one's feeling of needing to be interested and involved at home. These are relatively straight-forward effects; other relationships may be more nuanced. Competitive games in the same room may result in more activity than cooperative ones played online—or, at least, it may take fewer competitive real-world games to achieve the same result as cooperative on-line games. Games with longer, more involved encounters may result in more civic engagement independent of the amount of procedural trust.

A lot of "mays" but few "wills." At the end of the day, these are just the initial suppositions of a line of inquiry that is just beginning to take place; there is lots of room for future research on this topic. The lack of a direct measure for political participation and civic attitudes in these games makes it impossible for the case studies to test the speculation one way or another. The emphasis then, should be on what they do show: That multiplayer games can lead to social capital and can do so in a variety of ways. In order to see if social gaming does in fact lead to such outcomes, I now turn to the quantitative elements of this chapter—starting with my cross-sectional survey evidence.

7.2 Social Gaming and Political Behavior

If social gaming is to be said to cause increased civic attitudes and participation,the first step is to see whether there is a positive, statistically significant relationship between social gaming and increased civic attitudes as well as social gaming and political participation. I first investigate the effects of social gaming on civic attitudes before turning to its effects on political participation.

7.2.1 Social Gaming and Civic Attitudes

In the previous two chapters (Chapters 5 and 6), I showed that both the content of games and feelings engendered through individual interactive experiences can raise civic attitudes. But social games, as I will explore at the end of this chapter, often skimp out on politically-relevant content. Even multiplayer modes hosted in games that are otherwise very politically relevant tend to put the story on the back-burner and allow the game to simply play host to the lives of players and their friends. Can games evince stronger civic attitudes in the absence of these effects through social connections alone? To answer this question, I turn first to the YPPSP before turning to the GAmEPLS survey.

7.2.1.1 YPPSP data

The YPPSP is a series of surveys that investigated the political behaviors of "youth" (defined as those between the ages of 16 and 27) in 2011, 2013, and 2015. The questions in each wave were posed to a nationally representative sample of American youth, with deliberate oversamples of Black and Hispanic respondents to ensure appropriate estimation of those populations. Unlike the 2008 Pew research data analyzed back in Chapter 5, the YPPSP did not have a battery dedicated to civic attitudes. However, following Pavel Bacovsky's example in his investigation of social capital and youth gaming in Sweden 2020, I use political interest to proxy civic attitudes more generally. Although the lack of additional variables is lamentable, both the Pew data and the data I collected in the experiment featured in Chapters 5 and 6 show that political interest strongly correlates with more holistic approximations of civic engagement generated through multiple variables (see also Tables B-1 and B-11). Political interest in the

YPPSP is measured by asking respondents whether they "Strongly disagree," "Disagree," "Agree," or "Strongly agree" with the following statement: "I am interested in political issues."

How then to measure social gaming? In all three waves of the YPPSP, survey respondents were asked how frequently they engaged in a variety of different political activities as well as how often they "participate in a game community, guild, competition, etc." Communities, guilds, and competitions are all inherently social as they involve multiple people. This is opposed to simply "[using] a gaming device that connects to the internet," which can be understood to play games both socially as well as by oneself.[18] Players could respond that they "never" did so, that they did so "less than once a month," "at least once per month," "at least once per week," and "at least once per day."

In order to measure the effect of social gaming on political interest, I estimate three statistical models using ordered-logistic regression—one for each of the survey's waves. Each model contained a number of control variables to reduce the chance that the relationship is explainable by a spurious cause, including education, race, income, gender, and age. I expect that the more often that people play games, the more interested they are in politics. The use of ordered-logistic regression here allows me to predict how probable it was that a respondent picked "Strongly disagree" (or any of the other three choices, for that matter) and see how this probability varied across different rates of participation. If gaming increases political interest, I would expect that probability that someone picked "Strongly agree" or "agree" would increase as the frequency of social gameplay increased and that the probability that a respondent picked either of the "disagree" options would concomitantly decrease.

Figure 7-5 illustrates the results of my three models testing exactly that assertion. Each panel represents one of the three years in which the YPPSP was fielded. Each shaded shape

[18] This latter question was asked in the 2011 wave of the YPPSP. If the "game communities" question predominantly tapped-into single-player gaming as opposed to social gaming, we would expect a substantively large and statistically significant correspondence between the two variables. The correlation between the two is statistically significant (Spearman's $\rho = 0.372; p < 0.001$). This makes sense as one would require a gaming console to connect to the internet to play in the online communities, meaning that there is opportunity for single-player play as well. However, the size of the correlation, while not unsubstantive, shows that there is not a simple $1:1$ correspondence between the two items. Thus, the social gaming question does address a substantially different kind of gaming experience than the one asking simply about gaming without any reference to social activity.

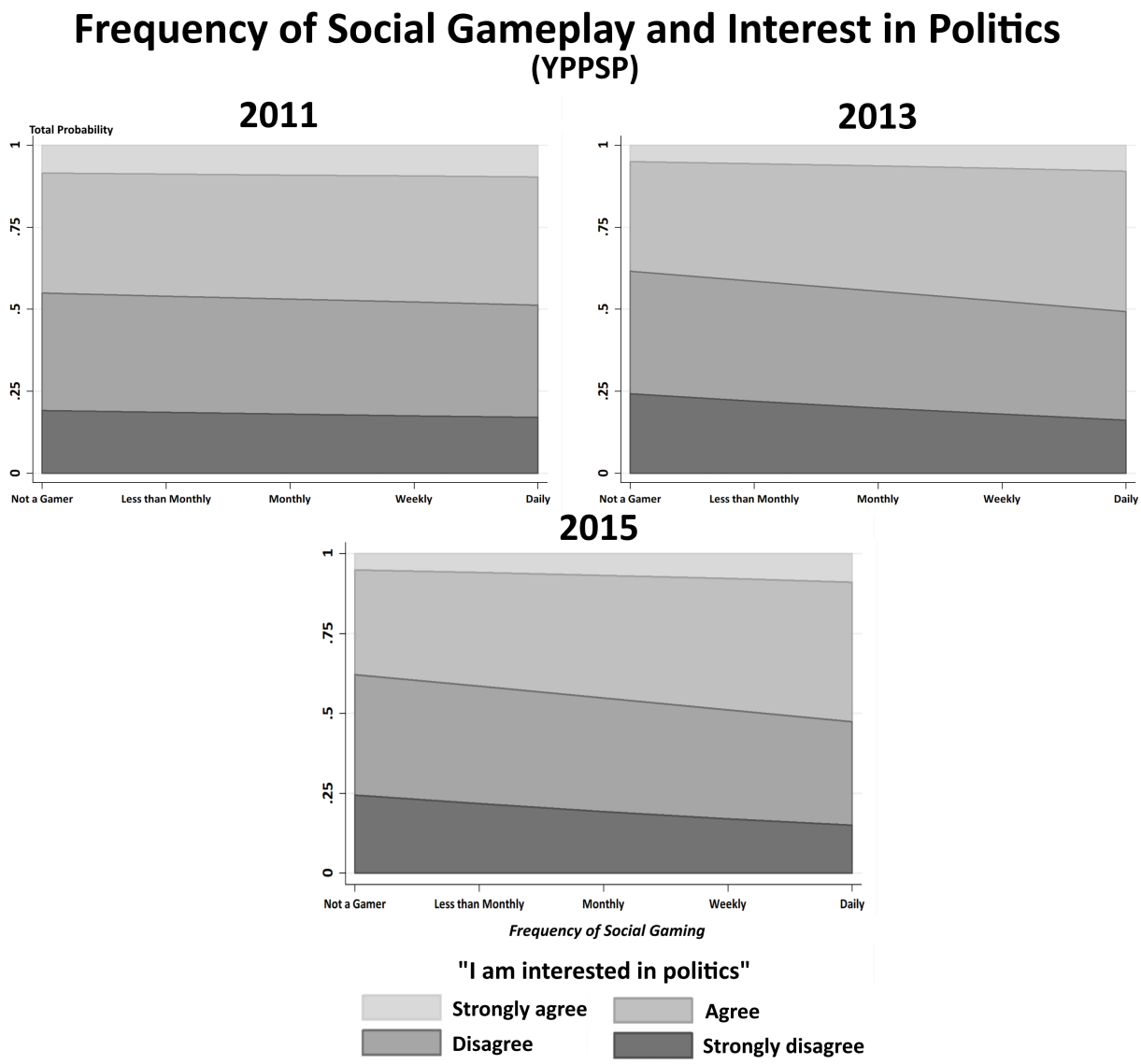

Figure 7-5. The association between the frequency of social gaming experiences and interest in politics in the 2011, 2013, and 2015 YPPSP surveys. The different colors represent different amounts of interest that respondents could profess in politics; the lighter the shading, the more interested they claim to be. Each chart investigates the relationship for each year of the data measured by three ordinal-logistic regression models (all other variables held at their means). The X axes represent how frequently respondents play games socially and the Y axis is the probability that respondents fall into any of the four groups. In 2013 and 2015, the more that people played, the more likely it was that they would be interested in politics and the less likely it was that they would "strongly disagree" with being interested. See Table D-1 for the regression outputs.

within the panels represents one of the four levels of interest that the players could select from Strongly disagree (the darkest) to "Strongly agree" (the lightest). The X axis represents the

frequency that people could play games from least to most frequent and the Y axis reflects the total probability spanning from 0–1. The amount of space the shapes take up on the Y axis represents its share of the total probability, large shapes are more probable and small shapes are less probable. If the hypothesis were to be correct, we would expect that the lighter shades would take up more and more of the space as each image moves from left to right on the X axis.

This is indeed what we see. Across all three years, the models estimate that people will be more politically interested as the frequency of gaming goes up. Although there is an uptick in those who "Strongly agree" with the statement as respondents report playing games more frequently, the strongest gains are seen in those "Agree." In both 2013 and 2015, those who never played games socially had a 33 percent chance of agreeing that they were interested in politics. Those who played socially once a month had a 38 percent chance of agreeing with the statement. Those who gamed every day had a 43 percent chance. In 2011, these figures were 36 percent, 38 percent, and 39 percent, respectively.

Although the models estimate similar patterns regarding shifts in the probability, one will readily notice that it is not as consistently strong in all three—especially when we compare 2011 to 2013 and 2015. This is because, although the effect is estimated to be positive, the relationship was not statistically significant in 2011. Increased gaming cannot be said to be associated with increased political interest ($p = 0.138$) in that year—although more social gaming is associated with greater political interest in 2013 ($p = 0.002$) and 2015 ($p = 0.001$).

These figures are simplifying the relationship between the two variables by imagining that one could pick any value on a continuous scale between "never" and "daily." However, we know that survey respondents were limited in the choices they could give. There were vast seas of infinities that they were prevented from using to characterize their social gaming habits; all they could give is one of the five above-mentioned options. It is important, then, to make sure that there were differences between each step on the social gaming scale. In order to test this, I estimated the statistical significance of the contrasts between each level and the one preceding it. (That is, whether the gap between "Less than monthly" and "Never" were significant as well as

that between "Monthly and "less than monthly" and so on.) This resulted in five estimated differences per year for 15 total tests. As might be expected from the fact that the overall relationship was insignificant in 2011, none of the contrasts between levels were significant ($p_{min} = 0.118$; $p_{max} = 0.145$). However, in 2013 and 2015 all of the contrasts were significant ($p_{min} < 0.001$; $p_{max} = 0.004$). For 2013 and 2015 then, the evidence in the YPPSP suggests that increased social gaming was associated with increased political interest—and that each step-up in the frequency had higher expected levels of interest than those before it. Ultimately, the preponderance of results gathered from analyzing the YPPSP data suggest that social gaming is positively associated with increased political interest.[19]

7.2.1.2 GAmEPLS data

However, as the project's name indicates, the YPPSP is a survey that is focused on American youth. It is important to see if this relationship generalizes to American adults overall. In order to ensure that the results could actually be extended to Americans in general, I fielded the GAmEPLS survey to a nationally-representative sample of nearly 780 American adults through YouGov in the spring of 2019. Additionally, the YPPSP only asks respondents how frequently they play games with others online—but that is only one way that people can play games together. I identified four different ways that people could hypothetically play games, varying on where respondents were playing and who they were playing with: They could play games with friends online, play with strangers online, play with friends in the same room, or play alone. (By and large, people do not tend to play with strangers in the same room—unless they are all at an arcade or at a house party with a host cool enough to own a Game Cube and a copy of *Super Smash Bros. Melee.*) I asked respondents how often they played these kinds of games and they could respond as either not being a gamer "never" (as in, never play games in this way but still play games), "rarely," "sometimes," "often," "very often." I expect that rates of all three kinds of social

[19] One possible concern with these results is that the data may be biased by the fact that those who carry on to 2015 may be more pro-social and, thus, more likely to see a positive relationship between pro-social gaming and political interest. To test this, I ran two additional ordered logistic regression models to see if there were differences in the substantive results between those who dropped out after responding in 2013 versus those who were willing to participate again in 2015. The results were statistically significant and positive in both subsamples.

gaming—that is, playing with friends in the same room or online as well as playing with strangers online—will be positively associated with higher civic-attitudes.

Like the YPPSP, the GAmEPLS did not contain a battery of questions designed to look at civic attitudes broadly defined. Here again then, I use political interest as a proxy. Interest is operationalized by asking respondents how frequently they engage with politics: "Hardly at all," "every now and then," "some of the time," and "most of the time." Like with the YPPSP variable, this can be ordered on a scale from least interested ("hardly at all") to most interested ("most of the time"). I estimate four ordered-logistic regression models, one for each kind of socially-oriented play. I expect that playing together more frequently will lead to higher proportions of people being classified as being more interested in politics. Those playing alone, however, will not see this increase in interest.

The results are seen in Figure 7-6. As before, each shaded shape represents one of the four answers available to the respondent. The darkest color represents the lowest level of interest ("hardly at all") while the brightest colored represents the highest level ("most of the time."). The X axis features the frequency of social play and the Y axis captures the total probability. For those playing with friends and strangers alike, if my expectation is correct, the shapes visualizing higher amounts of interest will grow larger as the frequency of gaming increases. For playing alone, these shapes should roughly stay the same.

This is exactly what is seen. Playing games with friends in the same room more often is significantly associated with increased political interest ($p = 0.005$), as was playing more with friends online ($p = 0.007$), and strangers online ($p = 0.034$). Those who never played game were estimated to have a 52 percent chance of saying that they tuned-in to politics "most of the time," those who who "sometimes" played games with friends in the same room had a 64 percent chance of saying they maximally interested, and this probability shot up further to a 71 percent chance that they said they "very often" played with others together. The figures were barely changed for those who played with friends online or with strangers online: Playing with others "sometimes"

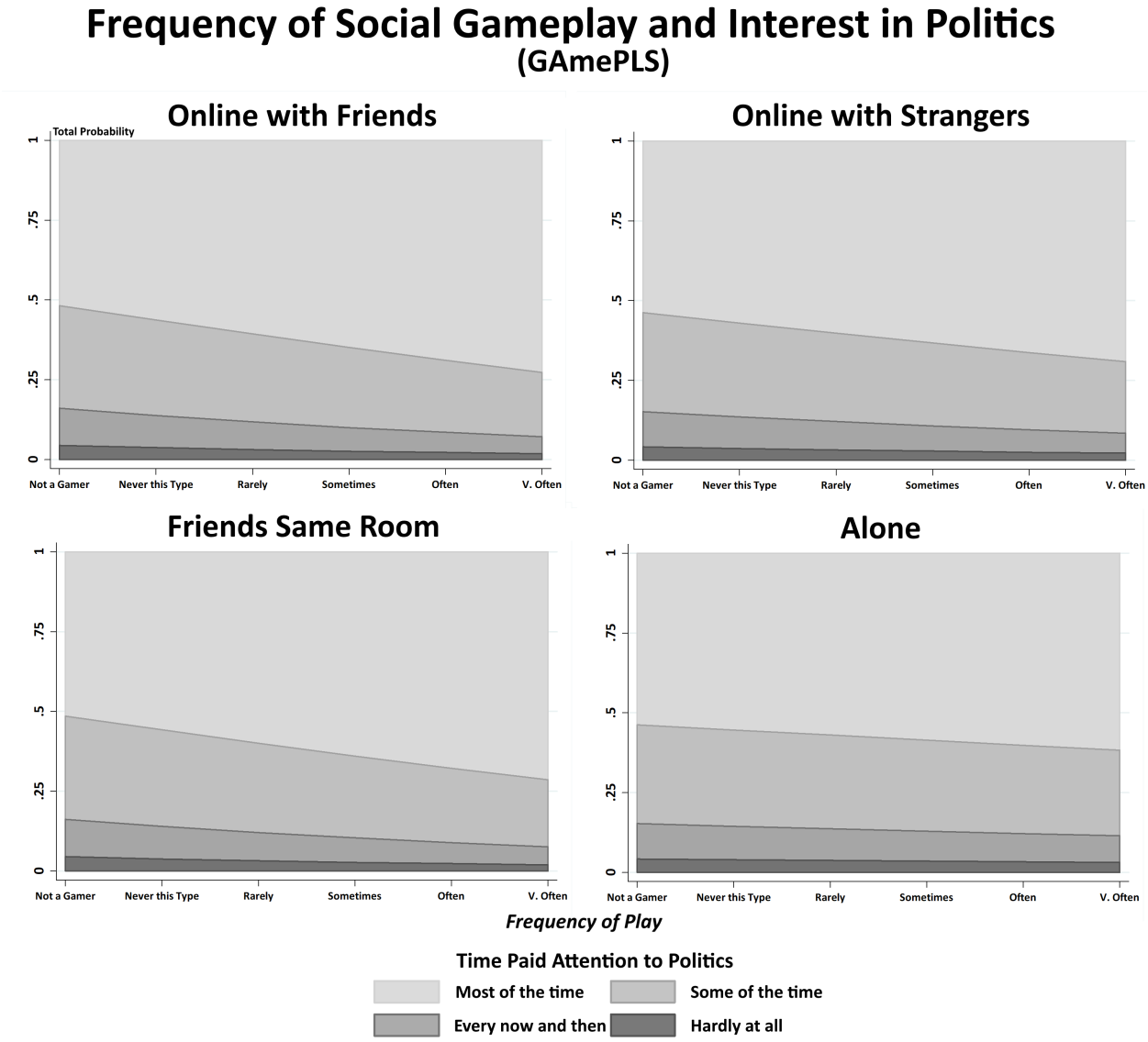

Figure 7-6. The association between the frequency of social gaming experiences and interest in politics in the GAmEPLS survey. The different colors represent different amounts of interest that respondents could profess in politics; the lighter the shading, the more interested they claim to be. Each chart investigates the relationship for each year of the data measured by three ordinal-logistic regression models (all other variables held at their means). The different panels represent the different forms of social gaming investigated in the survey. The X axes represent how frequently respondents play games socially and the Y axis is the probability that respondents fall into any of the four groups. The more that people played socially, the more likely it was that they would pay attention to politics "most of the time." However, this association was not present for those who did not play socially—those who play "alone."

was associated with a 65 and 63 percent chance of choosing the highest amount of interest and playing with others "very often" was associated with a 73 and 69 percent chance. As before, I tested to see if the contrasts between each step-up in frequency were statistically significant. In general, I found that a one step increase in these three models was associated with additional levels of interest compared to the one immediately preceding it ($p_{min} < 0.001$; $p_{max} = 0.029$). There were, however, two exceptions: Never playing this way (while still playing games overall) was not significantly different than not playing games ($p = 0.079$) in the model investigating playing with strangers, nor was "rarely" playing games with strangers and not playing in this way ($p = 0.053$). These exceptions aside, the preponderance of contrasts suggest that each step up in frequency corresponds with higher levels of interest compared to the one before.

But, as expected, this relationship was not found with gaming alone. While the effect is estimated to be positive, it is not statistically significant ($p = 0.114$). Even if it were significant, the size of the effect is drastically smaller than the other three kinds of gaming. Non-gamers in this model were estimated to have a 53 percent chance of indicating the highest amount of interest. For those who "sometimes" played alone, it was 58 percent; for those playing alone "very often," 62 percent.[20] And as expected with an overall insignificant relationship, I found that the contrast between rates of play were not significant as well ($p_{min} = 0.096; p_{max} = 0.181$). In short, the results are strongly consistent with the idea that social gaming is associated with higher levels of political interest. Not only is it seen in the positive results for the three kinds of social play tested in the survey, it is substantiated by the null results seen in solitary gaming. After all, if gaming alone was also significant, then there is little reason to believe that there is something special about playing with others versus the act of simply playing games in the first place.

[20] I suspect that the positive trend is a result of including people who play socially, morally, and politically relevant games alone. As seen in the last two chapters, this content can increase civic attitudes. A likely reason why it is not significant here is because those who play alone may not necessarily be playing a game that matters. In that case, it is likely that the effect is null or possibly even negative as just gaming alone may eat-up time that might otherwise be spent engaged in actions that increases civic attitudes.

All in all, the results from both the YPPSP and GAmEPLS survey suggest that playing video games with others is positively correlated with political interest. The next step is to see whether or not social play is also associated with increased political participation.

7.2.2 Social Gaming and Political Participation

7.2.2.1 YPPSP data

I again start with data provided by the YPPSP. What the survey lacked in civic attitudes, it abundantly made up for in the number and breadth of political actions. There were 19 different questions that looked at political participation that were shared across all three waves—and several more that were individual for each wave. The 19 included attending a meeting or rally, boycotting/buycotting goods for sociopolitical reasons, creating and circulating political media online, signing a petition, voting, protesting, and wearing a campaign button. looked at all of the forms of participation available and measured whether participants did (1) or did not (0) perform the action. On variables asking about how frequently one engaged in a particular political act (e.g., how often people talk about politics with their family) those who claimed to do it more often than "never" were coded as having performed the act (1). I then added up all of the answers into a set of political participation indices. Higher numbers mean that individuals engaged in more political actions while lower numbers mean that they were less active. The average participant engaged in 3.1 actions in 2011, 3.5 actions in 2013, and 2.6 actions in 2015.

Because these variables are counting the total number of actions taken, I use a regression model to estimate how the frequency of social gaming will increase the expected number of actions undertaken.[21] As before, I include pertinent control variables (age, gender, race, income, political interest, and education) in the model to reduce the chances of a spurious relationship. I expect that, in all three years, the frequency of social gaming will lead to an increase in the expected number of actions people perform. Put more simply, the more people game, the more they are expected to participate.

[21] Specifically, because these data demonstrated overdispersion, I used negative binomial regression.

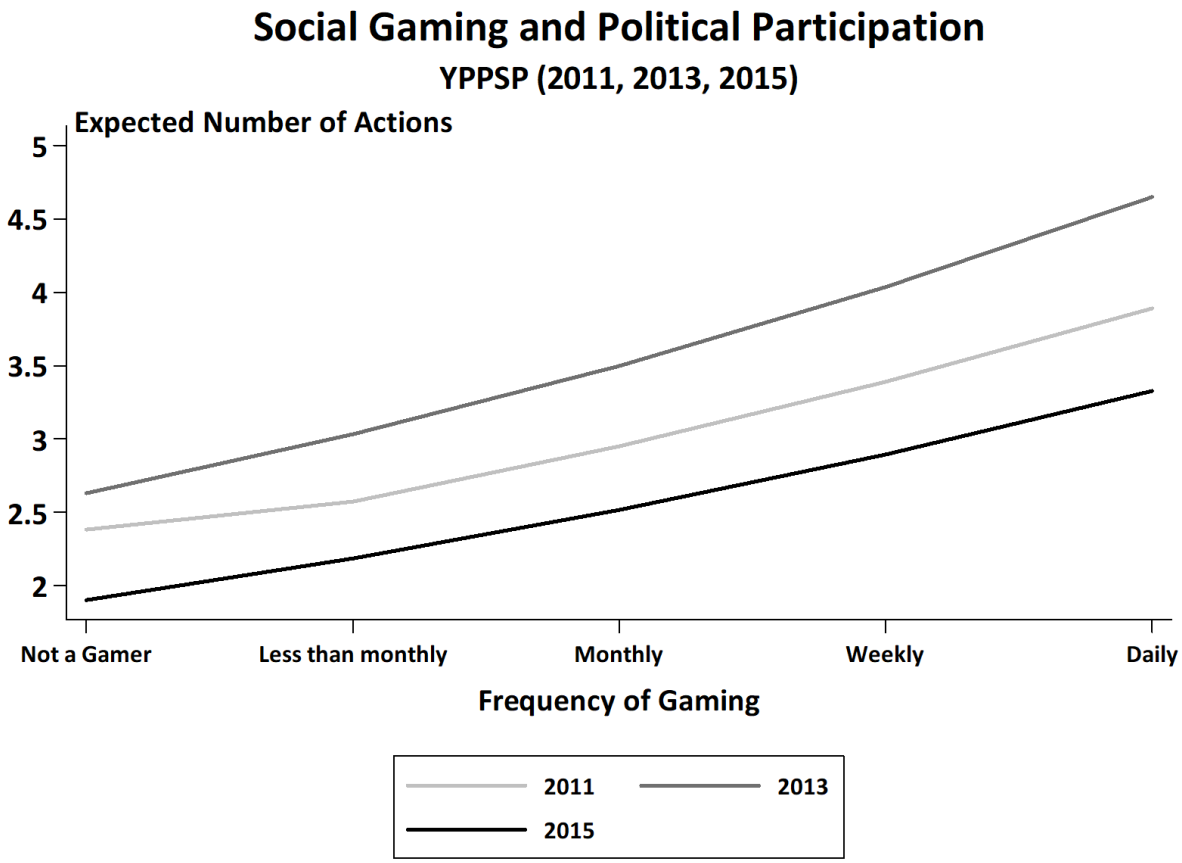

Figure 7-7. The association between the frequency of social gaming experiences and political participation in the 2011, 2013, and 2015 YPPSP surveys. The different colors represent different waves of the data and each reflects the predicted number of actions as estimated by a negative binomial regression model (all other variables held at their means). The X axes represent how frequently respondents play games socially and the Y axis is the number of actions respondents were expected to take. In all three waves, the more that people played socially, the more they were expected to participate politically. See Table D-3 for the regression outputs.

The results are visualized in Figure 7-7. Each line represents one of the three years in the YPPSP. The Y axis represents the estimated number of actions taken and the X axis represents the frequency of social gaming. Across all three years, I find that gaming is positively and significantly associated with political participation. More frequent game play (that is, moving from "less than once a month" to "once a month" or from "once a week" to "daily", and so on.) is predicted to lead to a 14.8 percent increase in the number of political actions taken in 2011 ($p < 0.001$), a 15.3 percent increase in 2013 ($p < 0.001$), and a 15.0 percent increase in 2015

($p < 0.001$). These are not trivial effects. In 2011, those who never gamed were expected to perform roughly 2 actions, those who played online with others at least once per month were expected to perform nearly 3 actions, and those who played with others daily were expected to perform just shy of 4 (3.9) actions. In 2013, non-gamers performed an estimated 2.6 actions, infrequent gamers performed 3.5 actions, and frequent gamers performed 4.7 actions. And in 2015, non-gamers performed 1.6 actions, infrequent gamers performed 2.5, and frequent gamers performed 3.2. Across all three years, frequent gamers were expected to perform about two additional political actions than those who did not game at all.[22]

As with civic attitudes, these models are simplifying the relationship by treating the frequency options as continuous when, in fact, they were individual steps. In order to see if additional online social gaming really was associated with higher values, I tested to see if the gap between each level and the one before it was statistically significant. Across all three years, each contrast was in fact statistically distinct from the others ($p_{min} < 0.001$; $p_{max} < 0.001$). This strongly suggests that playing games more frequently was associated with higher levels of political participation. The more respondents played together in 2011, 2013, and 2015, the more involved they were in political actions.[23]

7.2.2.2 GAmEPLS data

While the YPPSP consistently shows a positive, significant association between social game play and political participation, the data are just as limited here as they were for civic attitudes: That is, they investigate only American youth and only test the effects of social gaming as it transpires online. The GAmEPLS survey ameliorates both of these concerns by polling a nationally representative sample of American adults and by investigating various ways that people can engage with games. It also gives me the opportunity to investigate not only if social gaming encouraged more distinct kinds of political acts, but also to see if it is associated with doing each

[22] While we ought to be cautious in comparing figures estimated from different models, a likely reason for why the number of actions peaked in 2013 is because this was directly following a presidential election year, which tends to inspire higher amounts of political activity compared to midterm years.

[23] As with civic attitudes, there were no substantive differences in the conclusions between those who would and would not go on from the 2013 survey to participate in 2015.

action multiple times—looking at another, but equally important, way of thinking about "increased participation."

As with the YPPSP, the survey asked if participants performed a variety of political actions—although I focused only on nine actions: Participated in a protest or demonstration, engaged in a boycott for social or political reasons, volunteered for a political party or candidate, donated to a political campaign, volunteered with a charity, donated to a charitable cause, signed up to receive information from a candidate or campaign digitally, contacted an elected or government official, and voted. Respondents could answer that they did not do this action, that they did this action once, or that they did this more than once. I coded both kinds of yeses as 1 and no as 0, and made an index that counted the number of actions that the respondent performed. As before, I used statistical models designed to work on count data, including race, gender, age, party identification, political ideology, and income as controls. I estimated four of these models: One looking at the frequency of playing with friends in the same room, one looking at playing with friends online, one looking at playing with strangers online, and one looking at playing by oneself. I expect that increased frequency of social gaming will be associated with a higher number of expected actions but that this relationship will not be found with playing games alone.

Figure 7-8 visualizes the results. Each colored line is one of the four different kinds of gaming. The Y axis is the predicted number of actions and the X axis is the how frequently each kind of social gaming occurred. Each step-up in the frequency of playing with others in the same room was estimated to have an 8.1 percent increase in the expected number of actions respondents performed ($p < 0.001$), increased play with friends online was associated with an increase of 8.6 percent ($p < 0.001$), and an additional 7.8 percent for increased play with strangers online ($p < 0.001$). However, there was only an estimated 1.6 percent increase in the number of actions expected with each step-up in solitary gaming—an increase that was not statistically significant ($p = 0.142$).

As could be surmised by the basically-flat line, playing alone more often was not estimated to carry much of an effect: The difference between those who "never gamed" as well as those

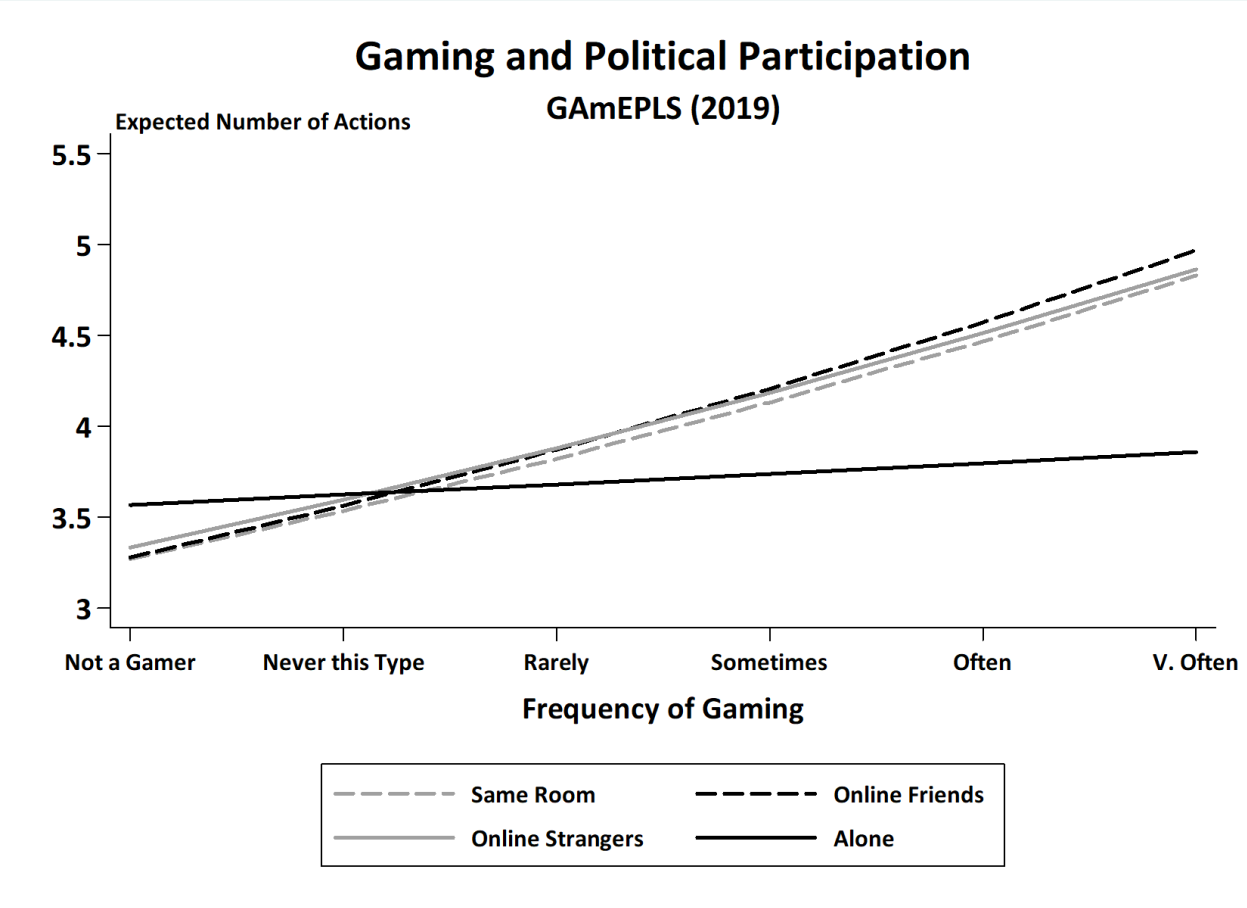

Figure 7-8. The association between the frequency of social gaming experiences and political participation in the GAmEPLS survey. The different colors represent different forms of social gameplay measured in the survey. Each line reflects the predicted number of actions as estimated by a negative binomial regression model (all other variables held at their means). The X axes represent how frequently respondents play games socially and the Y axis is the number of actions respondents were expected to take. For all kinds of social gameplay: The more that people played, the more actions were expected to undertake. This was not the case for those who gamed alone. See Table D-4 for the regression output.

who "very often" played alone was a whopping 0.3 extra actions. However, the effect associated with the three kinds of social play was fairly substantial. For those who played with friends in the same room, playing this way "sometimes" was estimated to be associated with nearly one additional action (0.9) performed compared to those who did not game at all— and those who played with friends in the same room "very often" were expected to perform over half an additional act (0.7) on top of that. Much the same can be said for those who played with friends

online as well as those who played with strangers online. As before, I tested to see if the gap between each discrete level of social play was statistically higher than the one previously. Without exception, it was ($p_{min} < 0.001$; $p_{max} < 0.001$). Playing more socially was significantly associated with substantive increases in the number of political actions respondents were expected to perform while playing more by themselves was not. In short, increased social play was associated with increased political activity.

But so far, both the YPPSP and GAmEPLS surveys have conceptualized "participating more" as engaging in more types of actions. But another way of thinking about "participating more" is whether or not respondents were more likely to engage in these individual actions more frequently. That is, seeing those who game more protested multiple times rather than protested as part of a larger suite of activities. Does gaming socially make people participate more often as well as in more distinct acts?

Recall that GAmEPLS survey's participation items did not just ask respondents if they had or had not performed the action; it also asked if they had performed it more than once. This means that responses could be ordered from least to most active, and it is possible to see if higher amounts of social gaming led to more frequent action. In order to answer this, I use an ordered-logistic regression model for all nine kinds of actions over all four types of play I disambiguated in the survey for a total of 36 models. I suspect that all three kinds of social gaming will have a positive effect on how often participants engaged with the individual actions in the participation scale. Gaming alone, however, will not be associated with participating more often.

Figure 7-9 illustrates how increased social gaming affects the likelihood that respondents would more frequently do a given action. Each point is the estimated effect of gaming from of one of the 36 models, the color illustrating whether the effect reflects playing with friends in the same room, playing with friends online, playing with strangers online, or playing alone. The Y axis stacks the activities that respondents could report doing and the bars adjoining the points are the 95 percent confidence interval. The X axis reflects the variable's estimated multiplicative effect on the odds—specifically, the effect on the baseline odds that a respondent would score higher

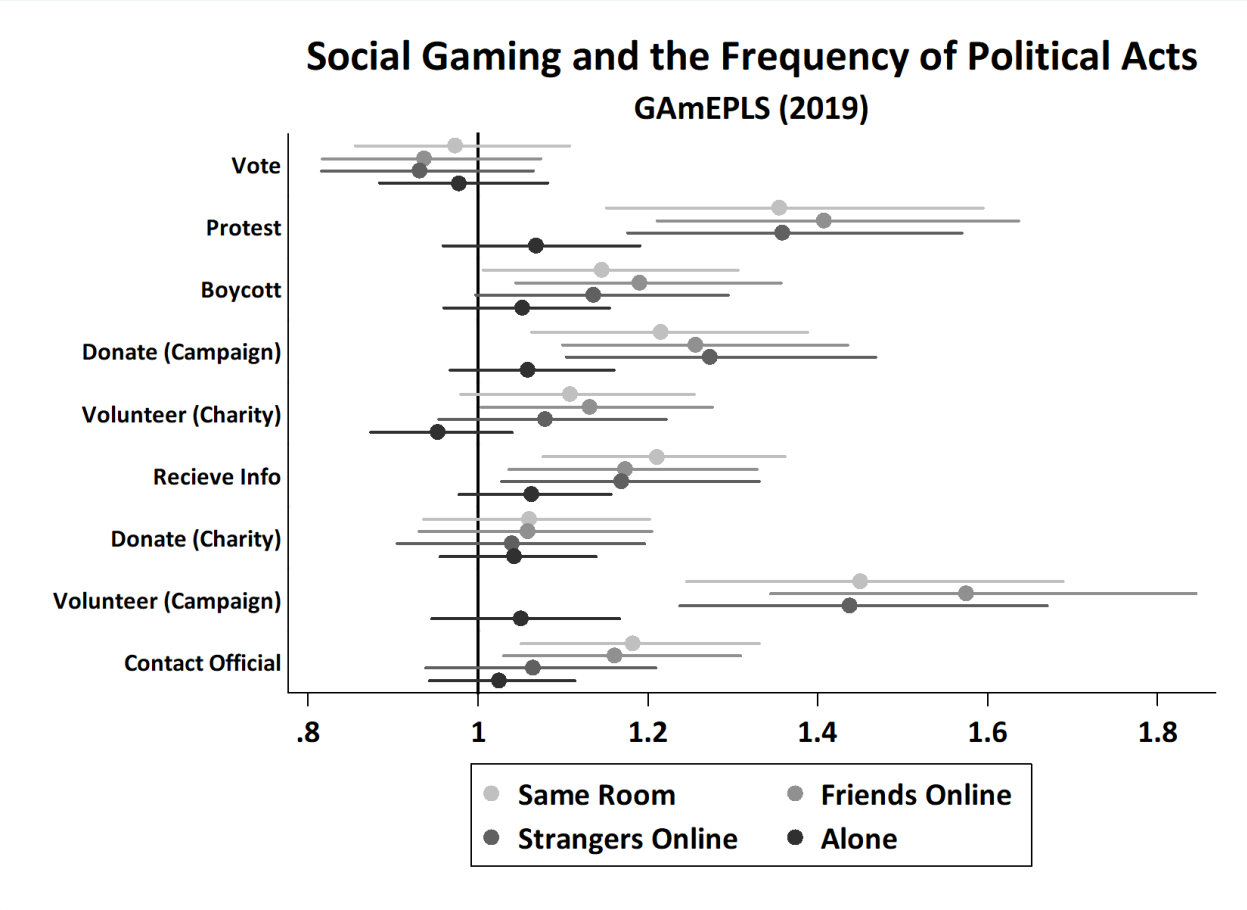

Figure 7-9. The association between social gaming experiences and how frequently respondents performed 9 different political actions in the GAmEPLS survey (stacked along the Y axis). In all, the image represents 36 ordered-logistic regression models. The different colored lines represent the four different kinds of social gaming I measured in the survey. Points are model estimates, bars are 95 percent confidence intervals. If the points are to the right of the solid vertical line at 1.0 (without any overlap in the confidence intervals), than more frequent gameplay was significantly associated with performing that action more frequently. For most combinations of actions and gaming experiences, more frequent play led to people performing the action more often. The regression outputs for this image can be found in Tables D-5, D-6, D-7, and D-8.

than a particular threshold on the dependent variable scale (e.g., score higher than both "yes" or "no," meaning they said "yes, more than once."). In effect, there are certain, calculable odds that participants would score above the threshold of "no" or "yes" and the model looks to see if gaming either inflates or shrinks those odds: Inflation being represented by numbers larger than one (since any number muliplied by itself is simply itself, unchanged) and shrinkage represented

by numbers less than one (since any number multiplied by a number between zero[24] and 1 is less than its original value). This is also why the X value of 1 is emphasized with a solid line—that is the value signifying that the model estimated zero change on the underlying odds. Points to the left of the line, then, mean that this kind of gaming is associated with less activity and points to the right of it means that it is associated with more activity. So long as the bars adjacent to the point are not touching this line, then the results can be said to be statistically significant.

As can be seen from the figure, gaming alone is in fact statistically insignificant across all nine actions; playing more by oneself does not increase how often they are expected to protest, boycott, vote, or any of the other activities. The results are more mixed for social gaming. Increases in any form of social gaming is associated with greater rates of protesting, boycotting, donating to a campaign, receiving information from a politician, and volunteering for a political campaign—and both kinds of playing with friends is associated with contacting government officials more frequently. However, social gaming was not positively associated with an increased tendency to vote, donate to charity, or volunteer for a charity. In all, 17 of the 27 models that were not focused on playing alone found positive, statistically significant results consistent with the theory.

The fact that voting is not significant is interesting given the literature on how important social ties can be to get people to go to the ballot box. However, this may be a consequence of the fact that this survey took place the year after a midterm. 2018 may have had historically high turnout for a midterm election, but it still only drew about 50 percent of the voter eligible population (McDonald, 2019). It also may be that people are not aware of the opportunities that exist to vote "more than once." Voter turnout in local contests are small; many citizens are not even aware that there is even an election going on. Alternatively, their state and local government may be one of the hundreds of polities across the country that set their election calendar to coincide with federal contests to try and ameliorate that exact problem (Martinez, 2010). In that case, people would not even have additional opportunities to vote. Future work will need to

[24]For technical reasons, it is impossible for a score to be lower than zero.

clarify the effect—if any—social gaming has on the nation's most important form of formal participation.

These results suggest that social gaming is not just associated with an increase in the kinds of things respondents did. For many (although not all) types of political action, increased social gaming is associated with performing the actions more frequently too. To see if this relationship can be said to be causal—and to see the extent that it is bolstered by social capital and political talk—I turn to the longitudinal evidence.

7.3 Establishing the Causal Connection

7.3.1 Longitudinal Survey Evidence

So far, we have seen that there is a consistent and sizable statistical association between playing video game socially and increased political participation as well as stronger civic attitudes. Can we make the stronger claim that social gaming *causes* the upticks in these behaviors? That is, can we isolate the direction of the association; confirm that the effect flows from gaming to the behavior and not the other way around? While I do not use a laboratory experiment here as I used in the previous two chapters, the answer to both questions is nevertheless yes. Yes, we can investigate directionality and causality by leveraging the longitudinal component of the YPPSP. And yes, the results of this investigation strongly suggest that video games lead to increases in behavior and activity.

My investigation uses a slightly different conception of cause and effect than is generally seen in analyses of longitudinal data. Those interested in the technical minutiae are more than welcome to revisit my discussion of this in Chapter 4, but the core logic does bear repeating here. Generally, social scientists investigate causality by looking to see if past levels of the explanatory variable are significant predictors of later levels of the dependent variable. They then look to see if the reverse is true; if past levels of the dependent variable are significant predictors of future levels of the explanatory variable. If the first relationship is significant, then the independent variable does indeed "cause" the dependent variable. The scientist's theory is correct—or at least has not been falsified. If the second is true, then the scientist's theory is exactly backwards: The

evidence suggests that it is the dependent variable causing the independent variable. If both are true, then there is some kind of reciprocal causality—which is not uncommon with many complex social phenomenon, especially when measured over several points in time. If neither are true, then it is back to the drawing board—at least after the scientist presumably takes a solemn a trip to the liquor store and rides out a few nights of self-doubt and existential dread.

While well-used and incredibly helpful at elucidating a variety of relationships in the social world, this logic does not capture my underlying theory of why social gaming should increase political participation. As I also explain in greater detail in Chapter 4, being involved in a social network two years ago will not make much difference for current participatory tendencies. Social groups matter, in part, by engendering the kind of relationships that make people more likely to actually participate when asked and by diffusing information about what matters and what one can do about it. If one was part of a group two years ago but is not anymore, they have lost access to that information and are no longer being prodded to participate. Although there are certainly evergreen issues in politics, information that was relevant two years ago is probably pretty unhelpful now—and no recruiter is so effective that they can reliably keep people energized years after they have fallen out of contact. People are most likely to participate today if they have maintained their past relationships and group memberships into the present. In short, political action will in large part depend on contemporaneous engagement as well as engagement in the past. If I am right about the nature of social gaming, the past and present will jointly matter for both political interest and political participation—and the statistical relationships, determined through regression analysis, should encapsulate that fact.

Figure 7-10 illustrates the presence and nature of the causal relationships in the longitudinal YPPSP data for both civic attitudes (e.g., political interest) as well as political participation. The panels are split by the variable of interest and direction of causality. The panels on the top investigate participation and the panels on the bottom investigate political interest. Those on the left displays the test for participation causing social gaming, the relationship opposite of my

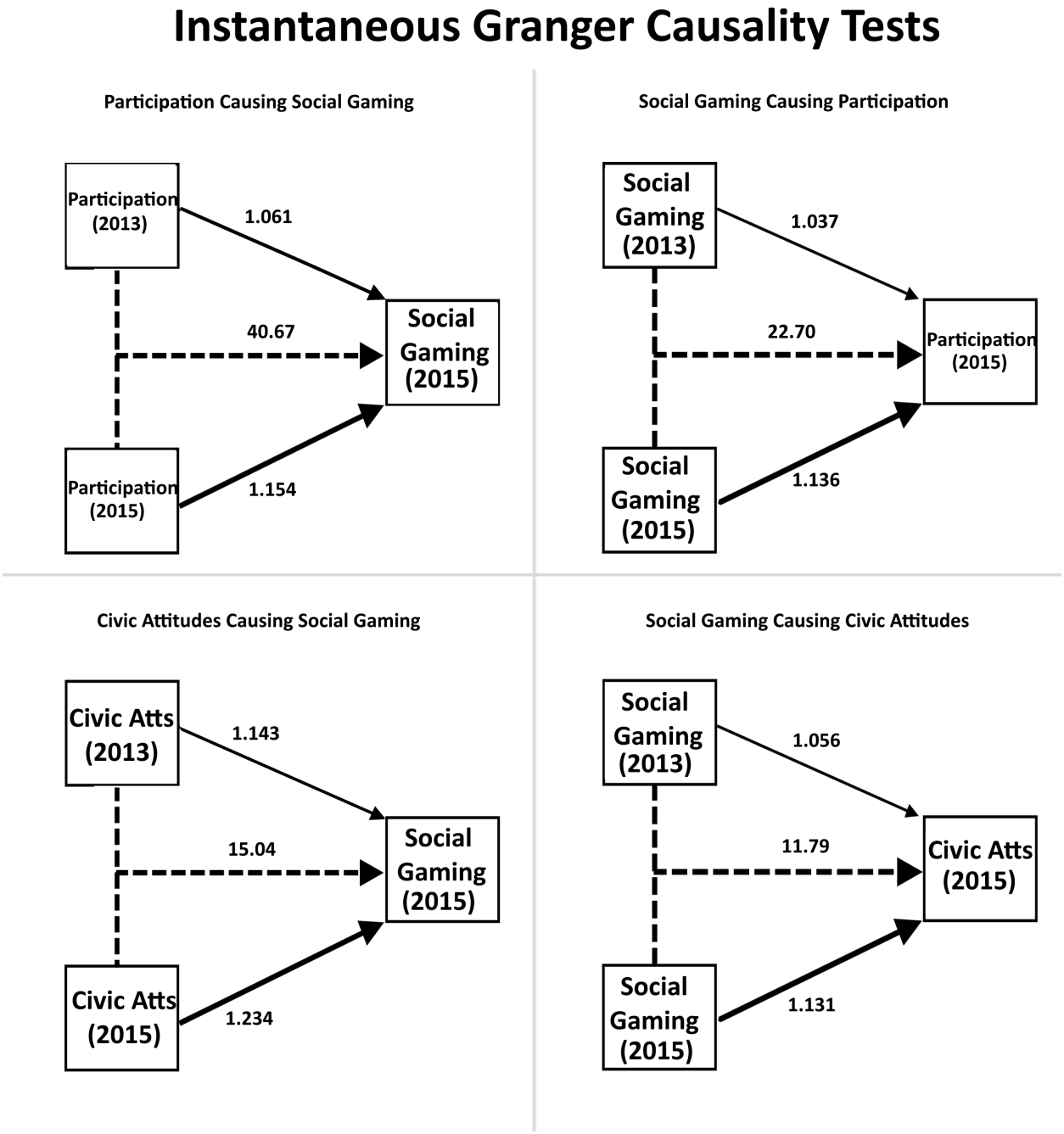

Figure 7-10. Instantaneous Granger causality (IGC) tests for social gaming, participation, and civic attitudes. This figure tests to see if a causal line can be drawn from social gaming to participation/attitudes, from participation/attitudes to social gaming, or if it is significant in both directions. Arrows point from the potential cause to the outcome. Solid lines are direct effects and dashed lines are joint effects. Bold lines reflect statistically significant relationships, non-bolded lines reflect non-significant relationships. Numbers above the direct effects are exponentiated regression coefficients for negative binomial and ordered-logistic regression models; numbers above the joint effects are χ^2 statistics. These outcomes reflect a reciprocal relationship: Social gaming is both a consequence of participation and civic attitudes, but also a cause. See Table D-9 for full regression outputs.

theoretical expectations. Those panel on the right display the test for gaming causing participation, or what I have spent the better part of this dissertation arguing for. The arrows represent the tested direction of causality, the tip pointed at the modeled outcome. The numbers above the line are the exponentiated coefficients in the regression models testing for instantaneous Granger causality (ICG). Bolded lines and numbers indicate that the relationship is statistically significant. Numbers above solid lines are regression coefficients.[25] The dashed line joining the independent variables represents their joint effect. The number above that line is a Wald χ^2 statistic,[26] which is a measure used to determine the joint significance of several variables. Although the figures only visualize the main independent effects, these models were specified with control variables.[27]

At first glance, it might appear that the theory is in trouble. Looking first to see if I have had it backwards all along, it appears that both participation and interest instantaneously cause social gaming in these data. While only participation in 2015 is individually significant ($p_{2015} < 0.001$; $p_{2013} = 0.057$), what is important for the IGC test is that the two variables are jointly significant. In this case, they are indeed jointly significant. ($p < 0.001$). Likewise only political interest in 2015 was individually significant ($p_{2015} = 0.012$; $p_{2013} = 0.095$), both are jointly significant ($p < 0.001$). This indicates that participation and political interest are instantaneously causal of social gaming.

But it appears that **gaming** is causal *as well*. The right-most panels show that games also exhibit instantaneous causal relationships with behavior and political interest. Looking first at political participation, while gaming is only individually significant in 2015 ($p_{2015} < 0.001$; $p_{2013} = 0.205$), the two measures were jointly significant ($p < 0.001$), satisfying the core requirement for IGC. Much the same can be said for social gaming and political interest as well: Significant in 2015 ($p = 0.013$), not in 2013 ($p = 0.223$), but jointly significant overall

[25] For attitudes and gaming frequency, I used ordered-logistic models. For participation, negative binomial models.

[26] Since two variables are being tested both times, the degrees of freedom is 2 for both distributions.

[27] Controls were individual-level values for race, age, education, income, and political interest as measured in the same year as the dependent variable (2015). I omit them from the visual for the sake of simplicity and clarity, but they are available in the appendix.

($p = 0.003$). The evidence here suggests that gaming is instantaneously causal of both political interest and political participation.

So if both directions are statistically significant, which is the true path of causality? Probably both. Reciprocal effects are common in longitudinal studies focused on political media; it is common for one day's "cause" to be the next's "effect" as people navigate their way through the modern media environment. Although the mechanisms are currently untheorized and unclear (perhaps people are meeting new gaming partners at rallies—or seeking out others who are using their *Animal Crossing* islands to protest Chinese human rights abuses), there is no reason to think that political interest or participation cannot drive social gaming as well. This is an interesting finding and certainly merits additional study.

However, the fact that it is significant does not diminish the significance of social gaming here. As expected, gaming with others is instantaneously causal of both political participation and civic attitudes. It can be meaningfully said that social gaming is not only associated with interest and participation: It can cause these important behavioral outcomes.

7.3.2 Social Capital and Political Talk as a Mediator

To recap: the evidence shows that social gaming is consistently associated with increased political activity and higher civic attitudes, that social gaming is not only associated with increases in the number of political activities people engage in but also the frequency of that engagement, and that the causal arrow can be confidently pointed from gaming to behavior (even if it can also, equally validly, point in the other direction as well). Further, the case studies at the beginning of the chapter show that multiplayer games are more than capable of generating social capital and encouraging political talk. However, the evidence so far does not actually marry the qualitative and quantitative findings: We know that multiplayer games are mechanically poised to encourage social capital and we know that social gaming can cause political behaviors. What is left is then to see if social capital and political talk really are driving these relationships.In statistical terms, I expect that social capital and political talk—depending on the contest—mediates the relationship

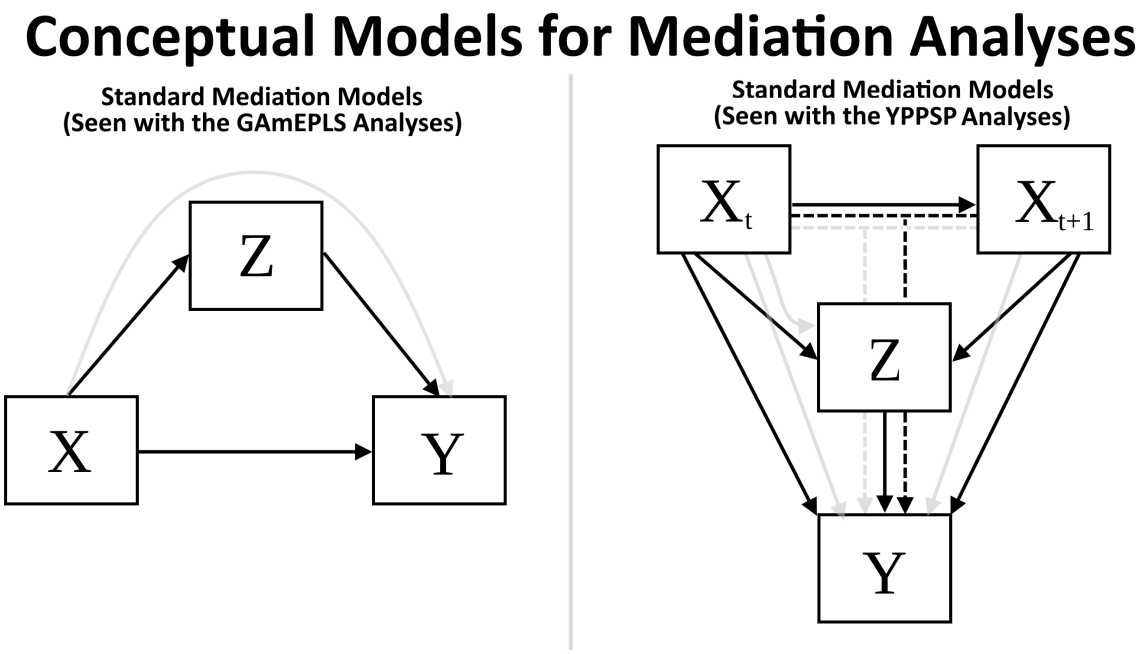

Figure 7-11. The conceptual models for the mediation analyses that are used for the GAmEPLS survey (on the left) and for the 2013–15 YPPSP panel (on the right). Dark, solid lines represent direct effects flowing in the direction of the arrows, light solid lines reflect indirect effects. The dashed lines in the right-hand panel reflect the direct (dark lines) and indirect (light lines) effects from the X variables jointly. The conceptual model used for the GAmEPLS survey reflects a "standard" approach to mediation analysis. The conceptual model for the YPPSP reflects the fact that this model is meant to be testing Instantaneous Granger Causality.

between gaming and acting. Appropriately then, one way to investigate this claim directly is through mediation analysis, commonly employed through Structural Equation Modeling (SEM).

Traditionally, mediation is visualized as being produced by a factor lying "in" the pathway between cause and effect. There is a direct effect between the independent variable (X) and outcome (Y), but X also influences the mediating variable (Z) which itself has an influence on the outcome. Consequently, in addition to the effect of X on Y directly, X also influences Y indirectly through its influence on Z. Structural equation models combine the benefits of path analysis and factor analysis in a way that provides intuitive demonstrations and interpretations to all of these relationships.

Let us revisit the causal model suggested by the test for IGC (seen in Figure 7-10) to implement the mediation framework for the task at hand. The models posit that the effect jointly

runs from past and contemporaneous social gaming to political behaviors. If social capital is to mediate their joint relationship, it ought to be in the causal paths of both gaming in 2013 and 2015. If the mediation is to be significant, it will then be need to be based upon the sum of the indirect effects from 2013 and the indirect effects from 2015. The SEM framework also has the bonus of more appropriately accounting for the fact that levels of social gaming in 2013 will be strongly correlated with levels in 2015 by modeling the former causing the latter. The right-hand panel of Figure 7-11 visualizes the theoretical models to be tested in this section.

Unfortunately, the YPPSP does not contain a single measure of social capital nor a set of variables that could be readily converted into one. As a proxy, I measure how frequently respondents report talking to their families about politics in 2015. Interpersonal communication is the cornerstone of social capital, as it is the thing that facilitates the exchange of information and the development of trust. Thus, while certainly not preferable to a more robust measure of the concept, it is a workable proxy

Figure 7-12 demonstrates the results. The left-hand panel is the effect of social capital on political participation and the right-hand panel on political interest. Statistically significant relationships ($p < 0.05$) are bolded. Black lines represent direct effects and gray line represent indirect effects. A solid line reports on the effect based on that variable alone and a dashed line reports on the joint effect. The numbers adjacent to the lines represent the OLS coefficients. While generalized linear models (such as the Poisson and ordinal-logistic models I used earlier) would better fit these data and lead to more unbiased and precise models, the implementation of generalized linear models in SEM are in their relative infancy. The known errors of comporting non-continous data into an OLS model means that the specific values are assuredly not accurate. What ought to be emphasized is not the specific figures but their parity, whether they are positive or negative, as well as their statistical significance.

Looking first to the left, social gaming in 2015 is predicted to have a significant direct effect on the number of political actions undertaken ($p = 0.011$) while social gaming in 2013 does not ($p = 0.930$). This, however, is likely due to the fact that the equation is set-up to account for the

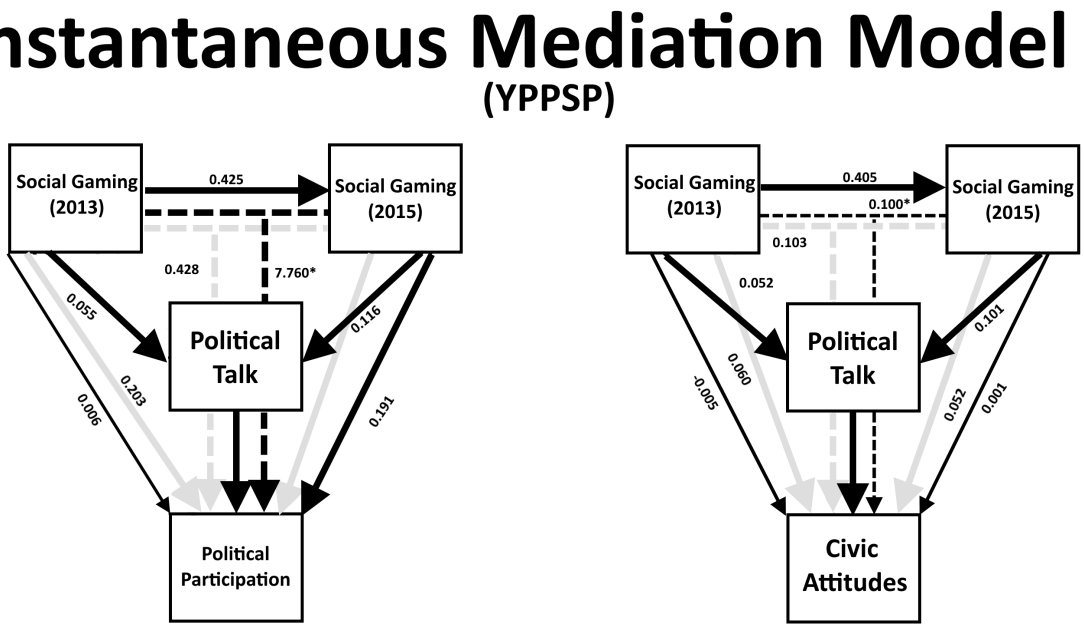

Figure 7-12. Longitudinal mediation analyses for the relationship between gaming and political participation (left) and political interest (right) as mediated by political talk. Dark lines represent direct effects, gray lines represent indirect effects. Solid lines represent single-source effects, dashed lines represent joint effects. Bold lines represent statistically significant effects. The figures above the lines are OLS coefficients (except where asterisked, which is the χ^2 statistic). These models suggest that there is a significant, total instantaneous effect between social gaming and behavior—and that political talk is a statistically and substantively significant mediator for these relationships. See Table D-10 for the full regression output

fact that gaming in 2013 predicts gaming in 2015 ($p < 0.001$). Both gaming in 2013 and 2015 positively predicted levels of political talk ($p_{2013} = 0.006; p_{2015} < 0.001$), which in turn was a significant direct predictor of political participation ($p < 0.001$). The indirect effect of gaming in 2013 on participation through talk, and through talk and future gaming, were positive and significant ($p = 0.007$; $p < 0.001$, respectively). The indirect effect of 2015 gaming on participation was significant as well ($p < 0.001$). Most importantly though, since this was an extension of the instantaneous Granger causality model, the effects of social gaming 2013 and 2015 (which takes into account the fact that part of 2013's effect on participation is partially tied-up in its effects on gaming in 2015) is positive and statistically significant ($p < 0.001$).

Indeed, 68 percent of the total effect was mediated by political talk, suggesting that it played a large role in the causal chain between social gameplay and political participation.

Unlike with participation, though, neither social gaming in 2013 nor in 2015 had a significant effect on political interest once political talk was added into the mix ($p = 0.765$ and $p = 0.974$, respectively). However, social gaming in both years positively predicted political talk ($p < 0.001$ for both) and political talk was positively associated with political interest ($p < 0.001$). This translates into significant, positive indirect effects for both 2013 ($p < 0.001$) and 2015 ($p < 0.001$) independently. Further, their joint indirect effect was positive and statistically significant as well ($p < 0.001$). In this case, the model estimated that over 99 percent of the significant ($p < 0.001$) total effect was mediated through political talk. All in all, for both attitudes and action, these results reaffirm what was estimated using the test for IGC: Increases in past and current levels social gaming are expected to cause increases in political behaviors as mediated by political talk.

As mentioned above, however, political discussion is not a perfect proxy for social capital. While talking is clearly critical, there is more to social capital than conversation. It also bears repeating that the YPPSP data is of youth and not of the US adult population, making generalizability problematic. These issues can be at least partially ameliorated by the GAmEPLS data. The survey contained four questions designed with the intent of capturing one's gaming-based social capital. It asked how frequently they talked about issues in politics with those they play video games with (ranging from "Never" to "Very often" on a five-point Likert scale) and how strongly people (dis)agreed with three statements: "I trust the people I most frequently play games with;" "I consider the people I most frequently play games with strangers;" and "If asked to do a favor by those I most frequently play games with (either in game or out), I will usually at least try to help."

I used principal-component factor analysis (PCF) to reduce these four separate questions into a single measure of respondents' social capital. In the process, despite my intent when designing the instrument, I determined that only three of the four actually collapsed into a single

social-capital variable. Talking, trusting, and doing favors all had factor scores north of 0.70, suggesting a strong correlation with the latent concept being tapped into. Considering game partners strangers, however, had effectively zero loading (-0.022) and appears to reflect a separate idea entirely (*uniqueness* < 0.999).[28] I opted to drop this variable from the analysis in favor of a three-item factor, which was then rescaled to fit between 0 and 1. Although the failed loading inspired a fair bit of reflection on the importance of question wording when developing a multi-item instrument, the remaining three variables do have strong face-validity with the important elements of social capital: Communication, trust, and reciprocal action. (The factor analyses can be found in the Appendix: Table D-11.)

I use the "standard" mediation approach (left-hand panel of Figure 7-11) to determine if social capital has an indirect effect, with social capital as the mediating variable between the styles of social gaming queried about in the GAmEPLS survey and its accompanying participation index. I expect that social capital will mediate the relationship between behavior and online play—friends and strangers alike. However, as I discussed in the case studies, it is more the case with friends playing in the same space that the games are building upon already present social capital. Games are ways to maintain the kinds of social ties with political conequences. In this case then, I expect that gaming will serve as a mediator.

As before, caution ought to be taken when interpreting these results—perhaps more so now. In addition to the earlier note of caution about coercing count-type data into an inappropriate regression framework, it should also be noted that these models are generated with data from the same survey wave. There is currently a large debate in the behavioral sciences about the appropriateness of constructing a mediation analysis on cross-sectional data such as these. Many scientists argue that it should never be done, or at the very least it should never be called mediation (Kline, 2015). Others contend that it can be possible, provided there is strong theoretical reasons to assert the direction of causality (Shrout, 2011)—although they too urge

[28]This makes a certain degree of sense with the benefit of hindsight. The wording of this question mirrors the earlier one about how frequently one plays games with strangers online and thus reflects more about gaming style than interpersonal connectedness.

caution as the direction and extent of the unavoidable biases can be difficult to ascertain without prior knowledge (Maxwell & Cole, 2007). I tend to fall into the latter camp—else I would have simply saved the time, ink, and space by stopping with the longitudinal YPPSP data.[29]

There is good reason to buy in to the models I put forward. As I showed earlier, many multiplayer game experiences interweave politically-relevant content into their experiences. The content could act as a stimulus and the social nature of the gaming environment allows (or even encourages) players to converse with each other about what is seen. This is not to say that other possibilities are not credible. People who participate are likely to have higher social capital and those with high social capital could self-select into social video game play. Alternatively, people with high social capital ex ante could be drawn to both social game play and political participation, with gaming being a mediator instead. Given my earlier note about reciprocal relationships in the behavioral sciences, it would be imprudent to not test these relationships as well.

I modeled separate SEM equations based on the other theoretical possibilities. For the models involving online play, the results were commensurate with the longitudinal mediation model: Social gaming increases social capital increases political activity. Not only were the alternative models poorer fits for the data, they had higher degrees of information loss as determined by their Bayesian Information Criteria (BIC). While these results should be, and will be, considered, they also should be taken more as suggestive. But suggestive as they are though, they comport well with the more definitive results seen with the YPPSP data above as well as the rest of the evidence established throughout this chapter.

[29] Additional support comes in formulas that can be used to estimate the biases from using cross-sectional vs. longitudinal data found in in Maxwell and Cole 2007. Their results suggest that it is possible to estimate the bias in the direct and indirect effects employed in cross-sectional mediation provided that values for the stability of the X and mediating variables are known *ex ante*. Applying estimates of stability calculated from the YPPSP's longitudinal waves ($gaming = 0.41$; $politicaltalk = 0.33$), suggests a positive but substantively small bias in the estimated direct effect and a modest negative bias in the estimation of the indirect effect. My results for the indirect effect, arguably the most important in my analysis, may very well be underestimated. While this obviously should not imply that a longitudinal design is not an important next step, it does suggest that it would be imprudent to reject these results out of hand simply because longitudinal data are not currently available.

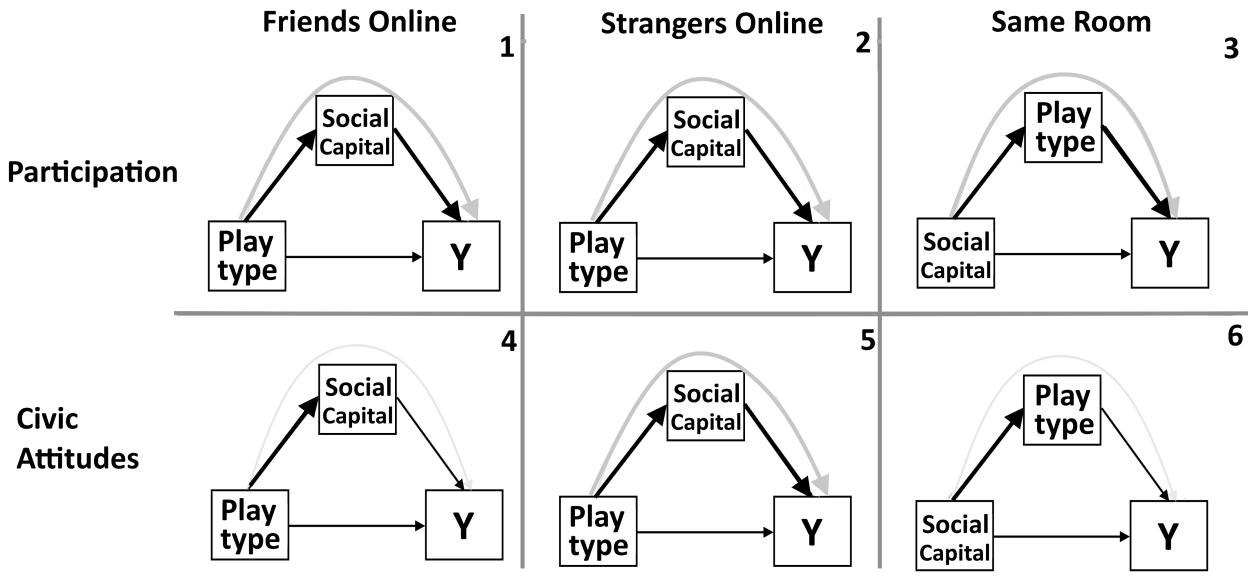

Figure 7-13. Cross-sectional mediation analyses for the relationship between gaming and political participation (top) and political interest (bottom) as mediated by social capital. Dark lines represent direct effects, gray lines represent indirect effects. Bold lines represent statistically significant effects. These models suggest a robust effect between gaming, social capital, and behavior, but the evidence is less clear for political interest. See Table D-12 and D-13 for the full regression outputs

Figure 7-13 visualizes the summarized results. The topmost panels (1, 2, and 3) investigate the effects on political participation. The bottom panels (4, 5, and 6) investigate civic attitudes (e.g, political interest). As before, black lines are direct effects, gray lines indirect effects, and bolded lines are statistically significant.

Looking first to the relationship with playing games online with friends (panels 1 and 4), it appears that this sort of play is positively and significantly associated with social capital ($p < 0.001$) and, likewise, social capital is positively associated with political participation ($p = 0.013$). Social capital is not associated with political interest, however ($p = 0.201$). Looking at the indirect relationship, the effect is positive for both forms of behavior. However, when looking at statistical significance, it appears that while social capital mediates the relationship between playing with friends online and political participation ($p = 0.019$), it does not mediate its relationship with political interest ($p = 0.209$). These results suggest that playing with friends

online does, in fact, raise levels of players' social capital—although this social capital only significantly influences participation rather than attitudes.

Turning next to playing with strangers online (panels 2 and 5), this sort of play is also significantly associated higher values on the social capital scale ($p = 0.013$; $p = 0.013$, respectively). Unlike playing with friends online, though, social capital is positively and significantly associated with political participation ($p = 0.022$) and political interest ($p = 0.029$). Higher levels of social capital leads to political participation and political interest. But does it mediate the relationship? The evidence suggests it does. The indirect effect of playing with strangers online through the social capital is an overall positive influence on both political participation ($p = 0.093$) and interest ($p = 0.098$). The more players game with strangers online, the more interested they are and the more they participate by virtue of the social capital they develop.

But as the case studies demonstrated, real-life play is different than online play in that games played in the same room are more about deepening established relationships rather than building them from scratch. While much the same could be argued for online play with friends, one generally has to be far closer to share one's wifi password than to invite them to play on the same disembodied server. Consequently, I expect that gaming will be the force (or at least a force) driving political participation and interest from those with higher social capital.

Panels 3 and 6 show the results of the models testing this hypothesis. As expected, in both cases those who played more with friends in the same room had higher amounts of social capital ($p < 0.001$ in both)—and social capital does have a positive, significant association with political participation ($p = 0.006$). However, while estimated to have a positive effect, social capital is not a significant predictor of political interest ($p = 0.201$). These results carry over into the mediation analysis. Social capital does have a significant indirect relationship with political participation ($p = 0.010$) but not with political interest ($p = 0.172$). This is consistent with the idea that games can strengthen politically relevant relationships leading to further action, but not leading to higher degrees of political interest.

Why is the effect of social capital significant on political attitudes in the YPPSP but not in two of the three GAmEPLs models? One possibility is that there is something unique to youth with regards to how social capital garners interest. Perhaps because they are at a relatively earlier stage in their life, there is greater opportunity for social groups to influence attitudes than for older individuals? Another option is that there is something unique to online gaming: The model where this pathway played a significant factor was the closest to the question asked about social gaming in the YPPSP: Both were looking at online play—which is predominated by interactions with strangers. But another is that the models in for the GAmEPLS survey were relatively underpowered. In all three cases, the relationship was in the expected direction and were relatively close to traditional cut-offs of statistical significance. But the models were all estimated with 145 observations, which can lead to noisy samples. Future research, with larger samples and multiple points of contact over time, will be beneficial towards answering this question. For now, however, I lean more strongly towards the results of the high-powered longitudinal sample with regards to both forms of political behavior—although I feel that the cross-sectional information can be weakly informative.

Looking at the whole of the evidence gathered from the mediation models it can be pretty confidently said is that social capital matters, gaming matters, and we can sometimes be confident that the relationship starts at gaming, is mediated by social and impacts political participation. But it also appears that this relationship, both in its direction and constituent elements, is complicated by context. Further study will be needed to disentangle these new threads and see how well they generalize outside of the currently collected data.

7.4 Conclusion

From the literal first days of the medium, the enjoyment fostered by video games has had a strong social undercurrent. Can these social connections translate into increased political activity? Are the bonds developed through this kind of play commensurate with those that political scientists have spent decades examining for their ability to motivate action? The evidence presented over the course of this chapter strongly points to yes.

Various surveys of social gaming—sampling US youth and adults alike—show a strong, sizable association between playing video games socially, political interest and political participation. Respondents who played games socially, controlling for things like age, sex, income, education, and political interest, were more likely to perform more political actions than those who did not game at all. And controlling for the same factors, people playing together tended to be more interested in politics—although there are possible, important contextual factors that could moderate this relationship. Further, the more that people played socially, the more they actions were expected to perform. This held true when considering both the number of different kinds of political acts respondents performed, but also the frequency that they performed a large number of said actions. Longitudinal evidence demonstrated that social gaming can indeed be said to cause higher levels of interest and

These findings are reinforced by the deeper look into four popular multiplayer video games performed at the beginning of the chapter. These vignettes of diverse, yet common gaming experiences illustrate the relationship between social gaming, social capital, and political talk. Games facilitate each of the elements comprising social capital in a variety of ways. Games can host groups that already know each other and/or they can encourage people who were previously strangers to come together. They can encourage politically relevant communication through face-to-face interaction and/or internet based chat—and opportunities for political talk can be prompted by in-game experiences or otherwise arise when players are given enough downtime to carry a conversation. There are a variety of opportunities for cooperation and reciprocity: Powerful monsters, short mini-games, team-based activities—the only limit on specific examples is the imagination and ingenuity of game developers. But common across them all is the presence of a challenge too difficult for players to conquer alone and opportunities for players to exchange things of value with each other. Finally, most games offer scenarios and mechanics that encourage them, if not downright force them, to have faith in the capability and intent of others.

This chapter is the third of my three arguments concerning if and how video games matter to political attitudes and participation. In the next, I address the final of my four main claims. I

aim to show that the effects discussed here, and those from the last two chapters, are not rare or infrequent in the real world. In fact, they are quite common and deliberately included—giving ample opportunity the processes I described to play out.

CHAPTER 8
THE PREVALENCE OF POLITICALLY-RELEVANT VIDEO GAMES

Dave Theurer awoke with a start, dripping with cold sweat, in his bed nestled in the San Francisco Bay. Though the vividness of his horror was beginning to fade, the images behind it had been seared into his brain. It did not help that it was the same nightmare as last night, as the night before, as it had been every night for weeks: Death. Cataclysmic death—wrought by a bombardment of nuclear missiles raining down on the Bay area, violently transmuting the city into elemental light and radioactive ash. The mushroom clouds loomed over and cast the immediate survivors in a pall of death and unfathomable helplessness. In his dreams, Theurer was often out hiking, positioned in just the right spot to survive the immediate barrage but know, with cool terror in his veins, that he would likely die. It would be in a matter of seconds if he was to be eviscerated by the shock-waves, over weeks if he would succumb to radiation poisoning, or years later as that dragon, cancer, devoured him from within.

But now he was awake. He was alive. And he had work to do.

Readers at this point might have a hunch of where this story is going. "Let me guess—he had these nightmares after playing a video game?" Close! But not quite. Theurer had these nightmares in the course of **designing** a video game. He was the lead designer on Atari's hit arcade game *Missile Command* (1980).[1] In *Missile Command*, the players have to shoot down a cascade of bombs threatening six cities and three military bases. One hit from the wrong bomb and a city would be left decimated. But, as the levels progress, players have less ammunition to intercept the incoming bombs. Eventually, they will have to prioritize which cities and bases to allow to limp along, sacrificing the others out of cold necessity. Eventually though, even these too will fall. Like with an actual nuclear war, there was no winning.

It was a game inspired by the persistent, low-burning fear simmering in many American's minds during the height of the Cold War. As he would later reflect to the web outlet *Polygon*:

> *Missile Command* embodied the Cold War nightmare the world lived in...These nightmares were common occurrences during the development of [the game] and continued after development was finished. It tapered off after the game, but still, I had them for a couple years afterward, maybe one every two or three months.

[1] In this chapter, game titles will be joined by the year that it was released. This is done to demonstrate that the arguments I am making are not limited to a particular era in gaming but, in fact, spans gaming's entire history.

Theurer and his team were deliberate with the gameplay and what they wanted the mechanics and narrative to convey. As articulated by Alex Rubens 2013, who performed the interview for Polygon:

> Theurer made it clear when agreeing to the concept that Missile Command would only be a defensive game, never offensive. "Realizing that the bombs would kill all of the people in the targeted city, I did not want to put the player in the position of being a genocidal maniac," said Theurer.
>
> He refused to do anything that had players firing missiles at other countries, especially the USSR, which was a hot issue at the time, landing right in the midst of the Cold War. To him, this made it moral. You're defending your country against attack, and "defending against such an attack would be a noble effort."

Missile Command was one of Atari's best selling games of all time; millions of game cartridges, arcade machines and digital copies have been promulgating the game's message for forty years. It is considered an icon for both its mechanics and sociopolitical importance—elements that were conscious inclusions by a development team responding to their moment in history.

Broadly, when looking to pin down a new phenomena or survey the boundaries of those already documented, social scientists look to see whether the relationship they are studying satisfies two definitions of "significant." First they look to see if it is "statistically significant"—whether quantified proxies of both concepts vary together in a way that scientists are comfortable concluding that their relationship is not spurious or just a chance fluke. Ideally, such claims to significance is also coupled with compelling evidence of a causal connection—which *really* suggests that the relationship is not just a fluke. Second, they look to what is sometimes clinically called "economical significance"—or how much the variation in the causal variable is actually expected to matter when it plays out. This is sometimes pejoratively called the "so what" question. "You found a link? So what? Does its presence or absence make a practical difference? Does it impact a large number of people? Is it a frequently occurring process—or are we just talking about stuff on the outskirts of society?"

Chapters 5, 6, and 7 to answer the first question. Here, I want to answer the second: "So what?" So what if data from surveys, experiments, and case studies show that games encouraging

people to think about social, moral, and political issues affect political behavior? Even granting that the size of the effects are non-trivial—which I would like to think was also shown in the preceding chapters—the effects could be rare for a variety of reasons. There may not be that many designers making content that is socially, morally, or politically relevant; there may not be a lot of titles that offer these experiences; and there may not be a lot of people who even find themselves playing these kinds of games.

But as the story behind *Missile Command*'s creation suggests, many designers are in fact aware that they are including social and political elements in their games; they do so consciously and deliberately. And this effort is not just put into obscure titles but also those occupying prominent positions in the gaming ecosystem, ranking high in both sales charts and critical opinion. These games are played and enjoyed by tens of millions of people. In the process, they not only find enjoyment but new perspectives—on novel and familiar issues alike.

Missile Command is far from alone. Even the games I explored in-depth are only but a small sampling of the pertinent experiences games can provide. This chapter addresses the "so what" question by demonstrating that the kinds of experiences and causal processes I explored over the last three chapters are not rare. They are, in fact, quite frequently found within the games published over the last decade—and experienced by broad swaths of the Americans.

In presenting this argument, it is helpful to think of the social and political experiences that affect attitudes and participation as "signals." At the most basic level, signals provide information—and, after all, information is what is fundamentally driving the effects I have explored so far. Whether it be conveyed through talk and action to bolster social capital or encoded within the words and actions of on-screen characters and avatars inviting deeper cognitive deliberation, information is at the core of the causal chain. In order for signals to impart change, there must be a *sender*, the information content must be *readily decipherable*, and the intended meaning must be *correctly deciphered* receiver. If any of these component are absent, then the signal will be ineffectual. Or, to put it in a way more grounded to this project: If any of these components are absent, then the "so what?" question may be on to something.

Using information gleaned from the physical archives of the Strong Museum of Play and the digital archives of the Game Developer's Conference (GDC) spanning 2013–2018, I will show that game designers—across time and a multitude of game titles—are acting as senders by consciously and deliberately including pertinent elements into their games. Then, using a content analysis of 50 of the most popular games published between 2007 and 2017, I show that such signals are indeed readily observable across the vast majority of them: The majority of games involve socially, morally, and politically relevant content and/or opportunities for multiplayer interaction. Finally, turning to the GAmEPLS survey, I show that not only are millions of Americans having these experiences, they are also reporting that they are coming from exactly the kinds of games that I investigate here: Those that people turn to for entertainment, not for serious education.

8.1 The Signal is Sent

I began my archival research June of 2018 with a brief stint as a research fellow at the Strong Museum of Play in Rochester, New York. At that stage, my signaling argument was far more inchoate than it appears here. As I sat down in the Brian Sutton Library of Play, boxes of archived notebooks and design materials going back to the 1970s carefully staged around me, my primary objective was not to find a signal. It was to find a "black swan:" To provide evidence that disproved the categorical critique that non-serious games were fundamentally trivial, apolitical things (a critique that occasionally came up when I discussed this project with others) in the same way that one could disprove the categorical claim that "all swans are white" by finding one of the thousands of pitch-colored fowl living in Southern Australia.

The argument of games being intrinsically trivial was often a way of tacitly—although also sometimes explicitly—suggesting that what I observed in both my statistical models and in the beginning stages of my content analysis was confabulated by over-eager, politically-interested minds. Like a child with an overactive imagination jumping at shadows in the dark, I and a gaggle of politically-inclined survey respondents were finding meaning in a medium barren of it. As a consequence, we were biasing the results towards falsely suggesting the presence of a relationship

that does not truly exist. I intended to disprove this claim by going back to the words of the developers themselves—the Strong housing one of the world's largest collections of primary and secondary resources providing their perspectives—and see if they would attest to the existence of the meaning we were supposedly inventing. The claim that game content is apolitical could be dismissed if I could find an example of the developers explicitly acknowledging and owning-up to the presence of politically-relevant content. That is, if I could find this particular assertion's logical equivalent of a black swan.

But I did not find a black swan in the archives of the Strong. I found a flock. I found design notes from Sierra On-Line's *Kings Quest* c. 1982 series that discussed cracking-open books of medieval symbology to add both moral depth to the world and to structure their story: "The new moon...can be a symbol of ascent from the underworld. . . Perhaps we can use that 'Moon symbology' to attain the celestial abode of the Great Mother [in-game character] after having been been to the Underworld [level]" (emphasis theirs) (Ken and Roberta Williams' Sierra On-Line Collection, c. 1990). I found the design notes of the game *Nancy Drew: Tomb of the Lost Queen* c. 2012 that discussed how they could add real-world historical detail to their puzzles and settings to "[r]eally hit on the importance of historical culture [and] why it's so important to preserve and share it" (Her Interactive, Inc. Collection, c. 2012). I found an interview where Hideo Kojima, creator behind the legendary Metal *Gear Solid* series, explained that "many players of [*Metal Gear Solid 2* (2001)] say that the game is too preachy. But as a citizen of the only country in the world against which the atomic bomb was used...I would like to keep the anti-war and anti-nuke message alive, at least with [the Metal Gear Solid series]" (Chris Kohler Fanzine Collection, c. 2001). I found an interview with *Far Cry 2*'s (2008) creative director where he explained the decision to set the game in Africa, with a protagonist that suffers from malaria, as part of "a responsibility to make games that push into more difficult territory" further venting that "you can bet that if malaria was sweeping through Europe they'd have a solution to it quickly" (Fanzine collection, 2008). And in the notes of *Utopia* (1981), spiritual grandfather to

the *Civilization* series and all its ilk, the developers noted that its action is driven entirely by the problems associated with governance:

> As the game progresses, social problems will almost inevitably arise on the islands which will draw the players' attention away from the profitable and safe management of the fishing fleet. Slums could arise through poor development management, as could hunger. If citizens are unhappy, they will rebel. Players can spend their money to encourage rebellions to occur with [other players]. They have to manage the disasters that can be caused by [themselves] (overfishing) the opponents (guerrillas—although also could be caused by them), or randomly in the environment (rain). The game emphasizes how players will need to have a sense of balance. Working on any particular facet for too long will probably spell disaster (Don Daglow Papers, c. 1981).

Additionally, I found numerous examples of developers pushing for more social connectedness in their games—and them appreciating the power of said connectedness. Halo's (2001) product manager explained that the goal underlying its then-groundbreaking multiplayer experience was "to provide an environment that rewards teamplay but doesn't force it" (Fanzine Collection, c. 2001). In their promotional materials, Sierra On-Line—creators of the first online gaming network, "The Sierra Network" describes the appeal of the network using words that veers as close as one could possibly get to the concept of "social capital" without explicitly using the term (Williams Sierra On-Line, c. 1990).[2] "The Sierra Network, the first nationwide electronic 'neighborhood,' where people can meet, talk, play games, assume imaginative identities, and 'live out their fantasies'—all in the name of fun" (Williams Sierra On-Line, c. 1990). They even ran a story in their in-house promotional magazine that discussed how conversations on the online discussion boards about their games led to not one, but two a real-life weddings in 1989 (Williams Sierra On-Line, c. 1990)). Valve's legendary lead designer Gabe Newell commented that:

> Multi-player games should be just as sophisticated as the single-player experiences but with the option of going through it cooperatively...We want it to be a shared, "we're in this together" kind of thing. There may be other groups you run into that you have a competitive relationship with, but people want to go exploring and adventuring together (Fanzine Collection, c. 2001).

From the perspective of philosophical logic, this was more than sufficient; all one needs to disprove this kind of conjecture is to find one one night-feathered fowl—one example of a game

[2] It's hard to blame them, though, as the concept had not been articulated yet.

designer explicitly infusing social, moral, and political elements into their games. From a practical standpoint, though, the argument looks a lot better if it does not rest on a single record dating back to a long-forgotten game developed before the arcade bubble burst in the 1980s. The more cases, the more forcefully we can refute the original original claim of frivolity.

But the abundance had a knock-on effect. I could do more than just point and say "look, look, there it is!" As I continued researching in the Strong and as I began analyzing the recorded GDC presentations, I could afford to expand my focus. For story-driven games, instead of just asking whether developers *did* or *did not* include such content, I now had the opportunity to ask what motivated this inclusion. Similarly, for multiplayer games, instead of just asking if developers were or were not aware of the social connections they were facilitating, I could ask what *drives* them to include these features. Answering these questions allow us to gain further insight into the ways these designers act as the inducers of the politically-relevant signals carried in their games.

8.1.1 Motivations for Including Politically Relevant Content

Although there are certainly as many motivations to include morally, socially, and politically relevant content there are individual game developers (and probably even many more than that, since individual motivations can often change over the course of designing a game), it is possible to extract some general tendencies across all of these records. Expanding upon a previous effort (Licari, 2019), I identify four: To enrich the game's environment, characters, and story; to provide players with a sense of agency and presence; to address and explore topics that they see as important; and to justify a mechanic they see as fun or engaging. These are not necessarily exclusive motivations—many games will have many at work at any given stage of development—and the games I highlight are far from the only ones that embody them. But these categories are helpful in getting a sense of the motivations behind the signals, further validating the assertion that there is, indeed, "something" there—and that something was deliberately included.

8.1.1.1 Enriching the game

One basic motivation behind including social, moral, and political material is to add depth to the world of the game, to make players feel like the experience is worth investing their effort and attention into. As noted by game developer and professor Mata Haggis "really what we're aiming for here [when designing games] is adding value with story. We want the story to make the game more engaging, the play more fun, the world more immersive. Because really what story is there for is for additional investment for player activities" (Haggis, 2017). In these instances, the developers often have a guiding idea, principle, or story-line already developed but wish to increase the sense of investment through additional detail.

The developers of *Assassin's Creed Unity* (2014), for example, knew from the beginning that they would be extending their franchise into the period of the French revolution. In order to make the world feel more immersive and dynamic, they designed factions of AI loosely based around divisions that actually existed during the time period: making distinctions of not only of both pro and anti-monarchist but also in how violent they were in asserting these views. They then programmed the AI to not only interact with the player, but also dynamically with each other in the environment (and with the environment) to give the perception of a bustling city perpetually on the brink of violence and bloodshed (Blondeau, 2015).

Similarly, the developers of *Gone Home* (2013) worked to use the environment to their advantage. But in their case, it was to increase the depth of the characters that the players were learning about. The general idea and emphasis of their story were in place before they began designing the environment.[3] The environment was critical because their intention was for it to convey most of the narrative; the protagonist is alone in the home the entire time and only interacts with narrated letters, notes, and items left behind. The team performed extensive research on the architecture, furniture, style, and technology at the time of the game's setting to help ensure that the environment allowed players to intuit the emotional depth behind the items

[3]It ultimately became a story about a young woman arriving to her family's new "home" after a trip overseas only to find it deserted, discover that her sister had fallen in love with one of her female classmates and ran away from home, and that her parent's reactions to the event were often tainted with hypocrisy stemming from their own marital issues.

they discovered (Craig & Gaynor, 2015). For example, it is one thing to spell out that the father is a failed writer. It is another to showcase dozens of unsold books scattered throughout the house paired with a scathing letter expressing his father's disappointment. It is one thing to say that the younger sister and her girlfriend snuck out to see a concert together. It is another thing to be told that while finding era-appropriate concert memorabilia hidden behind a wall-panel to avoid the increasing suspicions of their homophobic parents. In these instances, and many more, the designers aimed to use recognizable artifacts from the 1990s to add emotion to what was being said and make the characters more human and relatable.

In other cases, the efforts were not directed at the environment or at the protagonists directly but at the narratives the characters were progressing through. This was seen with *Manhunter: New York* (1988), which was pitched internally as expressing themes of rebellion, slavery, and freedom. The game makes this point by having the protagonist track-down humans who are violently rebelling against the benevolent rule of an alien race called the Orbs, only to later reveal that the Orbs are, in fact, quite evil. This causes the protagonist to switch sides and join his fellow humans in his quest against their oppressor (Laine Nooney Sierra On-Line Collection, 1989).

The technique is far from just being reserved for 80s sci-fi; the emphasis on narrative depth can also be seen in *Rise of the Tomb Raider* (2015), the developers of which saw the environment itself as a character who's story the player would also be witnessing:

> [The world] is layered, it has roots, and we want it to speak to the main narrative that we're trying to tell.
>
> Everything we do...in the world is to tell the main story...The main story obviously focuses on Laura [Croft]...everything outside of Laura—this is overheard enemy conversation, this is the collectible relics and documents, this is the history and layers in the game—all of these support Laura's story but they also flesh out the world and provide a variety of other lenses to look through (Pratchett et al., 2015).

8.1.1.2 Providing agency and presence to the players

Many games use the presence of social, moral, and political issues as a means of providing agency and choice to the players. After all, many of these issues do not have solutions fit for every possible situation. This kind of ambiguity allows players to feel like there are multiple "correct" paths or options—and also allows developers to make players feel immersed through

the use of choice and consequence. It is probably unsurprising that the directors of *Life is Strange* (2015), the game featured in the opening section of the dissertation, had this idea at the forefront of their mind. When discussing a scene later in the game where Max must struggle to decide on whether or not to help an alternative-reality version of her best friend, Chloe, take her own life—Chloe had been paralyzed in this reality and her health was rapidly deteriorating—they emphasized how important it was that the choice follows the player back to their original timeline. "The following scenes are extremely important. The player will be back in a reality where Chloe is no longer handicapped but the choice the players just made still resonate and it's important to take some time in those scenes to deal with [that] decision" (Barbet & Koch, 2016).

The idea of using moral choice and consequence as an opportunity for player investment is also used for great effect in games like Telltale Game's *The Walking Dead* (2012) where, as per the designers:

> There aren't a lot of puzzles in this...we took all that stuff out. It's just going to be about the choices you make.
>
> I remember one of the first times that I felt like this could really work was when we were experimenting with the choice notifications—you know "Herschel [a character] will remember [the choice you made]." And it's that scene where you're on the porch and [Herschel]'s questioning Lee [the player-protagonist] about "how did you get here"... and you're trying to hide the fact that you were riding in the back of a police car with handcuffs on. And then some of those notifications started to come in. And I thought. Oh! Ok—this is the game! Sitting on the porch with the guy trying to figure out what to tell him so that he won't kick you out so that you're not going to lose [Clementine—the child you're watching over]...that's when it really clicked for me. I remember thinking "Wow! The whole game is this" (Bruner, Kaufman, Shorette, Darin, & Bissell, 2015)

In many instances, the goal of deepening the world and providing agency go hand-in hand. Some developers see the presences of an engaging world as a necessary prerequisite to encouraging feelings of presence, as was seen in *Her Story* (2015):

> With these games, I kinda felt like I was pushing to tell personal stories—stories that were kind of grounded in reality; have characters with some kind of psychological depth but would also allow players to have a heightened kind of personal sense of connection and engagement with the work…
>
> You are emphasizing with [the characters] and you're living through their experience vicariously. And so when these emotional things happen to these characters in the story, you experience all that emotion. But you have enough distance because it's a character on a

> screen...you have enough distance that you're also able to apply that to your own life or think about the greater thematic picture (Barlow, 2016).

In the case of *The Walking Dead* and *Her Story*, the branches that emerge from the player's choices all ultimately close around a single, fixed ending. But, as I previously explored with *Fall Out: New Vegas*, the ending itself can also serve as an important consequence. Another game leveraging this mechanic and narrative technique for the purpose of promoting "player freedom" (Lavallee & Wilson, 2015) was *Dragon Age: Inquisition* (2014), which programmed various systems for the player-protagonist (the "Inquisitor") to pass judgment onto various people and organizations, which would ripple out into the world and, cumulatively, change the game's conclusion.

The motivation to promote player immersion can also be used to make people consider topics that they would otherwise consider to be uncomfortable or unpalatable to think about on their own. For example, the *Call of Duty* series notoriously includes many scenes that show disturbing and unpalatable actions associated with war—both real and imagined. (One of the most infamous is the mission "No Russian," where players are ostensibly tasked with mowing down Russian civilians in an airport in order to infiltrate a Russian terrorist cell—although the developers made it so that players could successfully complete the mission without killing a single person). What is less known is that the designers of the games often explicitly consult with military experts for a variety of reasons (Fanzine Collection, c. 2005)—one of which is to better understand the Laws of Armed Conflict (LOAC). These understandings are often encoded in the game's tutorials (for example killing a civilian in training results in penalties) and missions (killing too many civilians—oftentimes just one—results in a mission failure). Even violations of the LOAC can be deliberate; they are included as a means of encouraging the players to think about their importance through the (intended) discomfort that comes from violating them. As one consultant for the Call of Duty series noted:

> Giving players a choice [to violate the LOAC] is the best way to illustrate the concepts...Featuring these moral and ethical dilemmas can offer a wider range of choices to

> players, can challenge players to play smarter, can realistically reflect the dynamics of conflict today, and can have a positive impact on the players...
>
> [As an example,] during a clearance operation in an apartment building players can indiscriminately kill everyone, or can try not to harm the civilians. If all approaching civilians are killed, [the player] may miss out on helpful information one civilian was attempting to deliver. [Or] once civilians figure out they are being killed even if they aren't aggressive, they could all start fighting back, making the player's progress more difficult (Greenberg, Brown, Hudson, & van't Land, 2015).

In these cases, providing players with choices to violate the LOAC results in mechanical and narrative consequences that are meant to reinforce their importance in reality. The intent of the developers is for the players to feel agency over their actions—and for this to inspire deeper reflection on the issues.

8.1.1.3 Exploring important topics

As one could imagine, this prior motivation often ties in with the third, and perhaps most intuitive one: the developers include the issue because they feel that it is important and needs to be addressed. This was seen with the previous quotes from the creator of *Metal Gear Solid* who discussed his personal connection to the game's anti-nuclear message and with the creative director of *Far Cry 2* who argued that designers have "a responsibility to make games that push into more difficult territory." Indeed, this was also at the heart of the *Call of Duty* consultant's insistence on including the LOAC in games: "Following the LOAC has proven over the course of centuries to be the best (emphasis theirs) way to wage war...It's difficult psychologically to murder and destroy for no legitimate reason...Adding this element of realism may prove to be the best way to game, too" (Greenberg et al., 2015)

They are far from alone in this. In a 2001 interview with the magazine *Next Generation*, the director of the *Oddworld* (1997) video game series once commented that they avoided writing their characters to be motivated by revenge saying "It's kind of a 'what's a healthy life?' perspective...I think [the perspective of] 'you've been victimized' [giving] you a license to go kill and maim and torture because that's going to be your gratification...I think that's pretty weak" (Fanzine Collection, c. 2005) And the developers of the critically acclaimed game Spec-Ops: The

Line (2012) cast a critical eye on the human cost of war in an industry where "[designers] allow killing to not only be mundane, but run of the mill."

> We wanted to make a game where the moment-to-moment violence was meaningful...to do it in a game in which violence was required to move forward—and required to "win." What we wanted to do with the choices in Spec-Ops was basically...focus it on one very specific moment where the player really had to think about the choices of using a gun, killing one specific person, what the consequences of it might be. We wanted to reinforce the power of the gun in their hands (W. Williams, 2013).

Importantly, the topics do not have to center around violence or come from a place of critique. The sense of importance can come from a place of enthusiasm or out of a desire to bring something they see as good and interesting to the player's attention. Genuine enthusiasm for the topic material was one of the inspiration for James and Michelle Silva, designers of Salt and Sanctuary:

> I'm like kinda a geek for like pre-modern science...before the advent of the scientific method, it was like, "how do we explain this?" Well it's probably a bit of fire and some gods...it was figuring out things including the supernatural as well as the natural (Silva & Silva, 2017).

> So the creeds and their religious themes [in Salt and Sanctuary] were to...really explore religion and culture as a thing.

This drive to emphasize something important to the developers was also seen in Dream Daddy: A Dad Dating Simulator:

> In Dream Daddy you play as a dad whose goal is to meet and romance the dad of his dreams. It's a gay dad dating simulator...Dream Daddy is a really cool game that had a lot of big dreams. We knew we were kinda doing something really cool that had not been explored and we knew we wanted [racial and sexual] diversity and inclusivity as a part of our game. We felt it was pretty important (Hutchison, 2018).

8.1.1.4 Justifying an interesting mechanic

As I discuss in Chapter 3, video games are both narrative and ludic works. They provide stories but also systems; rule-based sets of affordances, and constraints aimed at giving feedback to the players' actions, characterizing their play, engagement, and progression in the world. Sometimes a system, a means of doing something, is so compelling that the designers include it first and find a narrative justification for it later. This is not unlike when a teenager discovers a

new rhetorical device and shoehorns it into their secret poetry, or when a researcher learns a new analytical method and then excitedly thinks of questions it can be used to address.[4] In a medium inherently about interactivity, the how can be just as important as the why—and can, in fact, serve as the nucleus from which the latter expands.

This was the case with a number of different elements of Dragon Age Inquisition. For instance, when describing the Oculara, a magical means of examining vast expanses of land before the players:

> This was one of our earliest prototypes...it was just toying with camera controls, a simple interaction on a pole. You clicked it, you could move the camera around...As this evolved, we added a magical lock-and-key mechanic and even a collection of unnamed McGuffins to try and give it more depth, but without the narrative, without the why, the system still felt really empty. We included writing...and suddenly you were looking through the seven skulls of tranquil mages slaughtered by Venatori ["an armed cult of Tevinter nationalist supremacists"[5]]...this totally changed how this system felt (Lavallee & Wilson, 2015).

Sometimes, the inspiration does not come from something that is already present in the games' prototypes but from a concept that the designers have on a wish-list of features and events. This was a motivation behind one of *Rise of the Tomb Raider*'s (2015) more memorable end-game enemies:

> During the creation of the game we knew that we wanted to have an enemy near the end of the game that we called internally "the deathless ones" that were an immortal army that could not be killed. Now, in my research I discovered that right around the time that we have our immortal prophet leaving the city of Constantinople, there is also an elite imperial guard called the "athanatoi" that vanish from the historical record with the death of one emperor and the ascendancy of the emperor Basil the First. Interestingly, the word "athanatoi" in Greek literally means "without death." So once I realized that we had a missing army with the exact same name with our army...it was obviously a no-brainer to combine those two things (Pratchett et al., 2015).

These instances highlight relatively hard-coded examples. That is, these processes are given an established socially, morally, or politically-relevant meaning by the developers that are relatively stable across different playthroughs. The oculara and athanatoi are present regardless of who plays the games—and their meaning in the contexts of their respective worlds are pretty

[4] I speak from experience on both counts.

[5] https://dragonage.fandom.com/wiki/Venatori

much fixed. In other games, though, the meaning is intended to be an emergent property, arising dynamically in a gamespace where multiple factors are interacting together based on a mixture of inherent properties and player inputs. This is a popular technique in resource management games, such as Utopia and *SimCity* (1989). For example, in the code for Utopia it can be seen that population (which is itself a factor in leader approval and the society's "state capacity") is determined using the following calculation (Daglow Collection 1981):

$$NewPopulation = Population + (PopulationxFertility) - (PopulationxMortality) \quad (8\text{-}1)$$

Where fertility and mortality both are equations that depend on the current state of the island's crops, hospitals, schools, and housing capacity. In the case of *SimCity*, lead developer Will Wright intentionally designed the game to consider concepts like infrastructure, how economic prosperity was affected by the ordinances the player instituted, demographics, and natural disasters. In doing so, he strove to focus on making it so the processes the players undertook mapped naturally to the model but for the many procedures making the model work to only appear realistic when observed as a whole. As he scribbled in one of his contemporaneous design notebooks "Tradeoffs: behavior [of the individual parts] not realistic. But emergence is" (Will Wright Collection, c. 1990).

Emergent meaning can also be seen in management games that are more whimsical, such as *Slime Rancher* (2016). In that case, most of the "story" comes from what the developers identify as "emergent storytelling"—or interactions that occur when developers "cook emergent behaviors into the actors in your game which generates emergent gameplay" that is driven by the "wants and needs" encoded into many simultaneously actors. The results are "chaotic" but players derive meaning from them. One example is the tendency for slimes (which are cute little sentient blobs that the player—as the title suggests—raise on a ranch) to "escape" their pens to hunt for food. They do this by gathering together in the corner of their cage, piling on top of one another until a few can climb up, then these lucky few bound over the top of the fence and bobble over to where the food is at. This is a common experience among players and many assume that it is done

intentionally to teach them how to better manage their land and resources. But, in fact, this behavior is not scripted into the game. It only emerges as a consequence of probabilistic tendencies (slimes drifting towards the corner; choosing to stack atop one another) and deterministic drives (slimes seeking food) all occurring together in pure happenstance. But the designers knew that the players impute the meaning into the slime's actions and use these interpretations to inform how they go about managing their ranches in the future (Popovich, 2017b).

Not all instances of mechanics informing gameplay come from a place of abundance—from having the resources or opportunity to expand a game to meet the increased demands of the feature. Sometimes it comes from a place of scarcity; of lacking the time, financial resources, or technology to fully articulate their dreams. Interestingly enough, this was actually the case with *Slime Rancher*:

> We were faced with a development reality: We were only two people. We could not make a better version of any kind of known property out there. It didn't matter that I had a great idea for a military shooter...[bigger companies] are always going to win... Every aspect of Slime Rancher's original was design informed by the core gameplay. It created a very focused, confident game right off the bat. And it's cheaper to do that—I cannot stress that enough. If you are early on in the development of your game and you're like us and you're not getting paid for years...don't just work on the stuff that you think is fun, work on the stuff that makes it strong (Popovich, 2017a).

On some occasions then, the affordances and constraints that allows relevant meaning to be present in games are, themselves, conditioned upon affordances and constraints developers face in the real world. Ultimately, all games are limited in terms of money, labor, time, and technology. But it says something that, given these very real constraints (and sometimes because of them!), developers still deliberately strive to incorporate socially, morally, and politically relevant content into their products. Most games being produced are non-serious—they are designed with fun and play as the foremost consideration. But that does not mean that the play they offer is frivolous or otherwise bereft of thought-provoking content.

8.1.2 Motivations Behind Including Relationship-Building Multiplayer

Just as the evidence at the Strong made it eminently clear that many developers were deliberately interweaving social, moral, and political content into the narratives of their games, it was also quickly apparent that designers were aware of the social connections underpinning and emerging from their multiplayer content, as well as grokking their interpersonal importance. Consequently, I was also able to investigate the motivations behind these choices as well. I identify three: Increasing the amount of fun players have with their product, increasing the amount of engagement with (and economic value of) their products; and to fully articulate an artistic vision for a game and its world.

As with the narrative motivations, these are not mutually-exclusive and are found in many more games than I highlight here. But these three motives give insight into why multiplayer games incorporate experiences encouraging the development and maintenance of social capital among their players.

8.1.2.1 Increasing the total fun

Many developers of multiplayer titles believe that gameplay experiences are simply more enjoyable when they're done in groups. "[When I was a kid] I made games co-op" Kevin Martens, game developer at Blizzard, reflects 2015. "I would make people sit-down and play with me, co-op. I would arrange a sleep-over at [a friend's house]...I'd have a bunch of people...sit around the computer in a semi-circle and take turns solving these quests." This love for sharing experiences ultimately help guide him when he was part of the team developing, *Baldurr's Gate*(1998), *Neverwinter Nights* (2002), and *Diablo III* (2012). In this role, he realized that, in the multiplayer experiences, the story that was originally scripted by the developers takes a backseat to the one that arises from the players' interactions.

> Once co-op starts, it wasn't our game anymore. It became something else, this is really important...I think that players adopt a universal story—it's a story of them and their friends dominating the mechanics of their game and collecting awesome loot.
>
> We hand-craft [the single-player narratives]...the timing, the pacing, the foreshadowing all that stuff. You have to let that go. People don't care about it—they really don't...it's a story of

> them and their friends kicking ass and collecting loot. And that's OK...People don't care about the story at all [when they're playing together].

This understanding was pivotal in constructing the mechanics of play in *Diablo III*'s launch (for instance, making it so that the party had to be doing the same quest) as well as in updating the mulitplayer gameplay after launch (implementing lists to make it easier to re-join with friends-of-friends at a later date; adding clans to make it easier to join a game with people in your extended network). James Svenson from Criterion Games expressed similar sentiments when reflecting on the process of designing *Need For Speed: Hot Pursuit*'s (2010) asynchronous multiplayer:

> When you're playing the game with friends, then that makes the game endless. Then it becomes a vehicle for your friends to get together and hang out and interact together—and just have those interactions between real people...gamers are social people. And having those interactions with friends, that you can attribute those actions to a real person, just makes it a lot more interesting—a lot more meaningful. And it makes it more memorable. And then those interactions and that fun that you had in the game, that can spill over into your real-world conversations. And in that way, the game just grows and grows and becomes a really great experience to share (Svenson, 2016).

In order to stay true to that vision, the developers attempted to curate the game content such that it auto-generated "stories" on top of the single-player content that was specifically curated towards meshing with a single, overarching idea: "Someone beat you." To that end, they designed dashboards to make it easier to join races and chat with friends who were online but also to construct a "recommendation feed" where people could jump in and attempt to out-do their friends' performance in an asynchronous fashion. They also incorporated a feature that suggested in-game friends based on who was already in their network and who they had played with recently. In fact, friend count was a metric that Criterion strongly prioritized throughout the game's development and launch (Svenson, 2016).

Some developers not only see encouraging social play as more fun but as a way that games can enrichen the lives of those who play them. As articulated by Daniel Cook, the co-founder of the studio Spry Fox:

> I got into [making] MMOs, and I realized that people—people!—are actually kinda important... People are cool, people are interesting, and you can build games, with people, to make people's lives better...We're really interested in, like, the whole spectrum of humanity out there and how can you make games for them? And one of our...slogans is "making happiness."...[We have a drive to see if] games can contribute to humanity.
>
> I don't build games because I love games...that's not what I do. I mean, games are cool—don't get me wrong, but games are a tool. As a designer I think of games as a tool that can help us bring happiness to the world: A tool that can make people's lives better...Looking at, like, OK, what improves people's lives?...This is one of the big findings that comes up again again in social psychology. A small number of deep friendships leads to greater happiness in life (D. Cook, 2018).

He expounds upon "four laws" for friendship formation, resting upon his research into the studies stemming from the seminal works of Schacter and Festinger in social psychology—and his laws actually harmonize quite well with the prerequisites for social capital I have articulated throughout this project (although there are some key differences in focus). These laws are: Proximity; similarity; reciprocity; and disclosure. He then goes on to describe how games can engender systems to encourage these four things including facilitating repeated contact, assigning them into factions and/or clans that can cut across real-world identities, encouraging reciprocity through chat, shared goals, gifting, and gameplay roles, and filtering disclosure to build trust among players.

Whether it is seen as an integral responsibility of the designer or simply a means of increasing fun, many games aim to incorporate multiplayer mechanics with the simple, but reverberating, aim of enhancing the player's experiences.

8.1.2.2 Increasing engagement

Another motivation among developers is to increase the amount of engagement players have with their product. While this drive can—and often does—overlap with the previous one, they are theoretically and practically distinct. The main point of departure between the two is that, in the last motive, the developers were focused on maximizing the amount of enjoyment the players derived from the product; there was often an acknowledgment that the games fit in a limited space within the players' lives and the intent was to use multiplayer to maximize the value they gained during the experience—however long they were involved. Increasing engagement is

more about maximizing the amount of time players spend with the product. This can certainly come as a result of making it more fun, increasing the replayability of the game, or adding additional content. But for many developers, multiplayer is seen as a means of keeping the story going—encouraging players to keep spending time in the world they had constructed.

One important means of increasing player engagement is through successful community management. This often involves taking multiple streams of player feedback, posted on game distribution sites, social media platforms, informal community networks (e.g. Reddit), and company hosted web forums in order to try and strike a balance between satisfying the players' wants/needs (given their resources) and maintaining a coherent vision for their content (van Vugt, 2019). A core goal when it comes to addressing these data is to increase engagement with a particular aspect of the game or with the entire game itself.

An instrumental form of feedback comes by means of player telemetry: data generated by the players in the normal course of play (for instance, how long each player spent in each available game mode, who they played with, what they typed into chat, whether they won or lost, whether they participated in particular events or challenges) that can later be dissected by data scientists to inform future design decisions. In this form, the data naturally lends itself to advanced network analyses, which can ease the creation of models and algorithms aimed at redressing an issue the studio is facing (Casassovici, Alex & Miravete, 2018). This was the case with Riot Games' *League of Legends*, which noticed that player enjoyment and retention were suffering as a result of players coming into contact with a minority of "toxic" players, who were prone to cursing, using racist and sexist slurs, and otherwise creating a hostile environment for other players. They used a mix of player telemetry and reporting features to address the problem with an eye towards bettering the experience of the remaining players—and, just as importantly, towards decreasing player churn.[6]

[6]"Churn" refers to cases where people enter and leave the pool of active players within a community. As with any business, designers are interested in both increasing the time it takes for people to stop participating as well as decreasing the frequency of churn events altogether.

> In competitive multiplayer games, the social interaction between players is one of the top reasons players stop playing your game and keep playing your game. In a recent analysis in League of Legends we found that the more toxicity that players experience, they're up 320 percent more likely to never play [the] game again. (Lin, 2015)

Designers are not only interested in maintaining player engagement for its own sake. It is also important for the game's economic return. For many games over the last few years, the bulk of their earnings do not originate at the sale's counter or the check-out page. It instead comes via various forms of in-game bonus content that can be purchased using real-world money. Many developers try to sell players on additional levels, cosmetic items, so-called loot boxes, and/or subscriptions to premium content. These are often priced at relatively nominal sums (usually between $0.99-$5.00 for bonus content and $10-$15 for subscriptions), but the more players engage with their content, the more likely they are to make multiple small purchases—which can quickly accumulate into fairly substantial sums.[7] (This business model is under increasing ethical and legal scrutiny around the world due to the fact that it often appears to target younger players and uses feedback mechanisms that resemble those used to hook people into gambling—see Zendle & Cairns, 2018). Indeed, the multiplayer for *Assassin's Creed Black Flag* was explicitly formulated in a way that would increase the earnings gained from these micro-transactions (Kieken, 2013).

Network analysis can also be used towards these economic ends, being used to find and retain players who will draw in the most income to the company—not only through their own purchases but by those that they can indirectly encourage via their interpersonal connections.

> I want you guys [the audience of the talk] to get into the frame of mind that the way that the people connect to each other inside your game is paramount. . .
>
> [For a real-world example], this is a separate [social] system, and I'm focusing in on this blue node—this person that's going to leave. You can see here...that they're not a big spender...and the community is about triple that person's value—so they're integral but they're not the entire community.
>
> And bang. On day one, this person leaves and what happens is all of those [connections between them and the other members] disappear. That's the really, really damaging thing about that person leaving. Yes there's the initial monetary impact but much, much worse than that is that, next month these [connections] aren't going to exist. And that person who was isolated before, who could reach others through the central person, is now

[7] In the case of many mobile games, engagement is more directly tied to revenue though the presence of in-app advertisements which pay a certain rate per every thousand people to come across it.

> disconnected—they don't really have a way to reach everybody else. And so now everybody else is not only much less likely to stick around, there's a higher churn probability for all of them—almost overnight—but they're also going to have less fun because they're differently connected. (D. Williams, 2016)

Whether to increase engagement for its own sake or because it is an intermediate step towards further profits, developers often focus on the relationships between multiplayer participants with the intent of increasing the amount of time players spend with their products.

8.1.2.3 Fully realizing an artistic vision

Finally, some developers strive to incorporate deeper connections during their multiplayer experiences because it allows them to actualize the artistic vision they had for the game. For some, multiplayer is an integral part of the experience they want to deliver. Some ideas just naturally lend themselves to multiplayer; some of the most obvious examples are games based on sports like tennis, boxing, baseball, and football. Many of the earliest video game renditions of these activities included options to play together (S. L. Kent, 2001; World Video Game Hall of Fame, 2018). After all, as I detailed in the beginning of the last chapter, *the very first* video game was a multiplayer game of tennis. But it can also be seen in the creation of more recent sports/esports games such as *Rocket League*. As recounted by Corey Davis, one of the game's lead developers: "I don't know how to imagine Rocket League without being easy to party-up with your friends and queue, like that's a big part of the appeal." Indeed, the design team recognized it as such a critical component, especially given the contemporaneous state of the multiplayer ecosystem, that they delayed releasing the game by six months to make sure it was properly implemented (Davis, 2016).

But the artistic desire for multiplayer games to feature authentic relationships extends to the developers of Massively Multiplayer Online games (MMOs). One factor that can make an online world appear more immersive, to feel more real, is for it to host large groups of people with connections to one another and situate them in a space for them to interact with both shared, countervailing, and independent goals. In discussing *Warhammer Online*, president of Climax, Karl Jefferey, describes a persistent world characterized by the ways players interact with one

another. “We have this global world composed of regions or kingdoms, and below that are domains, which are owned and developed by players. So there’s resource management to it. You can progress to the ruler of your race and, if your race is the dominant one, than you become the emperor” (Fanzine Collection, c. 2001).

Developers and engineers take great pains to make sure that the technical aspects of their games are able to deliver on the promise of an open, lived-in world. In addition to many other community-building techniques that returned in *Destiny 2* Bungee’s *Destiny* employed a number of technical innovations in how they matched players with one another o make it so that there were many player-characters present at any given time and place—or at least make it so that someone was never too far away. The system allowed players on separate quests, even quests in the single-player campaign, to intersect each other and, in some instances, help each other out. This was intended to engender the feeling that the world, established by the narrative elements, was actually populated by dynamic actors.

> All we really had to start [when designing Destiny] was some key design pillars, that informed all the early architectural planning. These design pillars were: Making a kickass action game; Making sure it always supported Co-Op; Allowing you to meet strangers; and untethered freedom to explore…

Then, going on to describe the second and third pillars:

> “Everything is more fun with your friends”—this means to us that every activity supports co-op gameplay. Always. This also means that you can always hook up with your friends—every activity supports join-in-progress, and we endeavor to make that available at all times.…
>
> Moving on to our third pillar, which I like to state as “Showing off is more fun if others are watching.” At Bungie, we believe really strongly that, even with the minimal social interaction verbs we provided in Destiny, the mere existence of other players, perceiving you and your avatar, gives value to your actions…
>
> [We’re] convinced that if we can take even a solo player with no friends on Xbox Live or PSN, and regularly put them in rooms with other people, they will care more about their fancy hat and their attack power, and the level number over their head. We also wanted these strangers to not be pursuing the same goals as you. We think of it as intersecting, not parallel, lines—we don’t want these strangers competing with you for resources, or pushing you forward at a faster pace than you’d like. Instead, intersecting with strangers that are not directly competing for any of your goals minimizes friction and potential resentment. (Truman, 2015)

For many designers, multiplayer is not something that they tack-on as an extra. It is a foundational part of the artistic vision guiding the game's development. In order to deliver the intended experiences, developers strive to make the games accommodate preexisting relationships but also allow new ones in order to make the worlds they deliver, ultimately resting atop compiled computer code, feel vivacious and alive.

8.2 The Signal is Discernible

In the last section, archival evidence ranging from the 1970s up through the late 2010s showed that video game designers are intentionally incorporating socially, morally, and politically relevant concepts into (at least some) of their story-driven games—the kinds of experiences that engendered the effects seen in Chapters 5 and 6. Additionally, many multiplayer designers likewise acknowledged how their games engender the kinds of relationships that drove the causal link between social gaming and participation seen in Chapter 7. It is clear that many designers at least intend for these factors to appear in the experiences they design.

The second part of the signaling equation is whether or not these intentions actually make themselves visible in the final work. As anyone who has ever embarked on a creative venture (be it making a painting, playing an instrument, or writing a dissertation) will attest, there is sometimes a stark difference between intent and execution. Within the code of these games lies something that the designers hoped would be apparent to the players. Is this hope realistic? We know from the case studies in Chapters 5, 6, and 7 that these intentions pull-through in at least a handful of games—but those are titles I selected with the express intention to make and illustrate a point. What about all the other games that could have gotten a vignette but did not? How many other games in the general gaming environment also come with social, moral, or political relevance? How many engender or otherwise allow the formation of social capital through multiplayer experiences?

To this end, I completed a content analysis on a random selection of 50 of the most popular games released from 2007 through 2017. I compiled this list by analyzing the releases of the Entertainment Software Association (ESA)'s annual State of the Games Industry document,

Table 8-1. Attributes and issues investigated in the content analysis.

Game Structure	Social Issues	Political Issues	Moral Issues
Game Name	Addiction/Drug Abuse	Interact with Ruler	Care
Release Year	Mental Health	Work on Ruler's Behalf	Harm
Platform	Economy	Be Ruler	Fairness
Duration Played	Environment	Interact with a Ruler's Agent	Cheating
Avatar Point of View	Race	Work for an Agent	Loyalty
Avatar Species	Technology	Be an Agent	Betrayal
Avatar Gender	Sexual Assault	Change a Policy	Authority
Illusion of Control	Abuse	Revolt/Revolution	Subversion
Game Format	Self-Harm	Assassination	Sanctity
Multiplayer Options	Homosexuality	Terrorism	Corruption
Game Genre	Education	Protests	Religion
	War	Elections	Freedom
	Policing	Sanctioned Participation	Oppression
	Surveillance	Plan Buildings/Structures	Good
	Hunger	Care for Constituents	Evil
	Healthcare	War Between States	
	Media	Witness a Dispute Between Two Groups	
	Immigration	Act to Resolve a Dispute Between Two Groups	
	Disease	Allocate Resources	
	Abortion	Witness a Disparity in Rights	
	Gambling	Change a Disparity in Rights	
	Social Violence	Decide the Fate of a Polity	
	Social Unity	Witness Rights/Protections	

which details the best-selling games of that past year. In playing them, I spent over 500 hours to see if parts of their experiences touched on issues of social, moral, or political consequences or if they allowed significant multiplayer interaction. I included race, technology, the environment, homosexuality, policing, and the media. Political issues included allocating resources, interacting with a ruler, being a ruler, serving a constituency, war, and terrorism. Moral issues included religion and things evoking Haidt's moral foundations theory as explicated in *The Righteous Mind* (Haidt, 2013). Table 8-1 details all of the issues that I coded for. While doing so, I also noted whether or not the games allowed players to join games together and whether this was online, offline, or both.

I detailed the full selection process in Chapter 4, but a few important points bear repeating here. First, the emphasis of this analysis was the prevalence of relevant story-based material. At the time I designed my selection strategy, *Fortnite* was dominating news headlines and boasting tens of millions of accounts. It seemed less pressing to investigate whether multiplayer experiences were a prominent part of the gaming ecosystem—they very clearly are—but how prevalent pertinent topics were story-based games, and their overall presence in the ecosystem, remained an open question. I limited the game universe to those that had some kind of story element and eliminated from consideration those that did not have a story: those that were too open-ended to have a "single" generalizable outcome (such as *The Sims*), those which were simply sports reimagined in an environment where pesky things like physics and mortality are optional inclusions, as well as simply digitized versions of existing games like Monopoly or Yahtzee. That is, I deliberately excluded many games that offer the kinds of multiplayer experiences underlying the effects seen in Chapter 7. This means that my estimates regarding the prevalence of multiplayer games is actually biased downward. There are more multiplayer games than the results suggest here.

Indeed, my coding was intended to be more conservative with regards to the narrative elements as well. When I played the games, I approached them as a "normal gamer" would. I played them on average difficulty, I customized characters to look more or less like me, and I generally tended to stick to the main story-line. Many games offer unlockable extras and Easter eggs to reward players for exploring more of the game; others offer free (or, increasingly, paid) Downloadable Content (DLC) which can extend or deepen the story; some games offer optional side-quests that generally deepen the world or the relationship among the characters; many have interactable objects like tape-recorders and books that tell more of the story or give additional details about the world and characters; and some games are amenable to modifications (or "mods") which can do everything from swap out the textures, to adding new storylines, to making all enemies turn into Thomas the Tank Engine—which is frankly more terrifying than keeping them all as dragons or as undead monsters. I eschewed all of it. If the side-quest appeared

unnecessary to completing the game, I ignored it. If the unlockable extra required me to stray too far from the main path, I left it locked. Similarly, if they were not already on the way or otherwise necessary to unlock the next level or room, I left many books unread and recordings unheard. I abstained from mods and DLC—everything was as it would have been if a casual, non-enthusiast picked up the controller and had at it. On the one hand, this gave me a to-play list a mile long, as I now have to go back and play some of the best games of the decade as I would normally play them. But, this means that there very well could have been additional, significant moments that I missed. In sticking as close as I could to the necessities or to those things that were obviously intended to be interacted with, I ignored materials that may have covered additional topics. This means that when I say things like "66 percent of games experiences covered social issues," that estimate is biased downwards towards zero. To be sure, no one should get carried away and think that it could be as high as 100 percent—the publishers of most sports games would probably rather crawl over glass than lose paying customers to a controversial social issue—but it is not inconceivable that they could be a few percentage points higher.

Because the findings are more succinct, I will first cover what the content analysis suggests about multiplayer experiences. Afterwards, I will turn to what they suggest about the prevalence of social, moral, and politically relevant experiences within the games' narratives.

8.2.1 Multiplayer Games

Of the 50 games that I played through, 82 percent of them (41) included multiplayer gameplay. While some experiences exclusively had special multiplayer arenas or modes (16 percent)—and slightly more (22 percent) had both players go through the original campaign—the largest plurality of games (44 percent) had opportunities for multiple players to either play the main campaign together or play a separate multiplayer version. Likewise, while games with explicitly cooperative multiplayer out-number explicitly competitive multiplayer 3 : 1, (18 percent versus 6 percent), they are both dwarfed by the proportion of games that offer both cooperative and competitive environments (56 percent).

In the last chapter, I identified two different causal paths with respect to social capital, video games, and political participation. The evidence I presented there suggests that social capital mediates the relationship between online play and participation, suggesting that as gamers play online, they gain social capital which translates to additional political participation. When it came to those playing with others in the same room, though, it appeared that *gaming* was the mediating factor rather than social capital. This suggests that so-called "couch co-op" games reflect, and are used to strengthen, interpersonal bonds, which then go on to increase political participation separate from the game itself. What pathway is more prevalent in the gaming environment? A common complaint among those who play games today is the lack of options to play with their friends together in the same room. Is the relationship between social gaming and participation now more about creating social capital rather than maintaining and strengthening it?

The consumers are certainly correct in noting that there are far more exclusively online multiplayer games than exclusively offline multiplayer games; the former outpresents the latter at a rate of 5 : 2. But, just as with explicitly competitive versus explicitly cooperative game, they are not the largest part of the gaming environment as a whole; online-only games constitute 30 percent of the games sampled and offline-only games constitute just 12 percent. The largest plurality of games, 40 percent, offer both online and offline multiplayer options. It seems like gamers have plenty of opportunities to establish new ties or maintain current ones—depending on what they would prefer to do.

It is important to not overstate the prevalence of multiplayer experiences represented in these numbers. Just because a game has multiplayer capabilities does not mean that many people take advantage of that opportunity (or took advantage while the servers were still online). Some games and series, like *Halo*, *Diablo III*, *Grand Theft Auto V*, *Super Smash Brothers*, and *Call of Duty* have vibrant multiplayer communities years after their initial release. But one would be hard-pressed to find an online partner for *NBA 2K11* considering that the servers for the game shut down in 2017. In other games, like *Assassin's Creed* or *Civilization*, the online multiplayer is

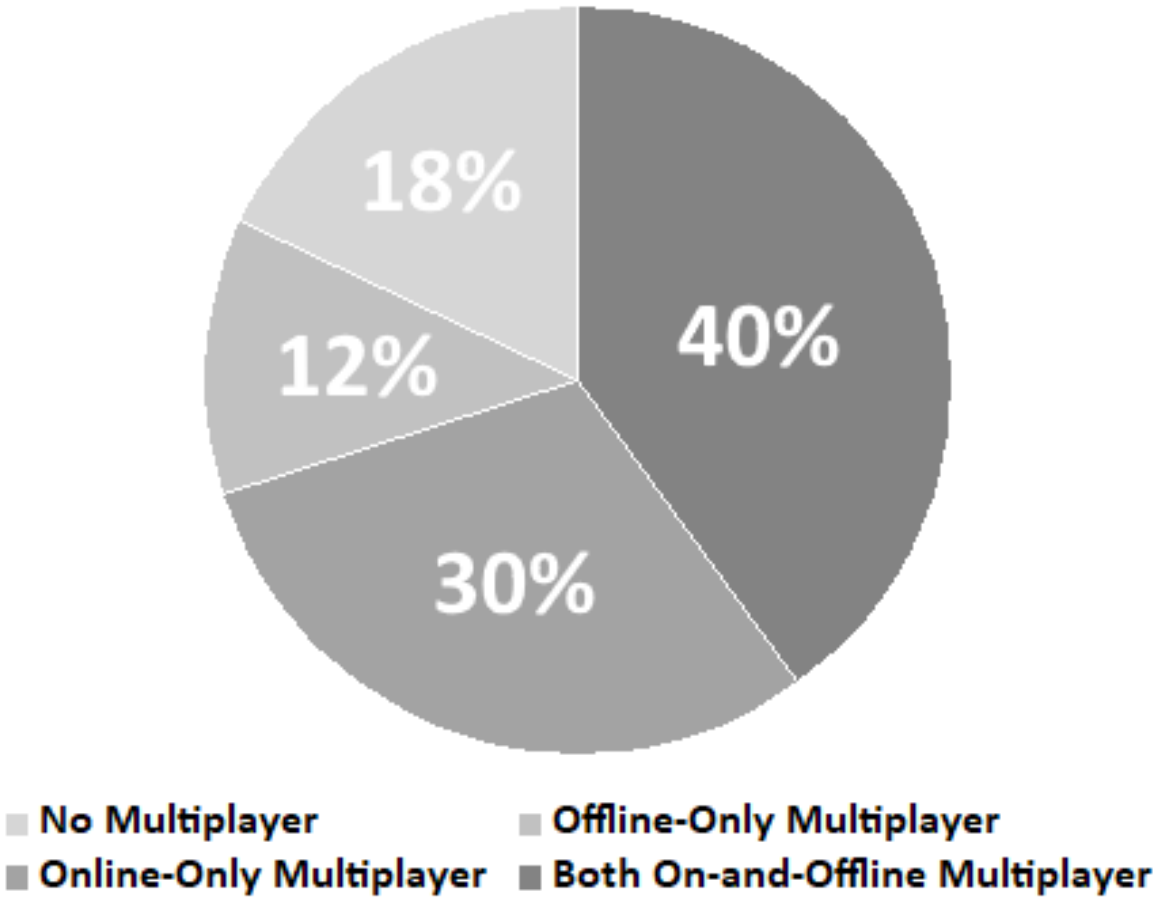

Figure 8-1. The frequency of multiplayer gameplay opportunities among the 50 games in the content analysis. 82 percent of sampled games had some form of multiplayer content–and the largest plurality of games sampled had both online and offline multiplayer.

not generally used. People tend to play the campaigns by themselves and, in the case of *Civilization*, play with each other through a local network or by passing the controls back and forth. It is similarly important to not overstate the ability of the games to engender and/or strengthen social capital either. While Nintendo started allowing online play with the release of the Wii console[8] in 2006, it is notorious for not allowing voice-chat through its consoles. Players engaging with strangers in an online game of *Mario Kart* never have the opportunity to say so much as a word to each other.

[8] At least in terms of the "modern" console generations. They actually tried their hands at online gaming with the Japan-only Famicon console in the late 1980s (S. L. Kent, 2001).

However, while it is important to not oversell the multiplayer experiences on the list, we do not need to give them short thrift either. The number of games that could be excused through any one of the above-mentioned objections is small—and, most of the time, they can make up for it through other multiplayer modes. To return back to Nintendo, while their games will not engender new social capital development online, that also is not the point of the games. With the possible exception of the *Pokémon* series, most players of most Nintendo games are not turning on the console to play with strangers from around the world. In the multiplayer scene, the company is known for its so-called party games, which are meant to be played with friends in the same room. Their intent is not to help people make new connections in these games but to strengthen those that already exist.

The vast majority of games in this survey of popular titles (82 percent) are multiplayer. Of those, all but maybe a handful could credibly have been featured in Chapter 7's illustrative case studies. Most games released today are multiplayer. And most of those employ the techniques explicitly noted by developers to try to facilitate significant relationships and a sense of community.

8.2.2 Story-Based Games

How many games included socially, morally, and politically relevant content in the experiences they offer their players? The numbers vary depending on which of the three we are talking about, but each well exceeds a majority of games sampled. 66 percent (33) games engaged with at least one social issue, 76 percent (38) deal with at least 1 moral issue, and 74 percent (37) deal with at least one political issue. It is certainly not the case that coverage of important sociopolitical topics are limited to "serious games" or otherwise represent a small niche in the market of popular games. If it is the case, as shown in Chapters 5 and 6, that games which make people think about social, moral, and political issues can lead to increased civic participation as well as changes in political attitudes, then they appear to have ample opportunities to come across such content.

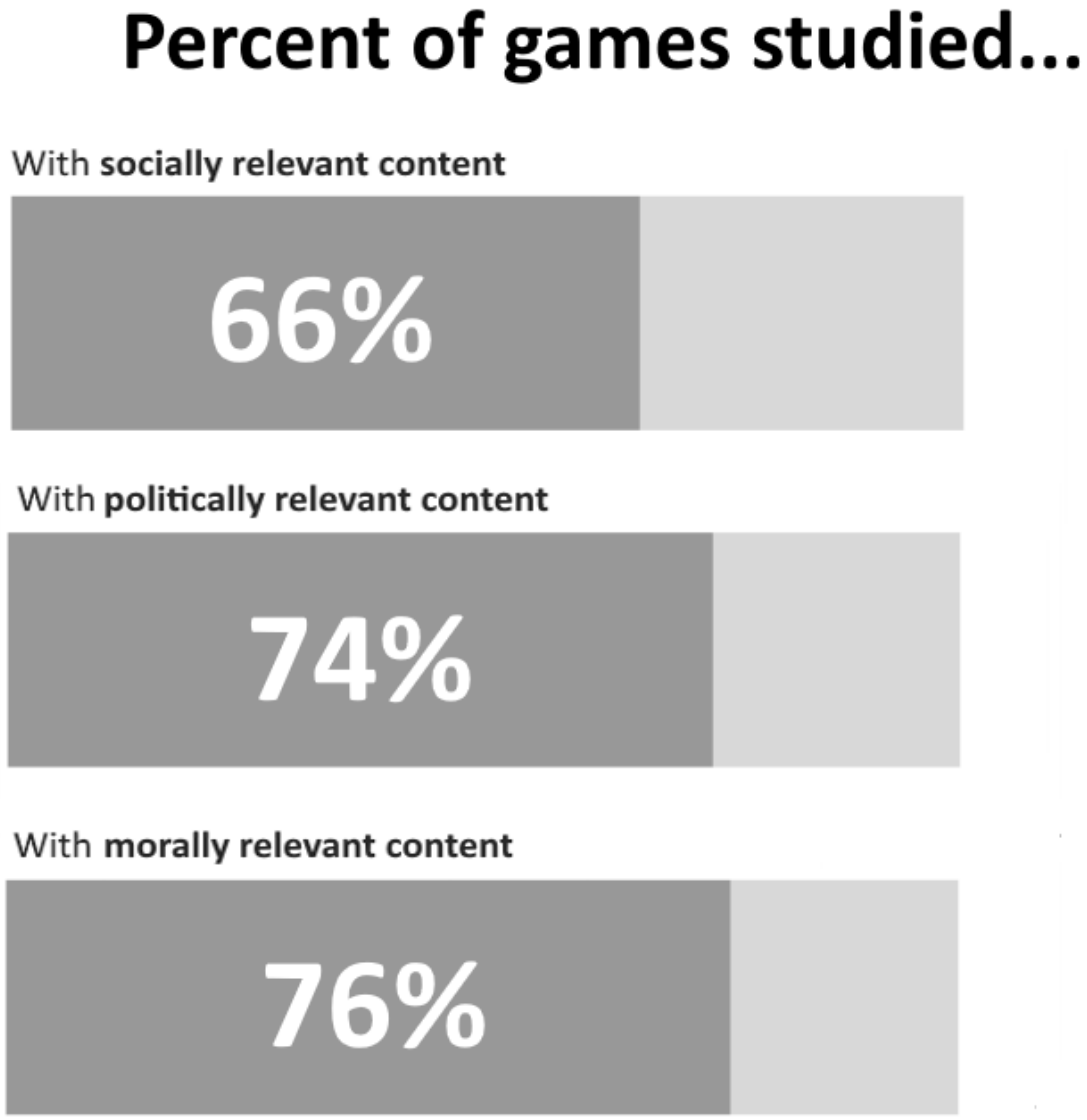

Figure 8-2. The prevalence of socially, politically, and morally relevant content in the stories of the 50 popular video games I sampled. The super-majority of games contained at least one such issue, meaning that people have ample opportunity to be exposed to the kinds of content leading to the effects in Chapters 5 and 6.

Framing it as the number of games that cover at least one of the social, moral, and political issues might give the impression that most games are more like Celeste, covering a small number of important topics at substantial depth. That is not the case. If games touched on one topic, they often touched on a number of others. If the game touched at least one social issue, then they, on average, discussed another 8.1 issues for a total of 9.1. In other words, they would tend to cover

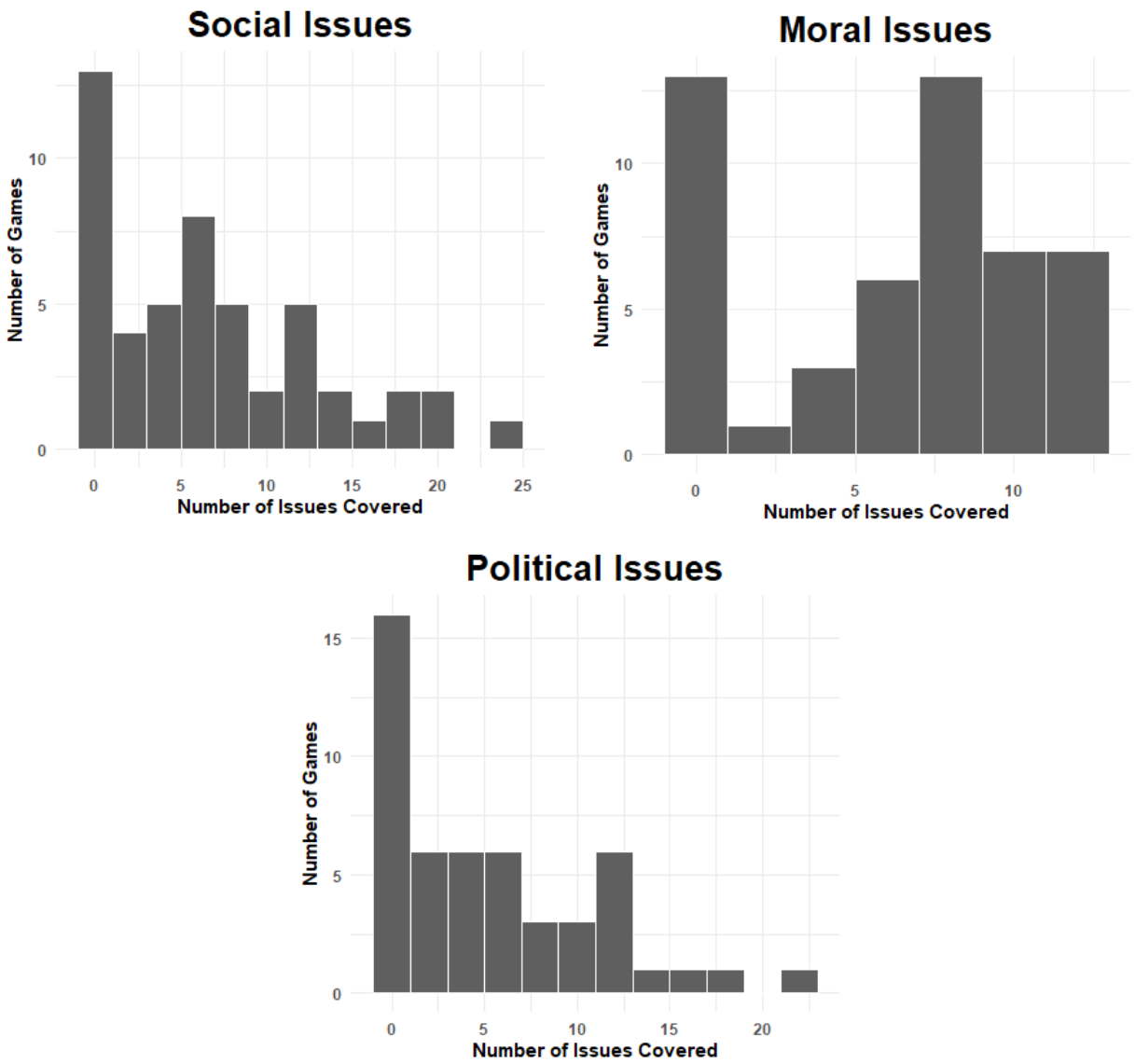

Figure 8-3. The number of socially, morally, and politically relevant issues covered by the sample of 50 popular games I analyzed. Most games covered at least one issue in their games—and if they covered at least one, they were expected to cover several.

more than a third of all the social issues that I coded for. If the game touched on one moral topic, it often touched a total of 8.5, or over half of the moral categories that were covered. Political topics were comparatively the least-well covered—but that is like saying that Neuquensaurus is the smallest of the earth-shattering, long-necked titanosuars that roamed the Earth during the reign of the dinosaurs: Relative smallness does not mean absolute smallness. In the case of

Neuquensaurus, the animal still spanned over 20 feet and weighed-in at over 10 metric tonnes. In the case of politically-important topics, one issue being discussed meant that, on average, 7.5 were discussed, or just over a third of the topics I coded for.[9] As seen in the bottom half of Figure 8-3, while there were a handful of games that covered far more topics than others, the outliers are not so many or extreme that it substantially changes the core conclusion: Most games contain content regarding social, political, and moral issues. And, when they do cover these issues, they tend to cover a number of them.

Some of these issues tend to occur alongside a regular group of others. If games made players witness a dispute between groups or factions, they were also likely to make players decide how to resolve that dispute (like when *Fallout: New Vegas* makes the player choose which of the 3 factions—if any—they want to control the New Vegas Strip). When the moral concept of "care" came up, it was common for "sanctity" to also come up. And the issue of policing often came in tandem with surveillance. Figure 8-4 looks at all the possible pairings of social, moral, and political issues covered and looks to see how strongly they are correlated. If an issue tends to co-occur with another, they will have a positive correlation coefficient; if one concept's presence is associated with another's absence, there will be a negative correlation coefficient. This association is stronger the further the values travel from 0 towards 1 for positive correlations and towards -1 for negative correlations. Most of the issues are positively correlated; only the political concept of "terrorism" has any modest association with the absence of another concept—which is planning the construction of physical structures, as what one would have to do in a game of *Civilization V* or *Fallout 4*.[10]

[9]The standard deviation of these numbers were 6.1, 3.3, and 5.1, respectively.

[10]Abortion is not visualized, but that is because it did not have either a positive or negative correlation with any concepts. Somewhat surprisingly, the issue was not broached during any of the playthroughs.

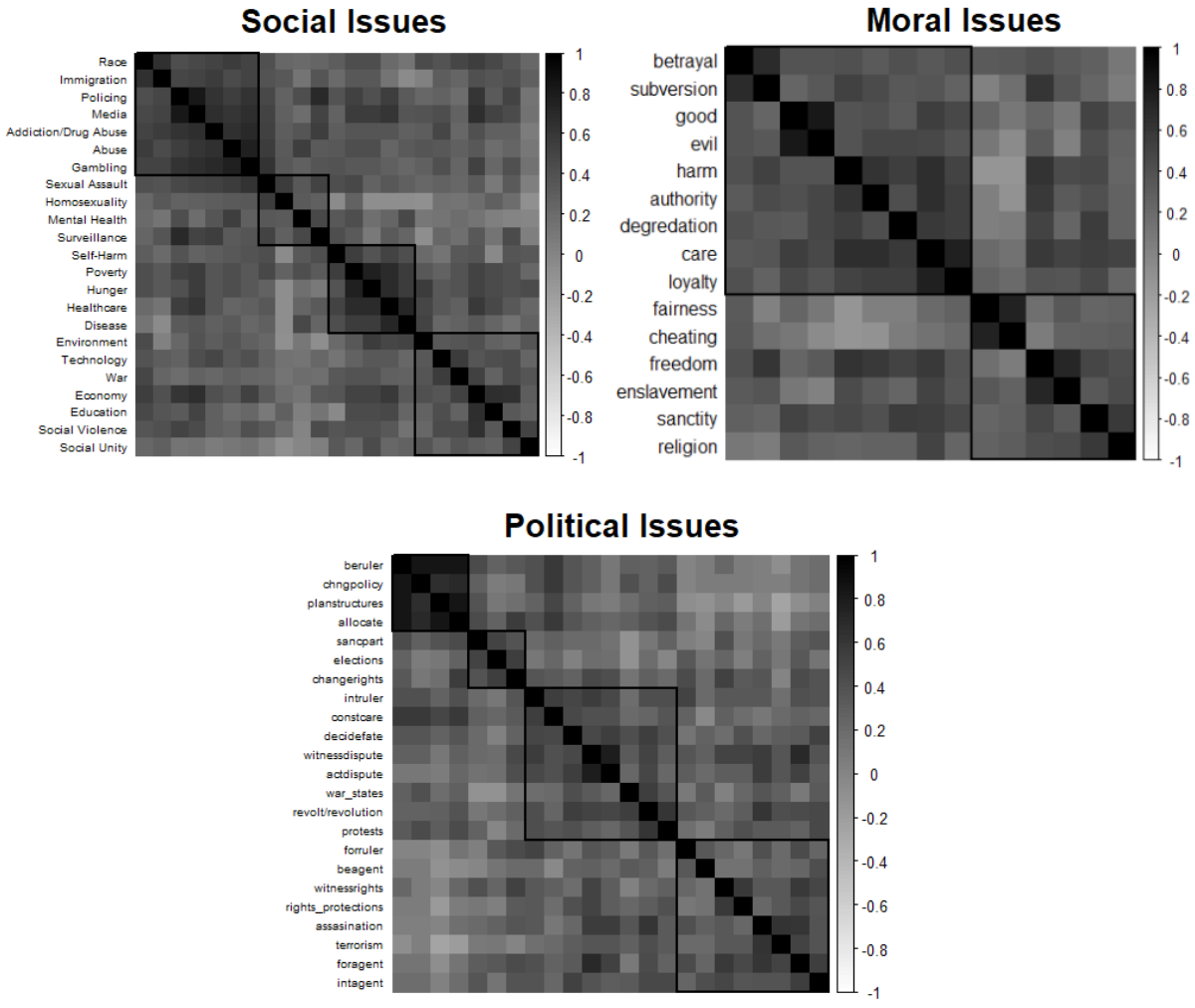

Figure 8-4. How the occurrence of social, moral, and political issues were correlated with other such issues—and how these issues clustered together—in the sample of 50 popular games analyzed. The analyses revealed that some issues do tend to occur together: There were four clusters of social issues, two of moral issues, and four of political issues.

To see if concepts tend cluster together, I use a technique called hierarchical cluster analysis to determine the what issues tended to occur together and how many such clusters existed among the social, moral, and political experiences represented.[11] The analysis suggests that my data can be parsimoniously expressed as four social clusters, two moral clusters, and four political clusters.

[11]For the more technically-inclined: I converted the correlation matrix into a distance matrix and ran the hierarchical clustering algorithm based on Euclidean distances. The number of clusters were ascertained by visualizing a dendrogram and "cutting" at the point where the distance between branches dropped off. This resulted in the four, two, and four respective clusters displayed in Figure 8-4

The first social cluster includes race, immigration, policing, media, addiction, abuse, and gambling; the second contained sexual assault, homosexuality, mental health, and surveillance; the third contains self-harm, poverty, hunger, healthcare, and disease; and the last contains environment, technology, war, economy, education, social violence, and social unity. These clusters are best represented by *Battlefield: Hardline*, *Grand Theft Auto V*, *Farcry 4*, and *Horizon Zero Dawn*, respectively. The first moral cluster is comprised of betrayal, subversion, good, evil, harm, authority, degradation, care, and loyalty; the second is fairness, cheating, freedom, enslavement, sanctity, and religion. Many games can fit either bill, but particularly good fits are *Call of Duty: Black Ops 2* and *Mortal Kombat IX*. The first political cluster contains changing policies, planning structures, being a ruler and allocating resources; the second contains sanctioned political participation, elections, and changing rights asymetries; the third contained interacting with a ruler, caring for constitutients, deciding the fate of the gameworld or the player's group, witnessing a dispute, acting in a dispute, seeing war between states, seeing revolution, and seeing protests; and the fourth contains acting for a ruler, working for, being, or interacting with a government agent, witnessing rights asymmetries, witnessing rights and protections, assassination, and terrorism. Games that exemplify these clusters include *SimCity 4*, *Fallout 4*, *Assassin's Creed: Revelations*, and *Skyrim*. None of this is to say that the issues within these clusters do not have strong correlations with those found in others—nor is it that the games I use as examples only address the issues contained therein or that they were the only ones that could represent them. Rather, they demonstrate that the findings from the data can be easily mapped to particular game experiences. When games discuss social, moral, and political topics, they tend to discuss a number of them—and the ones that they discuss tend to come in particular clusters.

But correlations and clusters do not directly translate to frequency. For example, although they coexist in a decidedly tight-knit cluster, the most prevalent issues seen in the first political cluster (changing policies and allocating resources) only cropped-up in 16 percent of games.

Table 8-2. Frequency of particular social, moral, and political experiences in the sample of 50 popular games. (s) stands for "social issues/experiences;" (p) stands for "political issues/experiences;" and (m) stands for "moral issues/experiences." While some issues occurred in over half of all games, and others occurred in less than 20 percent of all games, most issues occurred somewhere between 20–50 percent of all sampled games.

Issue	Frequency	Issue	Frequency	Issue	Frequency
Care (m)	72%	Betrayal (m)	34%	Witness Rights/ Protections (p)	18%
Harm (m)	60%	Terrorism (p)	34%	Abuse (s)	16%
Loyalty (m)	60%	Assassination (p)	32%	Allocate Resources (p)	16%
Authority (m)	54%	Interact with Ruler (p)	32%	Be a Ruler (p)	16%
Corruption (m)	54%	Be an Agent (p)	30%	Change a Policy (p)	16%
Freedom (p)	54%	Interact with a Ruler's Agent (p)	30%	Healthcare (s)	16%
War (s)	54%	Protests (p)	30%	Mental Health (s)	16%
Oppression (p)	48%	Work for an Agent (p)	30%	Gambling (s)	14%
Technology (s)	48%	Race (s)	28%	Immigration (s)	14%
Decide the Fate of a Polity (p)	46%	Act to Resolve Group Dispute (p)	26%	Sanctioned Participation (p)	14%
Evil (m)	44%	Environment (s)	26%	Plan Buildings & Structures (p)	12%
Good (m)	44%	Social Unity (s)	26%	Self-Harm (s)	12%
Revolt/ Revolution (p)	44%	Work on Ruler's Behalf (p)	24%	Fairness (m)	10%
Sanctity (m)	44%	Hunger (s)	22%	Elections (p)	8%
War Between States (p)	42%	Policing (s)	22%	Change a Rights Disparity (p)	6%
Religion (m)	40%	Witness a Dispute Between Two Groups (p)	22%	Cheating (m)	6%
Care for Constituents (p)	36%	Education (s)	20%	Sexual Assault (s)	6%

Table 8-2. Continued.

Issue	Frequency	Issue	Frequency	Issue	Frequency
Economy (s)	36%	Media (s)	20%	Disease (s)	2%
Social Violence (s)	36%	Surveillance (s)	20%	Homosexuality (s)	2%
Subversion (m)	36%	Addiction/Drug Abuse (s)	18%	Abortion (s)	0%
		Witness a Disparity in Rights (p)	18%		

What issues were the most often observed across the popular games sampled?

Table 8-2 addresses this question, which reports on the frequency of each of the 63 issues and experiences I coded. Among social issues, the most frequent were war (54 percent), technology (48 percent), the economy (36 percent), social violence (36 percent), and race (28 percent). Among moral issues, the most prevalent were care (72 percent), harm (60 percent), loyalty (60 percent), authority (54 percent) and degradation (54 percent). Among political issues, the most common are deciding the fate of the game world (46 percent), revolution (44 percent), war between states (42 percent), caring for constituents (36 percent), and terrorism (34 percent).

That war was at (or near) the top of all issues, and that notions of care and harm are the most prevalent moral dimensions, is probably not all that surprising given the commercial success of the *Halo*, *Call of Duty*, and *Battlefield* series. But that should not overshadow the fact that a sizable plurality of games consider an impressive swath of other issues. Nearly a fifth (18 percent) of games seriously tackles the concept of rights; just over a quarter (26 percent) address the environment or show instances of social unification (26 percent). These are not one-off moments: these are arguments embodied in both the game's narrative and ludic elements, most of which endure for much of the multi-hour experiences. And as can be seen from all the evidence gathered here, a considerable number of topics are covered.

Just as correlations could not get at frequency, frequency cannot get at context. The array of positions and arguments taken on these issues is mind-boggling and remarkable. Let us take the most common social issue, technology, as an example. *Call of Duty: Black Ops 2* uses it to question whether AI could rob us of our free will and whether sentience necessarily means sapience. *Portal 2* uses it to critique the pursuit of technology for technology's sake. *Bioshock: Infinite* uses it to critique both capitalism and the concept of free will. *The Modern Warfare* series uses it to pose the question of just how close are we to the precipice of global nuclear war—especially in a time where non-state actors could feasibly get their hands on a nuclear explosive. *Horizon Zero Dawn* uses it to call attention to both the dangers of placing all of life at the control of artificial intelligence and the hope that technology can help us restore balance. But

in the *Civilization* series, technology is envisioned as the engine of growth and development—and *Farcry 4* makes the point of how technology can be used to both bolster and overcome an autocratic regime. In this case, and across and all the other issues I studied, the variety is not only in the kinds of topics these games covered but in how they decide to approach them as well.

The worry for many video game skeptics, though, is not that games are devoid of rhetorical arguments about social issues. It is that the stances they take are offensive, antisocial, or otherwise morally detrimental. While I cannot speak to offensiveness (what offends thee may not offend me and vice-versa), I do think it is important to address this critique.

On the one hand, it certainly is possible to point out moments that appear problematic and antisocial. In one scene of *Battlefield: Hardline*, the main protagonist, a police officer, covers up an incident where their partner mercilessly beats a suspect for information. They both also trespass without warrants and roughly slam every arrested criminal down to the floor—no matter how peacefully they were surrendering. In my analysis, I also came across the infamous "No Russian" mission from *Call of Duty: Modern Warfare 2*, where players will at least witness international terrorists gunning down civilians in a Russian airport. At most, they will join in the carnage. *Grand Theft Auto V* has a scene where the player-character tortures a racially profiled man into giving information—among the other generally objectionable things that give the game its global infamy.

It would be dishonest to wave these experiences away and pretend that they do not exist. However, it would be equally dishonest to not acknowledge that the games did tried to characterize these moments in a greater, far-less antisocial context. *GTA V* is notoriously satirical. In the scene in question, you are getting egged-on by an unflinchingly racist national intelligence agent who is looking to translate their experiences into a tough-on-crime TV personality. *In Call of Duty 2*, "No Russian" is intended to show the player the evils of the game's antagonist as well as frame the game's main geopolitical backdrop: A hot war between the United States and Russia instigated by a false-flag terrorist attack. The shooting is said attack. The massacre is never once condoned and, in fact, is explicitly characterized as a terrible deed both before and after it

happens. And while *Battlefield: Hardline*'s campaign may inspire discomfort in some, the whole point of the game was to be a commentary (albeit highly stylized) against police brutality and corruption. That is not to say that the moments were, instead, the perfect artistic embodiment of a point that critics were simply too thick to get. Sometimes, artists articulate important, controversial points in ways that are imperfect, troubling, or problematic. Just because they had a point to make does not mean that the way they made it is entirely warranted.

As I mentioned in the beginning of this dissertation, I am not here to litigate on the (frankly overinflated) video games and violence debate. One book cannot single-handedly quell decades of moral panic. Nor am I trying to suggest that these moments qualify as the kinds of things that are known, from the several meta-analysis I cite in Chapter 2, to strengthen the empirically small—but present—relationship between violent games and violent behaviors. What I am saying, though, is that it would be dishonest to wave away the critical objections to some game experiences *carte blanche*.

But it would perhaps be more dishonest to contort these objections into being at all generalizable to the vast preponderance of games sampled in this content analysis—or extend it to all of the issues they contain. The vast preponderance of game campaigns had strong pro-social bents. When rights are systematically denied to a group, the player does not get the liberty of being ignorant or looking without seeing—like so many of us are able to in reality. It is front and center, driven by their actions. When players build cities, settlements, and civilizations, it is often to serve a group of people who are dependent on them for their survival. And when violence is deployed, as it often is, it is framed in decidedly pro-social terms. In *Destiny* (as with *Destiny 2*, explored in the last chapter), players are in the service of the beneficent "Light" and fight off monsters that would corrupt, steal, or destroy it. In *Halo*, you are genetically and technologically enhanced space marine who must kill invading aliens to save humanity, but whose closest interpersonal relationship is with an AI. In *Mortal Kombat* (a game series that has been under public scrutiny even longer than *GTA*), players fight cheating, power-hungry brutes from different dimensions to preserve the safety and sanctity of the Earth. Not all concepts and experiences are

perfectly executed—but that is endemic to the pursuit of art more generally, painting and pixel alike. But, like most art designed for mass-public consumption, the numerous relevant arguments and experiences in games are certainly not aimed at dismantling the moral fabric of civilization.

8.3 The Signal is Received: Survey Evidence

To this point, this chapter has shown that: 1) Game designers often intend to put socially, morally, and politically relevant content into their games; and 2) this intention is readily observable in the narratives and mechanics of the most popular games spanning 2007–2017. The final question is just how many people are actually playing games that make them think about social, moral, and political issues or that allow them to build and maintain relationships with others. And, among those that do think about these things, whether their experiences stem from the narratives of game experiences crafted for the purposes of *entertainment*.

The claim that I will stake over the next few pages is that many people are having both these narrative and social experiences—and they are, in fact, acquiring them from the kind of games designed by the developers sending the signal and from the games carrying them in the last section: those designed with fun and entertainment as the primary concern.

8.3.1 Narrative Experiences

To substantiate my argument, I take one last look at the GAmEPLS survey I fielded in March of 2019, which was provided to a representative sample of 772 American adults by YouGov. To see how many played video games, I asked how frequently they played games on a computer or on some kind of video game console. Provided that they did so more than "never," I then took a page out of the Pew's (code)book and asked respondents how frequently ("never," "rarely," "sometimes," "often," and "very often") they played games where they thought about social, moral and political issues. I then extended upon Pew's early work by asking players to explicitly name the last game that made them think about these issues—provided they had answered more than "never." According to the GaMEPLS survey, approximately 75 percent[12] of

[12]Unless specified otherwise, the percentages throughout the rest of this chapter are weighted to be nationally representative. Weights are provided by YouGov and are based off of census estimates and stratified by 2016 vote choice.

American adults play video games with at least some regularity. If this chapter's argument is correct, we should expect to see that an appreciable percentage of these gamers are engaging with socially, morally, and politically relevant experiences—and that the sources of most of these experiences should be popular, commercial games.

How many people are having such experiences? Of that 75 percent of Americans who play video games, 55 percent play games that make them think about a social issue, 56 percent of players play games that make them think about moral issues, and 52 percent play games that make them think about political issues.[13] This corresponds to 41, 42, and 39 percent of American adults in general. The statistical models I presented in Chapter 5 suggests that even playing a smidge more than "never" is associated with a statistically significant increase in political activity—a finding confirmed by the experimental analysis. On the level of an individual person, the increase is not astronomical, although it is certainly nothing to sneeze at compared to other media effects known to social scientists today. But these results suggest that 2 out of 5 American adults, tens of millions of people, engage with such experiences at least that often. And when considered on that scale, the importance of video games on political behavior is apparent—and their potential impact is quite considerable.

One possible critique is that the people engaging with these experiences are those who self-select into them. That is, it is probably people who are already interested in politics who look for, and play, games that will make them think about social, moral, and political issues. There is also a plausible, countervailing hypothesis—one that I took-up in Chapter 3. It argues that because video games are seen as a leisure activity, they may actually provide a fair amount of exposure to people who are otherwise uninterested in politics. Games could act like digital Trojan Horses, promising fun and play to the engaged and unengaged alike, but secretly carrying content that surprise both groups with its relevance. In the verbiage of John Zaller's "Receive Accept Sample" (RAS) model 1992,[14] more people are liable to receive games' socially, morally, and

[13] For the record, this dramatically dwarfs the 5–15 percent of video game players who engage in so-called "problematic gaming," discussed in the beginning of Chapter 2.

[14] See Chapter 3 for a look at how the RAS model could be applied to video games.

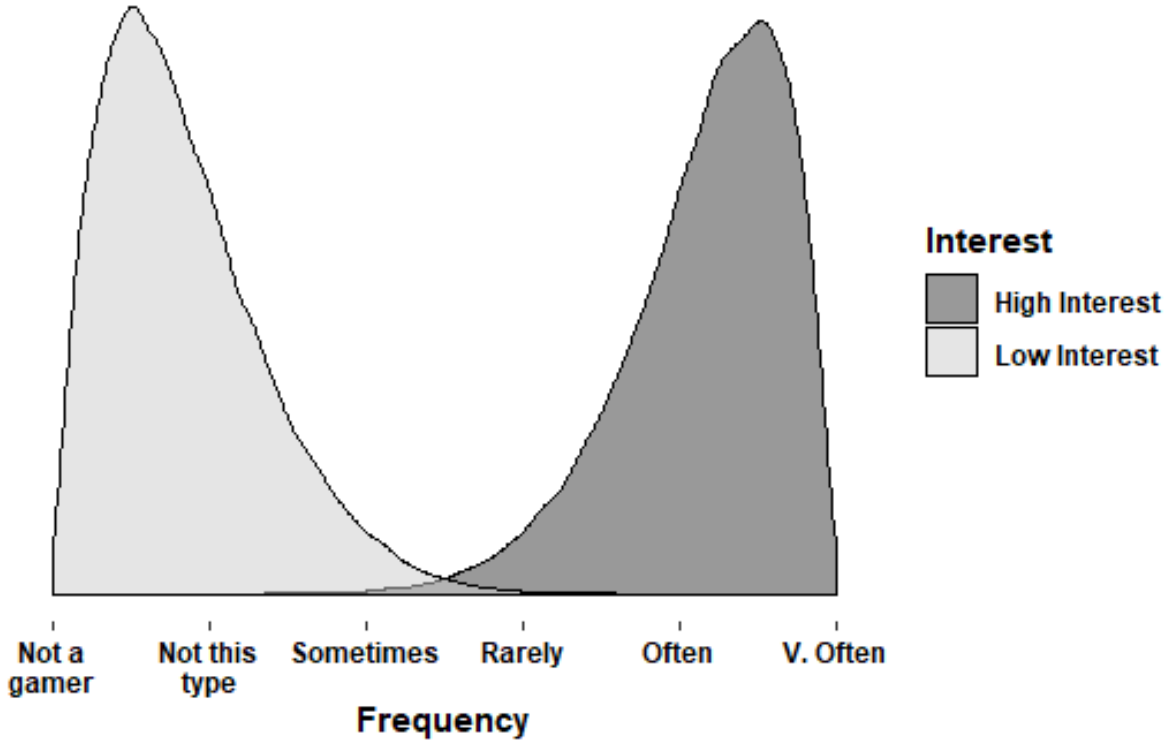

Figure 8-5. How the frequency of relevant gameplay would theoretically look if only those who had high political interest were likely to play versus those with low political interest.

politically relevant content because, while they can acknowledge its presence, their decisions on playing the game stem, first and foremost, on whether they expect to have fun—a determination basically absent of explicitly political considerations either way.

Fortunately, the GAmEPLS survey allows us to test which—if either—of these two competing hypotheses are correct. The survey contained a variable which measures respondent's interest in politics through a proxy that is pretty common in political science: How often respondents followed the news to keep up with politics ("most of the time," "some of the time," "only now and then," and "hardly at all"). If the first hypothesis is correct, we should expect to see far more people who follow politics "most of the time" to be the most regular consumers of these kinds of experiences, while those who are less avid about politics will be less inclined towards playing them more frequently. In other words, it would look something like the hypothetical distribution presented in Figure 8-5 The most interested would cluster around higher

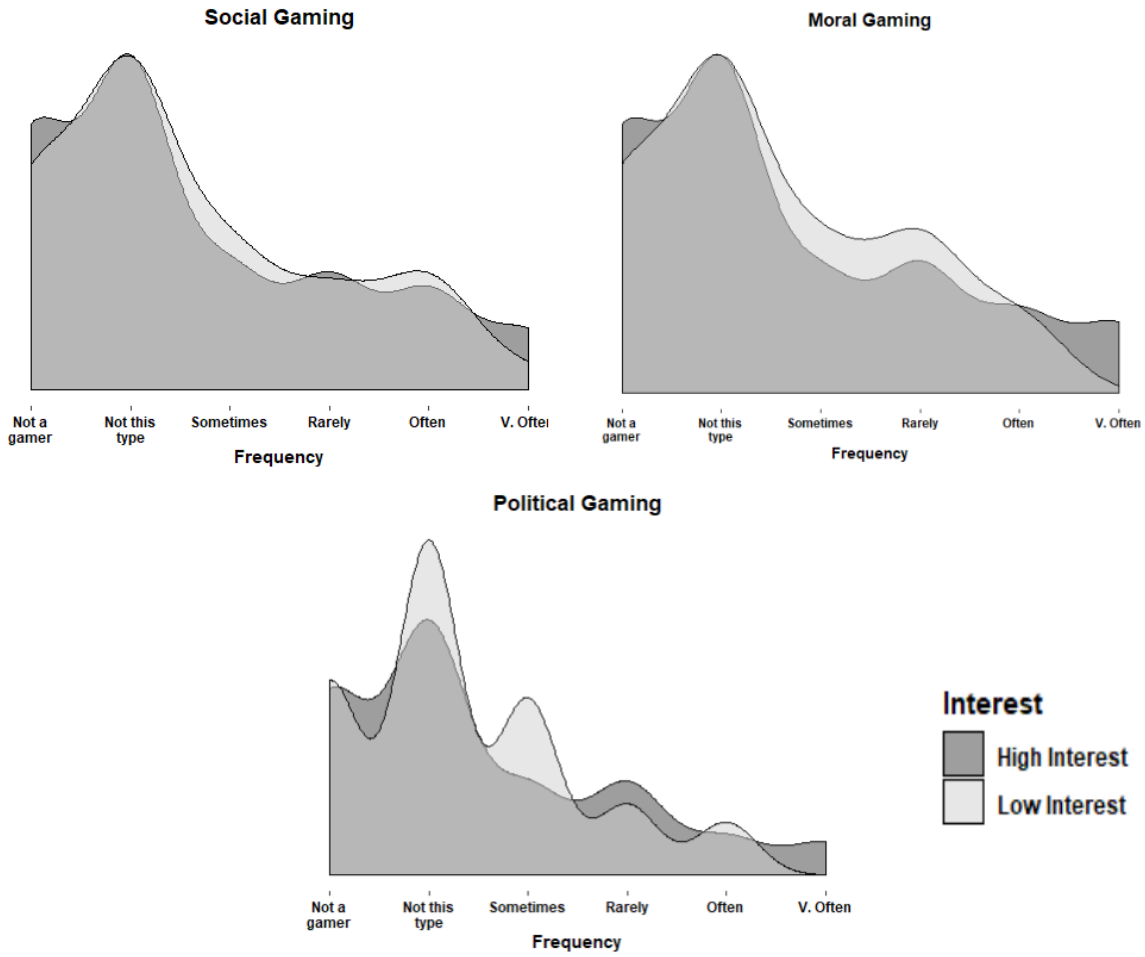

Figure 8-6. How the frequency of gameplay *actually* looks for socially, morally, and politically and politically-relevant gameplay. The high and low-interest alike appear to take in experiences at comparable frequencies.

frequencies of relevant play while the least interested cluster around areas of less-frequent play.

But as Figure 8-6 shows, that is not the case. The three charts illustrates how play-frequency is distributed among the most and least politically engaged for games with social, moral, and political relevance. Among the most and least interested alike, most people who play games opt to never play those with socially, morally, and politically relevant content. If anything, the most informed are the most likely to completely abstain from games with socially and morally relevant experiences—although the reverse is true for politically relevant experiences. Consistent

with the first hypothesis, though, the most interested are much more likely than the least to have these kinds of experiences "very often"—especially when looking at politically relevant experiences. But it is not the case that there is a great disparity in how often the two groups have such experiences while playing games. If anything, the distribution of experiences among the interested and disinterested alike is more in keeping with the idea of games as a sociopolitical Trojan Horse.

The lack of substantial difference between the most and least interested in how frequently they engage in moral, social, and political gaming content suggests that people are selecting games on the basis of something other than their ex ante estimates of how politically-relevant the content is. (Personal experience suggests that this basis, more likely than not, is how fun they expect the game to be). Despite how little political interest seems to influence the kinds of experiences they come across, most respondents in both groups still reported playing games with this kind of content with at least some form of regularity. They do not seek it out, but they find themselves presented with it anyways—which opens the door to the effects I explicated in Chapters 5 and 6.

But how do we know that these games are the kind that I investigate in my content analysis—games not made to explicitly teach or instruct but made to with entertainment as the foremost aim? I have shown that the sociopolitical signal is sent out by game designers and that said signals are successfully propagated by the games: Do we know if the players are actually receiving them by playing these kinds of games? Or are they receiving them through more serious routes.

We can answer this question. Recall that the GAmEPLS survey did not stop at asking how frequently respondents engage in social, moral, or politically relevant gaming experiences. Those who said that they had them more frequently than "never" were then asked to name the last game they played that made them think about these kinds of issues. Of the 772 respondents, there were 282 replies to the question on social issues, 300 to the question on moral issues, and 277 to the question on political issues. Not all of these responses were valid. In all three cases, a large

plurality of responses were some form of "I don't know" or "I don't remember the name of the game—I just remember playing one like this." These responses constituted 14, 17, and 12 percent of responses to the social, moral, and political questions, respectively. Among all three groups, noteworthy percentages (9, 17 and 18, respectively) clarified that, contrary to their previous response, they never actually played games with this kind of content. And there were some respondents who, instead of naming a game, gave the approximate date that they last had the experience ("yesterday," "last week," and so on) or gave an otherwise indecipherable response. Accounting for all of these individuals reduced the number of valid responses to 200 individuals who affirmed playing a game that made them think about social issues, 183 who offered a specific title that made them think about moral issues, and 165 that made them decide how a city, state, or nation should be run.15 I then cleaned these data for misspellings and/or so that they provided the full name of the game (e.g., "World of Warships" when a respondent simply wrote "Warships"). Because some individuals mentioned specific titles in a series ("Grand Theft Auto V") while others only mentioned the series' generic title ("Grand Theft Auto" or "GTA"), I then summarized the specific titles so that they were enfolded within the broader series label. In sum, respondents listed 112 games or series that made them think about a social issue, 100 that made them think about a moral issue, and 82 that made them think about a political issue.

Table 8-3 presents the 10 most frequently mentioned games and/or series among the three categories (ties were decided by alphabetical order). As expected, these are not "serious" games, intended to educate, advocate, or inspire. These are games and series that are designed for mass consumption, crafted with player enjoyment as the foremost consideration. This provides further evidence that they embark on the kinds of experiences that I causally link to various political behaviors as a consequence of their normal gaming habits. It is not the case that players are seeking out serious games to be informed about social, moral, and political issues. The additional information, and the behaviors they inspire, appear to be incidental outcomes of routine entertainment choices. The same could be said for the remaining 90, 102, and 72 unique games and series on the lists; not one serious game was mentioned among the panoply of titles meant for

Table 8-3. The 10 games most frequently mentioned by GAmEPLS respondents as inspiring thought on social issues, moral issues, and political issues.

Social Issues	Times Mentioned	Moral Issues	Times Mentioned	Political Issues	Times Mentioned
Grand Theft Auto	16	*Grand Theft Auto*	21	*SimCity*	21
Fortnite	8	*Red Dead Redemption*	10	*The Sims*	20
Solitare	8	*The Sims*	9	*Civilization*	17
Candy Crush	7	*Call of Duty*	7	*Grand Theft Auto*	9
Civilization	7	*Fallout*	7	*Minecraft*	5
Red Dead Redemption	7	*Solitaire*	7	*Call of Duty*	4
Call of Duty	6	*SimCity*	5	*Fallout*	4
Sims	5	*Fortnite*	4	*Solitaire*	4
Fallout	4	*Candy Crush*	3	*Cities: Skylines*	3
SimCity	4	*Civilization*	3	*FIFA*	3

fun and play. The content analysis showed that there was no shortage of opportunities to have politically-relevant experiences among the industry's most popular games. The sheer volume of unique responses here reflects this abundance.

Speaking of the content analysis: Of the 12 games and series uniquely identified among the three top-10 lists, five were happened to be analyzed in-depth as part of that investigation—or at least one specific installment of the overarching series was: *Call of Duty*, *Civilization*, *Fallout*, *Grand Theft Auto*, and *SimCity*. In all five cases, there is a perfect mapping between the conclusions of the content analysis and their presence on these lists. All of the games appear on all three lists and all three were reported as having moral, social, and political elements in the content analysis. This further confirms the overarching argument of this chapter: That the social, moral, and political content embedded in the games are actually (and, apparently, accurately) picked-up on by those playing the games in the broader US population.

That is not to say that there are not some titles that raise eyebrows. Indeed, this list is example of the most exciting kinds of finding for social scientists: those that correspond with our overarching hypotheses (a little validation never hurts after all the hours invested in a project) but

also provide a curious wrinkle that invites additional theorizing. Throughout this dissertation, I have repeatedly bandied Candy Crush to be a game that would not even qualify as mattering politically. So what then is it doing on a list of the top-10 most played games that encourage people to think about social and moral issues? Why is Solitaire there for that matter? Furthermore, while I did not analyze *Fortnite*'s story as part of the content analysis, I did provide a pretty in-depth analysis of the game back in Chapter 7. There, I discussed how the game actually contains very little to encourage behavior by dint of its narrative content by virtue of the fact that said narrative is rather thin. While it is not strictly impossible—both the game's immensely popular multiplayer and its less-popular "save the world" formats have narrative elements—it is improbable that this is all that players are responding to. What is it doing on this list as well?

The honest truth is that I do not know the answer—not for *Fortnite*, *Solitaire*, or *Candy Crush*. Or at least I do not know for certain. However, there are some intriguing hints buried in respondents' raw responses—the answers that were given before they were cleaned and categorized into orderly, countable lists. I will elaborate on how they offer an explanation for *Candy Crush* and *Solitaire* here; I reserve their insights on *Fortnite* for the next section on the survey's insights on social gaming.

While I may have only asked people to provide a game title, I realized while crawling through the written responses that many respondents took advantage of the space to explain what motivated them to write-in that particular game. While unexpected, these unsolicited additions were illuminating. "I was playing gta5 (sic) and thought about the drug epidemic in [A]merica" one respondent wrote. "Playing World of Warcraft [made me think] about how much better the Alliance would have it if they had built a wall to keep the Horde out" opined another. But among these, one answer stood out as both surprising and insightful: "[Digital] marbles. Mindless games are great for thinking."

Although additional data needs to be gathered to be more certain, at this early juncture, I believe that this is indicative of why *Candy Crush* and *Solitaire* feature so prominently on the lists. Like *Digital Marbles*, they are "mindless games," emphasizing simple but repetitive

mechanics which provides enough structure to engage the brain but enough freedom to let it wander.16 Psychological research suggests that such distractions have a tendency to inspire creative thoughts; it is thought that the brain's default mode network (the network of lobes and brain regions primarily responsible for—among other things—synthesizing information about oneselves, our interpersonal connections, our pasts, and our predicted futures) quietly chugs away at integrating things of interest while the surface layers of our cognition is distracted by the separate, simpler task at hand (Baird et al., 2012). Playing *Candy Crush* might indeed inspire some to think about politically-relevant things in the same way that going for a walk, doing the dishes, or staring at blinking cursor on a blank page might. It is less about the game itself and more about the opportunity it gives for the players' minds to wander. This will have to be the providence of future research—the relatively large number of people naming such games in the sample is still small in statistical terms—but it is possible that Solitaire and the like can encourage a subset players to think about sociopolitical issues; a subset that is probably more politically interested and scores higher on concepts like "need for cognition."

Brow-raising additions aside, most of the games listed here fit with my broader argument. Due to the deliberate actions of game designers, people are thinking about socially, morally, and politically relevant topics as a consequence of playing what we would think of as "normal" games. As I identified in Chapter 5, the causal power of games to precipitate behavioral and attitudinal change was mediated by whether or not participants felt that they had been exposed to socially, morally, and politically relevant media. The fact that an appreciable aliquot of American adults perceive such content in massively popular games suggests that these effects could extend beyond the lab and into a sizable part of the population at large.

8.3.2 Multiplayer Experiences

But as Chapter 7 shows, the insights of the GAmEPLS survey is not limited to the content of player's experiences. That chapter demonstrates a significant association between playing games in groups and increased political participation—conceptualized both as higher numbers of distinct kinds of acts and also how frequently said actions were performed. What Chapter 7 did

not attend to was the sheer number of people who played games with others. As mentioned previously, roughly 75 percent of respondents reported playing video games with at least some regularity. I asked them how frequently they played games with others in the same room, with friends online, with strangers online, and alone. Of that 75 percent, 100 percent of them engaged in multiplayer gaming with at least some regularity. That this is not a typo: 100 percent. There was not one respondent who reported that they only play games by themselves.[15] If respondents said that they played video games, it was literally guaranteed that they would respond that they play with others at least on some occasion.

When designing the survey, space constraints precluded me from asking these respondents a similar question as I had about their social, moral, and political gaming (e.g., "what was the last game you played in the same room with others/online with friends/online with strangers/alone?"). On the one hand, this absence is disheartening: the loss of undoubtedly interesting data is practically palpable. On the other, it would have been superfluous given the questions' original point. I asked for specific titles to demonstrate that people are getting these narrative gaming experiences through popular, off-the-shelf titles. That point is far less burdensome to prove for multiplayer games. *Halo*, *Call of Duty*, *Minecraft*, *Madden*, *Need for Speed*, *Mortal Kombat*, and *Mario Kart* have been household names for years—and other multiplayer games like *Fortnite*, *Destiny*, *Overwatch*, and *Anthem* are poised to join their ranks. There is no question that players are receiving ample opportunities to play together in the greater gaming ecosystem. Subsequently, no survey questions were required to demonstrate it.

Still, we may be able to wrest some interesting information out of the data already at hand. We may not be able to know the name of the last multiplayer game that they played, but we can get an idea of how abundant and accessible opportunities for multiplayer games actually are by virtue of the answers already provided. Just because a large portion of games contain multiplayer elements does not mean that people are actually playing these games. As with the content analysis, these answers will be biased away from multiplayer experiences since there are plenty of

[15]That is not to say that such gamers do not exist—I happen to know one or two myself—just that their share of the overall US adult population is small enough as to be missed in the sample of GAmEPLS respondents.

thought-provoking games that are exclusively single-player, such as *Detroit: Beyond Human*, *The Amazing Spider-Man* and *Horizon Zero Dawn*. But, biased as it is, the games mentioned may prove insightful.

Looking back on the list of 12 unique titles and series that comprised the most frequently-listed socially, morally, and politically relevant games and series, seven are multiplayer or have at least one multiplayer-capable installment: *Grand Theft Auto*, *Civilization*, *Red Dead Redemption*, *Call of Duty*, *FIFA*, *Fall Out*, and *Fortnite*. This suggests that, even when prompting for games more strongly biased towards single-player experiences, the majority of the most popular single-player game series give their players the chance to play with others as well. It should be noted, though, that I am not saying that the respondents are in fact playing the multiplayer parts of these games—the data are simply not there to support that claim. I am merely saying that, by virtue of them listing these games, the opportunity for multiplayer play was there for them to partake.

There is one game, though, that I can fairly confidently claim is being played in an almost-exclusively multiplayer format if only for the simple reason that it is orders of magnitude more popular than the single-player option—and in so doing, proffer my explanation for just what the heck it is doing on the list in the first place: *Fortnite*. Here again, this insight derives from the extra text that some respondents felt fit to include when discussing the games they chose to write-in—although the insight did not come from when discussing *Fortnite* itself (or even digital marbles). Instead, it came from discussing a digital version of the multiplayer card-game Hearts. As if anticipating my eventual incredulity reading over their answer, the respondent clarified: "the game has an online chat section and boy do they chat!"

As mentioned previously, *Fortnite* does not go out of its way to use its environment or narrative to hound on important social topics.[16] But its social environment—especially at the time the survey was fielded—thrives. In 2019, *Fortnite* was second only to *Minecraft* in the number of

[16]That is not to say that it does not do so at all. The most recent map update at time of writing features an oil-rig leaking into a nearby swamp and a dilapidated nuclear power plant that visually appears to be on the brink of a catastrophic meltdown. As I mentioned when discussing my case studies, the presence of socially-relevant content in games is often a matter of degree not kind.

monthly users engaging in routine social play: both games reached (and continue to reach) tens of millions of players per month. As I expounded upon in the last chapter, its social and gameplay mechanics encourage talk and the exchange of materials and information between players joined on the same team. And it is during the course of this talk, as is the case when it occurs in any other venue, physical or digital, that political topics can come into the fore.

The reason that *Fortnite* appears on this list (and *Minecraft*, for that matter) owes itself to both the incredible magnitude of its player base, but also in how the questions were worded. They were not "what was the last game whose story made you think about politically important topics." Just "what was the last game you played that made you think about politically important topics." Sometimes games do not need to be about politics to routinely invoke the political. Sometimes they just need to give space for those who love to chat.

8.4 Conclusion

This chapter shows that the effects described over the previous three are not simply found at the fringes. Archival materials spanning the 1970s through today show that game designers are conscious about including politically-relevant content in their products. When it comes to the narratives of games, these materials suggest five broad motivations among developers: To enrich the game's environment, characters, and story; to address and explore topics that they see as important; and to justify a mechanic they see as fun or engaging. When it comes to facilitating socially-relevant multiplayer experiences, these materials likewise suggest three motivations: Increasing the amount of fun players have with their product; increasing the amount of engagement with their products (and their products' economic value); to fully articulate an artistic vision for a game and its world.

The fact that there are many designers creating politically-relevant products, and that there are multifarious motivations behind these design decisions, suggests that there should be a variety of games in the overall environment where these concepts are observed. A content analysis of 50 randomly-selected top games revealed that the majority of their narratives contained socially, morally, and politically relevant issues. This same analysis also showed that over 80 percent of

games involved multiplayer and that there were healthy pluralities that included opportunities for both couch co-op, online play, and/or both. Opportunities abound for players to pick a title that allows them to play with their friends—or one that encourages them to consider important topics.

And, by and large, players are engaging with these opportunities. The GAmEPLS survey shows that approximately 40 percent of American adults play games that make them think about politically-relevant topics with any degree of regularity—or about as many people as political scientists expect to turn out during the average midterm election. It also shows that effects are unlikely to be primarily driven by preexisting political interest. On average, gamers who are the least interested in politics come into contact with relevant content as often as the most interested. When it comes to multiplayer experiences, the pool of video game players skyrockets to approximately 75 percent. The proportion of Americans who only play games in a solitary, antisocial fashion is so small that it did not even register within the survey's representative sample. And the games they are engaging these opportunities in, with a few interesting exceptions, match the kinds expected by the theory. They are the normal, off-the-shelf consumer products designed with entertainment as the main concern. Indeed, they are often some of the heaviest hitters in gaming today.

In short, there are many opportunities for the processes I have described throughout this book to play out in the "real world"—both the parts that transpire behind and in front of the screen. The next chapter will be this book's last. In it, I turn back to the four core arguments that I opened with in its first—to see how well they stand up given the evidence I have accumulated. I then turn to what is perhaps an even broader "so what" question: "So...what do these finding imply about games and gaming? Is there anything that should happen or change as a consequence of what has been argued here?" It is perhaps an even more difficult question than the one that predicated this project; I make no claim to fully and completely answering it. But it is one of many that, I believe, we should be asking (and at least approaching) given everything uncovered so far. This book is far from the last word on the topic—ideally, it is just one of the firsts. But if Laura Croft from the *Tomb Raider* series has taught me anything (and given everything explored

in this chapter, it would be ironic if she did not), it is that even nascent discoveries can often prompt important questions larger in scope than the original find.

CHAPTER 9
CONCLUSION

In the opening pages of Chapter 1, I retold a snidbit of the story presented in the video game *Life is Strange*. In telling the perils of Max's journey to save her friend and navigate the consequences of her time-bending powers, I hoped to motivate the four core arguments underlying my position that normal games, games like *Life is Strange*, can influence players' political behaviors. Although less harrowing than *Life is Strange*, and definitely less lucrative, this book has also been a journey. Over the two-and-a-half years it took to write this book, I have spent hundreds if not thousands of hours writing about, thinking about, and playing video games. I can report that, as fun as it is to dedicate oneself to "play," it can in fact get kind of old. But though day-to-day enthusiasm to play may wax and wane, the substance of what I uncovered has gotten only more and more interesting. So here, at this journey's end, I feel I ought to restate that argument and briefly revisit the evidence I have presented in favor of it so that we can see how well it has been substantiated. From there, I'll then turn to future directions of research before concluding with a discussion of what these findings mean for games and gaming as a whole.

9.1 A Replay of the Arguments and Findings

This book argues that certain games can directly affect the civic attitudes and political behaviors of those who play them. By civic attitudes, I mean attitudes underlying people's willingness to be involved and engaged in politics and civic life. By political behaviors, I mean actions performed online and in reality that people perform to engage with their communities—as well as prominent formal and informal actions important to US politics (e.g., voting, donating time to a campaign, and signing a petition). The first three of the book's arguments focus on how games can have this effect: through their narratives, their inherent interactivity, and the social ties they strengthen and encourage. The fourth argument is that the opportunities for these processes are numerous within mainstream gaming; that the elements driving these effects are consciously included by game developers and acknowledged by players.

In Chapter 2, I show that there is ample scientific study across multiple domains consistent with these ideas. In Chapter 3, I clarify what kinds of games will matter and why. There, I explicate the concepts of explicit, circumscribed, and social mattering (as well as accidental, if I

am to be entirely honest), exploring the kinds of processes consistent across these categories. Chapter 4 is for those fastidious readers, and my fellow methodological wonks, who want to know the knitty-gritty of my supporting evidence. (E.g., where I got my data, how I got my data, and how I analyzed my data.) These chapters set the stage for the four empirical chapters—each intended to address one of the book's four arguments.

Chapter 5 investigates whether or not the content of games can affect players' political behaviors. First, I used illustrative case studies of three popular games, *Celeste*, *Civilization V*, and *Fallout: New Vegas* to show how games can approach politically relevant issues. *Celeste* was largely circumscribed in its treatment of mental health and depression, *Civilization* was explicit in its many included concepts and in the meta-concept of what it takes to govern in a competitive international environment, and *Fallout* was both circumscribed and explicit in its content so that players could explore how their choices rang out throughout the scope of the gameworld. I then turned to an analysis of the 2008 Pew survey data on teenage gaming and civic life as well as my own GAmEPLS survey from 2019 to investigate the associations between playing games that make players think about relevant issues and their behaviors. I found that more frequently playing games that made people think about social, moral, and political issues was associated with greater civic engagement (Pew) and higher political interest (GAmEPLS). I also found that higher frequencies of relevant play was associated with increased political participation—both in the number of unique acts that were performed (Pew and GAmEPLS) and also in the frequency that (most) individual acts were performed (GAmEPLS). Finally, for confirmation on the existence of a causal relationship from gaming to behavior, my experiment fielded in April of 2020 comparing participants who played one of three online browser games (*Sort the Court*, *Habitat*, and *The Final Earth 2*) to participants who watched an episode of *Tidying Up with Marie Kondo*, I found a significant indirect effect from gaming to increased civic attitudes and participatory intent mediated by whether they felt they had experienced content that made them think about a political or moral issue. However, feeling that they had experienced content related to social issues was not statistically significant—but an analysis after the fact suggests that this is more due to my choice

of control rather than an inherent inability for games to elicit thoughts about social issues and affect behavior from there. Additionally, I did not find an effect between games and a measure of actual political participation, donating money to charity, but this may stem from both the timing of the experiment (it was fielded during the onset of the 2020 COVID-19 pandemic) and the context of the dependent variable (that the donations were to large, national charities from a small pool of available dollars). All in all, the preponderance of evidence from the entire chapter supports the notion that the content of games can influence player's civic attitudes and political participation.

Chapter 6 was dedicated to investigating whether the medium's intrinsic interactivity can lead to behavioral changes as well. After all, players do not just watch actions happen—they undertake them themselves. First, I revisited the experiment from the prior chapter, except altering the statistical models so that it tested a sequential mediation model of feelings of relevance and perceptions of interactivity. This allowed me to test whether interactivity alone was a significant mediating factor (it was in the majority of attitudinal and political intent models) and whether content remained an independently significant mediator (in almost all models, no). Most importantly though, I found that, in the majority of models investigating attitudes and behavioral intent, that the *sequential* mediation path from gaming to relevance, from relevance to perceptions of interactivity, and interactivity to behavior, is positive and significant. I interpret this to mean that, conditional upon players identifying the content they experienced as politically and morally relevant,[1] the more interactive they felt it was the greater the impact on their civic attitudes and behavioral intent (actual donations were, again, insignificant). These models comport with my main theoretical expectations. From here, I revisited *Celeste*, *Civilization*, and *Fallout* to investigate how their narratives and mechanics inculcated three distinct kinds of interactivity: interactivity as engagement, as leverage, and as presence. I found that *Celeste's* mechanical difficulty harmonized with its narrative message, further driving home the hardship of living with mental illness. I found that *Civilzation's* emphasis on how *you*, the player, are causing the state of the game world to change turn-by-turn encourages players to elaborate on the meaning of their

[1] Social relevance was categorically insignificant as a class of mediators for the same reasons as in Chapter 5.

choices—choices that would be politically meaningful if they had the opportunity to perform them in reality. Finally, *Fallout*'s emphasis on making players feel like they are immersed in an environment that is receptive to their efforts and changes, making their sociopolitically relevant decisions matter to them.

In Chapter 7, I turn towards gaming as a social endeavor and look how playing socially may encourage players to be more interested in politics and participate more. I start by first looking at how four games (*Destiny 2*, *Fortnite*, *Super Mario Party*, and *Quiplash*) engender social capital through their content and mechanics. I find that all four have ample opportunity for group play, communication, reciprocity, and procedural trust. I also use them to argue that online gaming is more useful in *developing* social capital while playing in-person is more useful for *maintaining and deepening* relationships. I then turn to the cross-sectional evidence from the YPPSP survey series, provided to a representative sample of American youth. I find a positive, significant relationship between gaming in groups online and increased political behavior in 2011, 2013, and 2015 and a positive, significant relationship between group gaming and political interest in 2013 and 2015. In the GAmEPLS survey, I found that increased frequency in playing with friends online, playing with strangers online, and playing with friends in the same room was positively associated with increased political interest and increased political action—measured as both the number of unique actions and how frequently people performed (most) of those actions. However, increased frequency of playing games alone was not associated with either increased political interest or participation. I then used the 2013-2015 longitudinal waves of the YPPSP to show that social gaming exhibits an instantaneous Granger causal relationship with participation and interest, although it is likely that that the effects are reciprocal and feed into each other in the real world. Using frequency of political talk as a proxy for social capital, I find that social gaming's instantaneous causal relationship still holds as significant but is also significantly mediated by social capital. Using a measure of social capital in the GAmEPLS survey, with all the hazards of using mediation analysis on cross-sectional items noted, I find that my measure of social capital significantly mediates the expected relationships between on and offline play and

participation. However, it was only a significant mediating factor for the relationship between playing with strangers online and civic attitudes. Future research will be needed to investigate if this lack of consistent significance for interest is a consequence of the relatively small sample size or if it reflects that social capital is not the mediating force in the positive association between gaming and interest in contexts where players know each other.

Finally, in Chapter 8 I show that there are ample opportunities for these effects to play out in the general gaming ecosystem. Using archival research from the Strong Museum of play and from the Game Developers Conference (GDC), I found that game designers are conscious about their inclusion of socially, morally, and politically relevant narrative content and I identify four motivations from these records. Similarly, I found that they are also conscious of their inclusion of mechanics encouraging social groups and relationships and identify three motivations for these inclusions. I then look to an original content analysis of 50 best sellers from 2007–2017 to identify if socially, morally, and politically relevant content could be identified from its gameplay, finding that a such content is present in a majority of games. I also find that a majority of games have opportunities for multiplayer gaming as well—although my estimate of this number will be systematically biased downward due to how I sampled the games. Finally, turning one last time to the GAmEPLS survey, I show that roughly 40 percent of the American adults play games with relevant content and 75 percent play games socially. When asked to identify the games that made them think about such issues, respondents universally chose non-serious games and overwhelmingly chose games that are popular. If we think of the kinds of experiences shown in Chapters 5 and 7 to affect behaviors as signals, these analyses show that the signals are consciously sent, they are discernible, and they are in fact received by the intended audience.

But is this evidence sufficient to claim that games can **cause** increases in civic attitudes and political behavior? The word "cause" is a tricky one. It sounds simple enough and is used without any problem in day-to-day conversation—but its technical meaning has been fiercely litigated by philosophers of science from the beginnings of the enlightenment on through the modern day. There is no single, universally agreed-upon conception of what it means for one thing to **cause**

another. Accounts vary from whether "causality" relates to processes or outcomes, average or individual behaviors, and even whether or not it is fundamentally an informational or mechanical concept (Illari & Russo, 2014). However, in 1965, Sir Austin Bradford Hill, one of the scientists who was pivotal in convincing the public and US government of the causal link between smoking and lung cancer, arrived at a list of nine criteria that a causal claim must meet to be substantiated (Bradford Hill, 1965). While these are definitely not seen as the end-all-be-all of causal inference, they are well respected and acknowledged by most of the thinkers who have dedicated their professional careers to the topic. They are:

1. **Strength of Association:** Is there a significant (statistically and substantively) strong association between the two concepts?
2. **Consistency:** Has the effect been seen in different contexts?
3. **Specificity:** Is the association limited to specific groups and/or causes?
4. **Temporality:** Does the cause actually precede the effect?
5. **Response Gradient:** Is there a dose-response curve? That is will more of the treatment lead to more of the response?
6. **Plausability:** Is the effect biologically plausible?
7. **Coherence:** Is the relationship coherent with other, relevant facts known in the relevant fields of knowledge?
8. **Experiment:** Is there experimental evidence in favor of the account?
9. **Analogy:** Are there analogous effects in other contexts and can the effects be credibly cast as analogies to other accepted phenomena?

Obviously, many of these things are tailored to Bradford Hill's general area of expertise—medicine—but these questions can be pretty easily adapted to other fields as well.

Let us see how well the central claim of this book stacks up.

Strength of Association

For both the effects focused on the game's content and the social groups they can anchor, the results from Chapters 5 and 7 show substantively meaningful effects in participants' civic interest and political participation.

Consistency

The effects are seen consistently across time and different populations. In Chapter 5, the effects were seen in 2009 among US teenagers and in 2019 in US adults. In Chapter 7, the effect between participation and social gaming was observed in 2011, 2013, and 2015 among US youth and in 2019 among US adults. The effect between political interest and social gaming was nearly as consistent–except it was not found in the 2011 youth sample.

Specificity

The effects are most strongly seen among those who play games that make them think about social, moral, and political issues. When it comes to social gaming, the effects are seen among those who game with friends and strangers in different venues but not among those who play alone.

Temporality

The longitudinal evidence provided in Chapter 7 ensure that the treatment (social gaming) occurs before the effect (increased interest and participation). The experimental evidence in Chapters 5 and 6 garuantee this as I was able to control for the temporal ordering. But even for the survey evidence in Chapter 5, the idea that the content (usually) precedes the effect is further supported by the evidence provided by the archival research and the content analysis. These show that these relevant narratives and mechanics are put into games while they are made, prior to when players writ large have the opportunity to experience them.

Response Gradient

In Chapters 5, 6, and 7 the effects appear to be stronger when there is more of the treatment. In Chapter 5, it is when players spend more time playing games with social, moral, and political content. In Chapter 6, it is when players feel the game is more interactive that there are greater

effects on their attitudes and behavioral intentions. And in Chapter 7, it is among those that play socially more frequently that the strongest effects are seen.

Plausibility

Chapter 2 looks at existing evidence in psychology, political science, communications and other relevant fields. These effects are biologically plausible. We know that media can affect political behaviors; we know that repetitive actions affect how people think and feel about the world; and we know that humans are social animals, wired towards developing relationships, and that social capital can be leveraged for greater political participation and interest. The case studies from Chapters 5, 6, and 7 show how games can plausibly include content and mechanics that can engender the relationships observed here.

Coherence

Chapters 2 and 3 show that these facts are coherent with facts about media effects in general—and that even *how* games can come to matter is explainable through the use of prominent, preexisting theories in political science and psychology.

Experiment

As mentioned above in the **Temporality** subsection, the claims for Chapters 5 and 6 are backed by experimental data.

Analogy

Chapter 2 provides a number of analogous effects—both across different media and within video games themselves. (For instance, there I discussed the Proteus effect—the psychological effect where people can be affected by the defining characteristics of their in-game avatars—and how it affects other politically-relevant attitudes such as those dealing with race and sex.) Chapter 8 also analogizes the entire process as the generation, sending, and reception of a signal, tapping into logics seen in communications an information theory. The fact that these processes can be mapped on to the logics of existing phenomena suggests that it is not as far-fetched as readers may have felt at the beginning of Chapter 1.

In short, the arguments, materials, and analyses provided throughout this dissertation robustly supports the idea that games can exert a causal effect on civic attitudes and political participation—and that these effects are in fact positive. The more one plays games that matter, the more civically involved and politically active they will be.

9.2 Avenues for Future Research

While the evidence for this relationship is strong, thanks in part to the triangulation of the multifarious pieces of evidence gathered through different methods I use throughout the book, that does not mean that there is not anything more to learn on the subject. Not by a long shot! There are a variety of different ways that these findings can be expanded.

This project looks at how video games affect political behaviors—but there is more to gaming than video games. Games act as a nexus point for an entire universe of culture and activities: fan zines and sites, conventions filled with cosplayers dressed as their favorite characters, meetups, tournaments, YouTube channels, and a kalaedascope of art, music, and memes. There are so many ways for gaming to influence participanrs outside of the moments that they pick up their controller. Forthcoming work by Pavel Bacovsky shows that "gamer" acts as a salient political identity for some in the American electorate–and that this identity, like other political identities, is activated by certain policy issues. Future work may look at the way that the broader gaming culture inculcates this identity and trace how common elements of this diverse and diffuse culture motivates those who come to hold it.

It is in this broader gaming culture that we see additional opportunities for synthesis among even the arguments of this book. So far, I have looked at content and social activities as largely separate aspects of gaming. For instance, Chapter 5's investigation into the content of games largely takes place from the perspective of individual people, playing single-player campaigns, processing the meaning of these experiences as they happen. But, as I show in Chapter 8, many games offer campaigns that either can be completed with multiple people or are designed to be completed with multiple people. This means that the meaning of content may not be generated

alone but agreed upon and discussed by all of the people playing. Future work ought to investigate how this dynamic may alter the dynamics and outcomes of the processes I have described.

In a similar vein, Chapter 6's discussion on interactivity was limited to how interactivity relates to largely narrative elements, and how the feelings of engagement, leverage, and presence, can affect political behaviors. But what about how interactivity affects social gameplay? After all, if narrative experiences that encourage more input and response tend to lead to stronger effects, what about social experiences? In one might expect that greater interactivity leads to greater opportunities for reciprocal action and procedural trust. After all, the more one can do, the more one can do for each other—and the more that developers may require as a win condition. But this project leaves that question uninvestigated. Will friends playing Destiny 2 together exhibit more social capital building than Fortnite because there are more ways to interact with each other? Are games like Super Mario Party more effective at relationship maintainance than Quiplash for similar reasons? I leave such questions to future investigations.

Another area rich with possible insights is looking into the affects catalyzed by the "media-elites" of the gaming world—namely Twitch streamers, YouTube gaming personalities, and prominent critics, analysts, and reviewers. Twitch streamer Daniel Condren (AKA "RTGames") often invites 100 fans onto his channel's *Minecraft* server and provides them chunks of empty space and a prompt to build things. Sometimes the prompts are explicitly political, like "global warming", "a city", and "Europe." Others are not political per se but end up containing political commentary due to the leanings of one of the 100 invited fans (visual jokes about Brexit and Ireland's uprising against the British make frequent appearances). What does it mean for him to provide spaces for these people to create, collaboratively, things with political meaning and then broadcast it to his millions of followers on Twitch and YouTube?

What are the effects that happen when large YouTube channels come out for salient protests and social issues? At the onset of the 2020 COVID-19 pandemic, many gaming elites were exhorting their fans to take the disease seriously; to wear masks and social distance. How might that have contributed to their viewer's beliefs? After George Floyd's homicide by police sparked

international protests in support of Black Lives Matter, YouTuber Seán McLaughlin (AKA "Jack Septiceye") paused his then twice-daily upload schedule for an entire week to give space for Black voices and for the issue in general. In videos afterwards, he repeatedly vocalized that "Black lives matter" and later donated money to organizations promoting racial justice. Did his vocal agreement affect the attitudes of his 24 million YouTube subscribers? And much can be written about the millions of dollars prominent members of the community have raised during charity live-streams for a variety of social issues and for disaster aid relief. These are all just a handful of examples of how gaming's elite actors involve themselves in politics and society in ways that could, in theory, nudge the behaviors of their fans. In short, while I look at everyday games played by everyday gamers, future work may want to pay attention to the few these everyday gamers have elevated to celebrity and elite status.

Finally, I feel that I should acknowledge that this work has overwhelmingly looked at the positives of gaming. I do so not because I believe the that negatives do not exist, but because I believe the positives far outweigh them—despite the latter being drastically overrepresented in our scholarship to date. But rarer events, especially when they are negative, are also worth studying. It is worth studying how the content of games may cause people to march for malignant causes, such as White supremacy. It is worth studying if, when, and how interactivity may cause people to discount the worth of an issue and political engagement more broadly—or how mechanics may engender addiction, zapping time away from civic engagement. It is worth studying how the social potential of games have been used to radicalize an exceedingly small, but nonzero, percentage of participants. All these things—and more—are worth being investigated. But I would argue that, as this works shows, these things ought not be investigated from a perspective that they are irrevocable, irredeemable, and irreversible. If anything, we should investigate the negatives and use work like this to show how positive usage may be able to ameliorate them—or provide a buffer from happening in the first place.

9.3 What Do the Findings Mean for Gaming?

I hope that by now, I have convinced you, the reader, that video games can directly affect players' civic attitudes and political behaviors–and that there are ample opportunities for these effects to take place. (Or, at the very least, I hope that I have convinced you that it is a very real possibility.) But what now? What does this all mean? If the content of games and the interpersonal connections they engender are sociopolitically relevant, and if game designers are aware of this as many of them undoubtedly are, do developers have any responsibility to society with regards to the content that they make?

When I first began this project, my answer to this question was a solid "no." Part of my conviction stemmed from personal ideological beliefs: I believe strongly in freedom of expression and I felt that artists ought to feel free to use their work to articulate their perceptions of Truth without pressure or compulsion. Let the ever-changing marketplace of ideas sort out whether "society" felt it was worthy of praise or scorn. But part of it, also, came from my understanding of gaming culture and knowing how such a claim to responsibility would go over. There is a widespread perception in the gaming community that many large companies conflate "social responsibility" with shallow inclusivity and tokenism. It would be unfair to say that mass audiences dislike stories centered around historically marginalized groups and populations (although it would be absolutely fair to say that more work needs to be done by the industry on this front). But there is generally a simmering skepticism towards certain large developers (e.g., EA Games)—driven by a history of unpopular, nakedly money-minded decisions—that encourages many players to believe that their attempts at diversification come from a place of economic, not social, concern. These complaints are actually shared by a number of gaming activists as well. They persuasively argue that many attempts at "diversity" simply ring hollow because the narratives and mechanics are still centered on the experiences of the industry's predominantly White male developers. Many female, non-White, and non-heteronormative characters reflect how these developers *imagine* female, non-White, and non-heteronormative people to be, without making the effort to consult people who could shine insight into these

groups' actual lived experiences. The result are inauthentic stories and characters pleasing no one and offending most. Even well-intentioned actions can backfire. Consequently, I worried that advocating for developers to take social responsibility could actually result in adverse consequences—not only to the quality of games, but also to the populations and issues they were trying to articulate.

But here, at the end of this project, I find my mind has changed. Part of it is a result of gradual change: I have come across a lot of evidence showing that most developers want to do justice to their characters and stories and are willing to put in a lot of research and effort into doing so appropriately; and, as I have seen this evidence, my concerns of a backfire effect have abated substantially. Another part of this change though, and a larger part at that, can be traced back to a single moment.

I was in Rochester, at the Strong Museum of play. I was sitting at a table in the Library of Play that I had crowded with pages of documents from a collection concerning a certain gaming company that had a particular social mission at its core. (Out of respect for this company's mission, and out of a general leeriness of making enemies as an early-career researcher, I am keeping specific details as anonymous as possible. The records verifying my account are accessible in the archives at the Strong.) I had already found ample evidence of game developers being knowledgeable of the relevance of their material and I had turned my attention to understanding the motivations of developers to include these things. Fortunately, these documents included focus group responses and syntheses, which the company had commissioned to help them hone their games for the market. "Perfect!" I thought, before excitedly digging in. But by the time I finished reading, I was no longer excited. I was angry. And that anger was floating above an deep ocean of disappointment.

This game, as many games do, featured a helper NPC—a non-playable character who is acquainted with the player-character and provides exposition, narrative insight, and drops hints for in-game puzzles. This character was lithe, male and generally well-regarded by the play-testers in the focus group—he was broadly seen as intelligent and helpful. In fact, he was

often cited as one of their favorite characters. He was liked by the group, that is, except for one thing: this character was Hispanic. And some of the players, for reasons either unexplored or undocumented, did not like the fact that he was Hispanic. In response, the developers went back to the character model and made him White instead before the game's mainstream release.

But this company had included Hispanic characters in other games. In one, the character was also an NPC, but he was not a helper. He was a large, lumbering football player written to be more on the dumber and meaner side; if anything he was more of an antagonist that people would become sympathetic to but always hold at arm's length. But there were no complaints about that this character's ethnicity. He remained Hispanic.

After reading these documents, my mind was a malestrom of questions, whipped about by winds of howling frustration. Why were the focus groups comfortable with a Hispanic character as an antagonist but uncomfortable with a Hispanic character as a helper? Why did this company capitulate to this suggestion and literally Whitewash him? Why were both parties content to leave the brutish man as non-White but change the intelligent, well-meaning one so that he was White? There are obvious, ugly answers to these questions—but the documents were silent one way or another. Nothing else was said or noted about the issue. There was ample room to write more, the papers were awash with available whitespace—but there was nothing. And that was perhaps the most frustrating part of all. That it was so clinical. That it was so apparently normal that it merited nothing else but a note and a subsequent design change.

My first thoughts after the anger subsided were tinged with sadness stemming from an obvious lost opportunity. I thought about Gordon Allport's seminal research on diminishing intergroup prejudice—the decades-old sociological work showing how, in certain conditions (many of which met by the game's narrative), contact between members of two different identity groups could diminish the out-group prejudices these members held (Pettigrew, 1998, see). I thought about the work arguing over the importance of descriptive representation in media—and how important it often is to players that there are characters in the game that they can relate to. I wondered, and wonder to this day, if the designers were aware of the local harms they were

committing as they fed into these individuals' prejudices and the global goods they had denied the broader gaming community in their concerns over the bottom line.

By this point, I had already gathered ample survey evidence suggesting there was least an association between gaming content and political behavior (most of the causal component would not come until later). That coupled with the literature I reviewed in Chapter 2 left me feeling fairly confident that this company's action was, on the whole, deleterious. This moment galvanized me to have a new view on the matter almost immediately.

The responsibility of game designers is not so much a positive one—something that they should do. It is a negative one—something that they should not do. If game developers are going to address socially, morally, and politically relevant issues, if they are to tell their stories about and for various groups of people, then I do not think it is too much to ask that, at the very least, **they do no harm by way of these issues and groups.** The fact that games can affect their players means that developers need to be sure that their games are not encouraging actions or attitudes on behalf of unjust causes. On the narrative front, this means making sure that controversial positions and factual arguments are properly contextualized. It means not uncritically parroting, or otherwise propagating, harmful beliefs and stereotypes. It does not mean that certain subjects ought to be taboo or universally avoided—but it does mean being conscientious and deliberate in how sociopolitically relevant things are framed. On the mechanics front, it means recognizing the potential downsides of social capital; hate groups and White supremacists are known to be using games to recruit new members. It does not happen often, the number of instances amount to a rounding error when considering how many interplayer interactions occur in these spaces. But small percentages of large numbers can still amount to big problems that must be taken seriously. It also means not using game mechanics to trivialize important social issues (outside the spaces of satire and its ilk). It means considering how much responsibility the developers want to have the players assume for the outcome of a politically relevant in-game event and whether it is constructed in a way to make them reflect on what has happened—or simply brush it off.

I may be labeled as being too vague in my admonitions above—and that is fair. That is by design. Because games are interactive systems which are themselves enmeshed in social systems, there is never going to be a unequivocal set of standards that we can use to judge when a game has gone afoul. So much will be determined by the unique interactions of its narrative and mechanical elements—as well as the contemporary moment they appear in and reflect. Until we learn a lot more, and maybe not even then, identifying a socially deleterious game may be a lot like identifying obscenity *a la* the late Supreme Court Justice Potter Stewart: "I'll know it when I see it." Still, we should not let the evanescent nature of the standards stand in the way of at least professing the existence of some form of social responsibility. We should at least acknowledge the "do no harm" principle first. The details can be determined later.

But, speaking as one, I think that political scientists *also* have a responsibility here: one that has gone long unfulfilled. Because, while this one instance was undeniably problematic, I have been bouyed to learn, since I came upon this belief, that the call for responsibility has already been taken up by a number of companies and individual developers. I learned through other design materials and through GDC talks that people were serious about getting important details correct. Indeed, I detailed some of these findings in Chapter 8. Many developers engage with the works of domain experts, seek out diverse voices and perspectives, and enlist consultants to do their damnedest to get everything right. (Or to at least understand what was right so that they could creatively be wrong in a way that make the concepts gameable without eroding their core logics and essences.)

Many social science fields have practioners who happily lend developers their time and insights for such purposes. And there are a wide array of professionals brought on in the industry: psychologists, sociologists, economists, statisticians, historians, anthropologists, philosophers, soldiers, activists, and ethicists. But, for the life of me, I cannot recall a single political scientist. There are definitely times where political scientists seek out *game designers*, but that is mostly so that the former can develop serious games, not so the latter can add depth to their non-serious games. The collaboration is largely a one-way street. That is not to say, of course, that there are

no political scientists consulting game developers, or that developers are not reading the work of political scientists, simply because I did not come across any names in my research. But, over the course of writing this book, I have read and watched a lot of game-development material. The absence is certainly conspicuous.

It is not that political scientists have nothing to offer. As I showed in the last chapter, an appreciable percentage of games include content that is unflinchingly political—let alone content related more tangentially to the everlasting contest over who gets what and why. There are hundreds of political scientists who could weigh-in on these topics. But they are not asked. And it is not that political scientists do not play games. I can say with a reasonable degree of confidence that political scientists are indeed people—and, as people, their individual hobbies include everything from knitting, to baking, to cooking, to skydiving, to competitive athletics, and, yes, video gaming. In fact, I'm proudly acquainted with a number of political scientists who openly enjoy gaming—either alone or with their friends and families.

So if not from either a lack of relevance or a lack of interest, why are political scientists largely absent from the gaming industry? I will not stake any certain answers, but I believe it is largely because our work does not feature prominently in outlets frequently read by game designers. Part of this undoubtedly reflects professional forces within the discipline that have strongly prioritized publications in peer-reviewed outlets over so-called popular ones. This is fortunately a trend that appears to be changing, although we have a ways to go. But another part probably stems from the fact that we, as a group, have not published much work that signals our interest in games as a medium. Even the work that centers itself around politics in fiction is overwhelmingly focused on movies, television, and novels. This despite the fact that many Americans spend comparable amounts of time and money on games compared to these three–and an appreciable percentage prioritize games above the rest. Political scientists need to be more involved with video games: thinking about them, making them, and studying them and the effects they have on their players.

That is not to say that every game needs to be chock-full of politically relevant content—or be politically relevant at all. There was another moment in the Strong, after a long day of reading, writing, and thinking, that I came across a review for a video game called *Savage Quest* that called to me. The premise of the game was simple enough. Players take on the form of a dinosaur and live it up, eating and fighting other dinosaurs as they choose. As one could guess from the many obscure paleontological facts I have peppered throughout the book, I love dinosaurs. I have always loved dinosaurs. I joke that I got into political science because I made a mistake when looking for paleontology in the course catalog. At that moment—and in many moments since—I have wanted nothing more than to jump into the body of a tyrannosaurus and wreak dumb havoc on the Mesozoic landscape. And that is ok! It is good that games like this exist—same as *Beat Saber*, *Fall Guys*, *Untitled Goose Game*, *Angry Birds*, and *Totally Accurate Battle Simulator*. Because games are meant to be fun—and these experiences are fun to play! Even when they are devoid of politically relevant content or opportunities to develop social capital. If games all got too self-serious, they would cease to be games. And they would cease to be the wonderfully diverse media that they are.

But we also need to recognize that "fun" and "play" does not mean "frivolous." As gaming has grown and matured as a medium, so too has its focus on what can be explored through interactive storytelling. And as it has become more mainstream, and as the internet continues to grow in its ubiquity, it has never been easier to make and maintain relationships through virtual play. This research shows that non-serious games can have serious affects on political behavior. Mainstream games contain politically relevant content, experiences, and opportunities to connect. These things can promote pro-civic attitudes and increase political participation. What is more, they are available in the majority of popular games released over the last decade and experienced by a large swath of American adults. It may be all fun and games, but I hope this research helps us appreciate that fun can have beneficial social consequences.

REPLICATION MATERIALS

This appendix contains tables for all of the regression analyses contained within the four empirical chapters: Chapter 5, Chapter 6, Chapter 7, and Chapter 8. Data for the analyses are available at https://www.peterlicari.com/projects/dissertation. The analyses in Chapters 5–7 were conducted in Stata 13. The analysis in Chapter 8 was conducted in R version 3.6.

Table B-1. Factor loadings for the Pew Research (2008) civic attitudes scale. This combined 5 items designed by Pew Research intended to tap into teens' sense of civic engagement. This was the dependent variable in Figure 1-2 and Figure 5-4.

Variable	Factor Loading
Everyone should be involved	0.6868
It is important to be involved	0.6762
It is my responsibility to get involved	0.6640
I can learn from people of different backgrounds than my own	0.4968
I am interested in politics	0.6069

Table B-2. OLS regression results from the Pew Research (2008) data, measuring the association between the frequency of playing games that make people think of political issues, moral issues, problems in society, and social issues that they care about and the constructed civic attitudes scale (see Table B-1. Heteroskedastic-robust standard errors reported in parentheses under the coefficients. $p < 0.1$, ** $p < 0.05$, *** $p < 0.001$. These models were used in Figure 1-2 and Figure 5-4.

	Political Issues	Moral Issues	Social Problem	Social Issue
Independent Variable	0.0370***	0.0257***	0.0352***	0.0241***
	(0.00653)	(0.00643)	(0.00707)	(0.00631)
Parents' Participation	0.0182***	0.0191***	0.0202***	0.0189***
	(0.00553	(0.00554)	(0.0055)	(0.00556)
Household Income	0.00257	0.00282	0.0028	0.00315
	(0.00271)	(0.00275	(0.00277)	(0.00278)
Parents' Education	0.000971	0.00123	0.000396	0.000917
	(0.0037)	(0.00375)	(0.00374)	(0.00377)
White	0.00617	0.00623	0.0107	0.00938
	(0.013)	(0.0132)	(0.0133)	(0.0135)
Sex	-0.0254***	-0.0277***	-0.0303***	-0.0240**
	(0.00975	(0.00999	(0.00976	(0.00988
Age	0.00994***	0.00951***	0.00976***	0.0102***
	(0.00287	(0.00295)	(0.00289)	(0.00293)
Constant	0.499***	0.514***	0.500***	0.507***
	(0.044)	(0.0457)	(0.0447)	(0.0455)
Observations	909	905	907	904
R^2	0.072	0.053	0.066	0.051

Table B-3. Ordered logistic regression models from the GAmEPLS survey (2019), measuring the association between the frequency of playing games with moral issues, social issues, and political issues on political interest. Odds-ratios reported with their heteroskedastic-robust coefficients in parentheses beneath them. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.001$. These models were featured in Figure 5-5.

	Moral Issues	Social Issues	Political Issues
Independent Variable	1.193***	1.217***	1.193**
	(0.0766)	(0.0741)	(0.0835)
Party ID	1.004	0.995	1.003
	(0.0495)	(0.0491)	(0.0495)
Income	1.063**	1.064**	1.060**
	(0.0302)	(0.0305)	(0.0303)
Sex	0.609***	0.614***	0.614***
	(0.104)	(0.105)	(0.106)
Education	1.214***	1.214***	1.216***
	(0.0747)	(0.075)	(0.0751)
White	0.897	0.889	0.904
	(0.41)	(0.411)	(0.412)
Black	0.564	0.548	0.589
	(0.296)	(0.291)	(0.312)
Hispanic	0.643	0.62	0.633
	(0.319)	(0.312)	(0.312)
Asian	0.504	0.483	0.5
	(0.351)	(0.336)	(0.341)
Native	2.133	2.095	2.063
	(2.101)	(2.083)	(2.015)

Table B-3. Continued.

	Moral Issues	Social Issues	Political Issues
Political Ideology	0.916	0.927	0.919
	(0.0852)	(0.087)	(0.0856)
Age	1.053***	1.053***	1.053***
	(0.00642	(0.00631	(0.0066)
Cut 1	0.954	0.972	0.96
	(0.69)	(0.701)	(0.706)
Cut 2	3.896*	3.987**	3.930*
	(2.732)	(2.789)	(2.801)
Cut 3	18.86***	19.38***	18.97***
	(13.28)	(13.6)	(13.6)
Observations	607	607	607

Table B-4. Poisson regression results from the Pew Research (2008) data, measuring the association between the frequency of playing games that make people think of political issues, moral issues, problems in society, and social issues that they care about and the number of political actions they performed. As a robustness check, these variables were also ran as an OLS model—see Table B-5 Heteroskedastic-robust standard errors reported in parentheses under the coefficients. $p < 0.1$, ** $p < 0.05$, *** $p < 0.001$. These models were featured in Figure 1-1 and 5-6.

	Political Issues	Moral Issues	Social Problem	Social Issue
Independent Variable	1.100***	1.068***	1.100***	1.107***
	(0.0218)	(0.0224)	(0.0218)	(0.0243)
Parents' Participation	1.124***	1.118***	1.114***	1.114***
	(0.0235)	(0.0240)	(0.0236)	(0.0235)
Household Income	0.996	0.997	0.997	0.996
	(0.0102)	(0.0105)	(0.0106)	(0.0106)
Parents' Education	1.033***	1.039***	1.034***	1.035***
	(0.0128)	(0.0130)	(0.0130)	(0.0129)
White	1.05	1.058	1.036	1.04
	(0.0495)	(0.0516)	(0.0499)	(0.0496)
Sex	0.887***	0.913***	0.907***	0.909***
	(0.0278)	(0.0285)	(0.0288)	(0.0282)
Age	1.034***	1.037***	1.033***	1.034***
	(0.00950)	(0.00971)	(0.00978)	(0.00970)
Political Interest	1.150***	1.158***	1.157***	1.153***
	(0.0148)	(0.0151)	(0.0151)	(0.0147)
Constant	0.492***	0.474***	0.549***	0.523***
	(0.0792)	(0.0794)	(0.0915)	(0.0864)
Observations	907	903	904	908

Table B-5. OLS regression results from the Pew Research (2008) data, measuring the association between the frequency of playing games that make people think of political issues, moral issues, problems in society, and social issues that they care about and the number of political actions they performed. This is a robustness check to the Poisson models seen in Table B-4. Heteroskedastic-robust standard errors reported in parentheses under the coefficients. $p < 0.1$, ** $p < 0.05$, *** $p < 0.001$.

	Political Issues	Moral Issues	Social Problem	Social Issue
Independent Variable	0.230***	0.155***	0.326***	0.240***
	(0.0477)	(0.0499)	(0.0506)	(0.0532)
Parents' Participation	0.237***	0.238***	0.253***	0.243***
	(0.0448)	(0.0454)	(0.0440)	(0.0453)
Household Income	-0.00974	-0.00788	-0.00865	-0.00875
	(0.0239)	(0.0243)	(0.0234)	(0.0238)
Parents' Education	0.0788***	0.0784***	0.0756***	0.0880***
	(0.0283)	(0.0287)	(0.0281)	(0.0284)
White	0.0768	0.0696	0.0992	0.117
	(0.104)	(0.106)	(0.102)	(0.105)
Sex	-0.224***	-0.229***	-0.271***	-0.210***
	(0.0731)	(0.0748)	(0.0729)	(0.0732)
Age	0.0817***	0.0781***	0.0828***	0.0859***
	(0.0217)	(0.0219)	(0.0213)	(0.0217)
Political Interest	0.327***	0.334***	0.320***	0.335***
	(0.0283)	(0.0289)	(0.0287)	(0.0288)
Constant	-1.051***	-0.942***	-1.203***	-1.247***
	(0.360)	(0.364)	(0.350)	(0.360)
Observations	908	904	907	903
R^2	0.248	0.235	0.264	0.251

Table B-6. Poisson regression results from the GAmEPLS (2019) data, measuring the association between the frequency of playing games that make people think of political issues, moral issues, problems in society, and social issues that they care about and the number of political actions they performed. As a robustness check, these variables were also ran as an OLS model—see Table B-7. Heteroskedastic-robust standard errors reported in parentheses under the coefficients, which are Incidence Rate Ratios. $p < 0.1$, ** $p < 0.05$, *** $p < 0.001$. These models were featured in Figure 5-7.

	Moral Issues	Social Issues	Political Issues
independent Variable	1.095***	1.106***	1.105***
	(0.0172)	(0.0180)	(0.0190)
Political Interest	0.734***	0.738***	0.733***
	(0.0287)	(0.0288)	(0.0284)
Party ID	0.976	0.971*	0.974*
	(0.0157)	(0.0154)	(0.0152)
Income	1.026***	1.026***	1.025***
	(0.00836)	(0.00826)	(0.00817)
Sex	1.026	1.021	1.029
	(0.0472)	(0.0467)	(0.0474)
Education	1.104***	1.105***	1.104***
	(0.0198)	(0.0197)	(0.0196)
White	0.888	0.882	0.893
	(0.103)	(0.0972)	(0.104)
Black	0.784*	0.762*	0.81
	(0.114)	(0.108)	(0.119)
Hispanic	0.893	0.881	0.892
	(0.138)	(0.131)	(0.138)
Asian	0.674*	0.653*	0.667*
	(0.152)	(0.149)	(0.152)
Native	0.906	0.903	0.853

Table B-6. Continued.

	Moral Issues	Social Issues	Political Issues
	(0.235)	(0.232)	(0.232)
Ideology	0.993	1	0.994
	(0.0282)	(0.0279)	(0.0276)
Age	0.999	0.999	1
	(0.00168)	(0.00163)	(0.00164)
Constant	4.163***	4.074***	4.069***
	(0.811)	(0.782)	(0.797)
Observations	601	601	601

Table B-7. OLS regression results from the GAmEPLS (2019) data, measuring the association between the frequency of playing games that make people think of social issues, moral issues, and political issues and the number of political actions they performed. This is a robustness check to the Poisson models seen in Table B-6. Heteroskedastic-robust standard errors reported in parentheses under the coefficients. $p < 0.1$, ** $p < 0.05$, *** $p < 0.001$.

	Moral Issues	Social Issues	Political Issues
Independent Variable	0.381***	0.427***	0.418***
	(0.0690)	(0.0722)	(0.0779)
Political Interest	-0.992***	-0.971***	-0.990***
	(0.116)	(0.115)	(0.114)
Party ID	-0.104	-0.124*	-0.112*
	(0.0669)	(0.0658)	(0.0654)
Income	0.102***	0.103***	0.0971***
	(0.0321)	(0.0318)	(0.0316)
Sex	0.0981	0.0929	0.112
	(0.184)	(0.182)	(0.184)
Education	0.414***	0.417***	0.414***
	(0.0722)	(0.0719)	(0.0721)
White	-0.469	-0.485	-0.448
	(0.495)	(0.477)	(0.503)
Black	-0.901	-0.970*	-0.801
	(0.578)	(0.562)	(0.585)
Hispanic	-0.521	-0.571	-0.533
	(0.613)	(0.594)	(0.617)
Asian	-1.540*	-1.633*	-1.570*
	(0.834)	(0.842)	(0.842)
Native	-0.51	-0.513	-0.716

Table B-7. Continued.

	Moral Issues	Social Issues	Political Issues
	(1.143)	(1.130)	(1.171)
Ideology	-0.0171	0.0114	-0.00581
	(0.121)	(0.119)	(0.119)
Age	-0.00207	-0.00176	-0.000407
	(0.00687)	(0.00669)	(0.00664)
Constant	3.945***	3.828***	3.845***
	(0.792)	(0.782)	(0.799)
Observations	601	601	601
R^2	0.308	0.317	0.308

Table B-8. Ordered-logistic regression results from the GAmEPLS (2019) data, measuring the association between the frequency of playing games that make people think of moral issues and how frequently they performed the 9 individual actions comprising the survey's participation scale. These models, as well as those in Tables B-9 and B-10, featured in Figure 5-8. Heteroskedastic-robust standard errors reported in parentheses under the coefficients. $p < 0.1$, ** $p < 0.05$, *** $p < 0.001$.

	Voted	Protest	Boycott	Donate (Campaign)	Volunteer (Party)	Information	Donate (Charity)	Volunteer (Party)	Contact Official
	Voted	Protest	Boycott	Donate (Campaign)	Volunteer (Party)	Information	Donate (Charity)	Volunteer (Party)	Contact Official
Moral Gameplay	1.021	1.392***	1.255***	1.278***	1.115*	1.228***	1.112*	1.385***	1.241***
	(0.0696)	(0.110)	(0.0854)	(0.0824)	(0.0708)	(0.0695)	(0.0671)	(0.104)	(0.0721)
Political Interest	0.487***	0.643***	0.370***	0.463***	0.640***	0.380***	0.570***	0.604***	0.405***
	(0.0547)	(0.0973)	(0.0560)	(0.0753)	(0.0821)	(0.0522)	(0.0663)	(0.0909)	(0.0521)
Party ID	0.937	0.888*	0.928	0.938	1.009	0.898**	1.035	0.968	0.967
	(0.0538)	(0.0581)	(0.0515)	(0.0529)	(0.0517)	(0.0481)	(0.0532)	(0.0677)	(0.0506)
Income	1.024	1.066	1.01	1.066*	1.072**	1.070**	1.115***	1.088**	1.023
	(0.0326)	(0.0449)	(0.0313)	(0.0359)	(0.0307)	(0.0300)	(0.0336)	(0.0444)	(0.0285)
Sex	0.934	1.221	1.097	0.798	1.401*	0.923	1.441**	0.923	0.958
	(0.190)	(0.276)	(0.201)	(0.149)	(0.244)	(0.161)	(0.260)	(0.201)	(0.167)
Education	1.337***	1.273**	1.163**	1.326***	1.443***	1.173***	1.250***	1.324***	1.338***
	(0.110)	(0.119)	(0.0776)	(0.0950)	(0.0957)	(0.0724)	(0.0853)	(0.107)	(0.0861)
White	0.699	0.596	0.987	1.11	0.641	1.182	0.487	0.689	0.581
	(0.423)	(0.325)	(0.463)	(0.599)	(0.301)	(0.416)	(0.285)	(0.423)	(0.245)
Black	0.529	0.766	0.577	1.219	0.699	0.863	0.291*	0.692	0.329**
	(0.362)	(0.504)	(0.326)	(0.768)	(0.371)	(0.388)	(0.185)	(0.504)	(0.164)
Hispanic	0.315*	0.837	1.129	1.657	0.76	1.265	0.289*	1.273	0.408*
	(0.204)	(0.533)	(0.601)	(0.995)	(0.414)	(0.566)	(0.183)	(0.886)	(0.205)
Asian	0.118***	0.509	0.706	0.673	0.393	0.58	0.41	0.578	0.335

Table B-8. Continued

	Voted	Protest	Boycott	Donate (Campaign)	Volunteer (Party)	Information	Donate (Charity)	Volunteer (Party)	Contact Official
	(0.0970)	(0.410)	(0.545)	(0.594)	(0.262)	(0.415)	(0.310)	(0.494)	(0.258)
Native	0.326	1.276	0.551	0.957	1.807	1.318	0.268	2.25e-06***	1.804
	(0.598)	(2.293)	(0.718)	(0.605)	(1.406)	(1.575)	(0.232)	(1.89e-06)	(2.239)
Ideology	1.136	0.876	0.978	0.859	1.106	0.982	1.021	0.891	0.908
	(0.110)	(0.103)	(0.102)	(0.0863)	(0.103)	(0.0984)	(0.0944)	(0.112)	(0.0865)
Age	1.028***	0.975***	0.986**	1.019***	0.991	0.990*	1.014**	0.987	1.005
	(0.00762)	(0.00860)	(0.00615)	(0.00722)	(0.00597)	(0.00566)	(0.00619)	(0.00815)	(0.00595)
Cut 1	0.347	1.553	0.357	5.887**	3.434	0.393	0.864	4.112	0.46
	(0.328)	(1.499)	(0.275)	(4.928)	(2.640)	(0.272)	(0.753)	(3.826)	(0.327)
Cut 2	0.993	3.438	0.58	13.25***	7.134**	0.812	1.712	9.341**	0.865
	(0.937)	(3.299)	(0.447)	(11.15)	(5.488)	(0.562)	(1.479)	(8.822)	(0.614)
Observations	605	606	606	606	605	606	604	604	606

Table B-9. Ordered-logistic regression results from the GAmEPLS (2019) data, measuring the association between the frequency of playing games that make people think of political issues and how frequently they performed the 9 individual actions comprising the survey's participation scale. These models, as well as those in Tables B-9 and B-10, featured in Figure 5-8. Heteroskedastic-robust standard errors reported in parentheses under the coefficients. $p < 0.1$, ** $p < 0.05$, *** $p < 0.001$.

	Voted	Protest	Boycott	Donate (Campaign)	Volunteer (Party)	Information	Donate (Charity)	Volunteer (Party)	Contact Official
Political Gameplay	1.035	1.474***	1.212***	1.336***	1.106	1.261***	1.077	1.462***	1.286***
	(0.0733)	(0.125)	(0.0860)	(0.0963)	(0.0774)	(0.0800)	(0.0761)	(0.121)	(0.0847)
Political Interest	0.488***	0.643***	0.367***	0.459***	0.636***	0.375***	0.566***	0.598***	0.401***
	(0.0543)	(0.0975)	(0.0560)	(0.0755)	(0.0812)	(0.0515)	(0.0658)	(0.0893)	(0.0520)
Party ID	0.936	0.883*	0.925	0.934	1.007	0.894**	1.032	0.957	0.961
	(0.0539)	(0.0567)	(0.0507)	(0.0518)	(0.0512)	(0.0467)	(0.0528)	(0.0644)	(0.0497)
Income	1.024	1.063	1.006	1.065*	1.070**	1.068**	1.112***	1.086**	1.021
	(0.0326)	(0.0436)	(0.0305)	(0.0352)	(0.0303)	(0.0294)	(0.0332)	(0.0432)	(0.0279)
Sex	0.936	1.218	1.09	0.806	1.402*	0.932	1.435**	0.925	0.964
	(0.189)	(0.279)	(0.199)	(0.152)	(0.244)	(0.162)	(0.258)	(0.204)	(0.168)
Education	1.337***	1.271***	1.165**	1.320***	1.444***	1.171**	1.253***	1.328***	1.336***
	(0.110)	(0.118)	(0.0765)	(0.0937)	(0.0956)	(0.0719)	(0.0850)	(0.107)	(0.0855)
White	0.699	0.591	0.998	1.146	0.643	1.23	0.49	0.701	0.597
	(0.423)	(0.334)	(0.470)	(0.633)	(0.301)	(0.434)	(0.288)	(0.438)	(0.249)
Black	0.531	0.848	0.629	1.326	0.717	0.943	0.298*	0.778	0.352**
	(0.364)	(0.576)	(0.357)	(0.856)	(0.378)	(0.425)	(0.190)	(0.576)	(0.174)
Hispanic	0.313*	0.789	1.122	1.677	0.758	1.278	0.292*	1.251	0.409*
	(0.203)	(0.513)	(0.598)	(1.020)	(0.413)	(0.570)	(0.185)	(0.882)	(0.203)
Asian	0.116***	0.503	0.716	0.647	0.398	0.576	0.424	0.554	0.327

B-9: Continued.

	Voted	Protest	Boycott	Donate (Campaign)	Volunteer (Party)	Information	Donate (Charity)	Volunteer (Party)	Contact Official
	(0.0953)	(0.436)	(0.546)	(0.580)	(0.266)	(0.413)	(0.319)	(0.491)	(0.257)
Native	0.324	1.01	0.473	0.788	1.712	1.226	0.254	9.83e-07***	1.681
	(0.596)	(1.800)	(0.642)	(0.509)	(1.305)	(1.609)	(0.221)	(8.45e-07)	(2.101)
Ideology	1.139	0.879	0.98	0.866	1.108	0.992	1.023	0.913	0.92
	(0.111)	(0.102)	(0.101)	(0.0853)	(0.103)	(0.0974)	(0.0943)	(0.109)	(0.0856)
Age	1.029***	0.978**	0.985**	1.022***	0.991	0.992	1.013**	0.99	1.006
	(0.00759)	(0.00855)	(0.00619)	(0.00722)	(0.00602)	(0.00567)	(0.00626)	(0.00810)	(0.00595)
Cut 1	0.364	1.833	0.312	6.918**	3.281	0.437	0.764	5.185*	0.512
	(0.344)	(1.790)	(0.243)	(5.907)	(2.506)	(0.306)	(0.674)	(4.923)	(0.365)
Cut 2	1.042	4.088	0.505	15.61***	6.809**	0.903	1.511	11.82**	0.967
	(0.984)	(3.963)	(0.393)	(13.41)	(5.205)	(0.634)	(1.322)	(11.40)	(0.689)
Observations	605	606	606	606	605	606	604	604	606

Table B-10. Ordered-logistic regression results from the GAmEPLS (2019) data, measuring the association between the frequency of playing games that make people think of social issues and how frequently they performed the 9 individual actions comprising the survey's participation scale. These models, as well as those in Tables B-8 and B-9, featured in Figure 5-8. Heteroskedastic-robust standard errors reported in parentheses under the coefficients. $p < 0.1$, ** $p < 0.05$, *** $p < 0.001$.

	Voted	Protest	Boycott	Donate (Campaign)	Volunteer (Party)	Information	Donate (Charity)	Volunteer (Party)	Contact Official
Social Gameplay	1.012	1.509***	1.299***	1.301***	1.136**	1.278***	1.151**	1.433***	1.273***
	(0.0689)	(0.121)	(0.0871)	(0.0841)	(0.0728)	(0.0764)	(0.0753)	(0.111)	(0.0775)
Political Interest	0.487***	0.663***	0.373***	0.468***	0.645***	0.384***	0.575***	0.613***	0.409***
	(0.0545)	(0.102)	(0.0566)	(0.0766)	(0.0829)	(0.0528)	(0.0674)	(0.0933)	(0.0526)
Party ID	0.936	0.866**	0.917	0.925	1.003	0.886**	1.028	0.949	0.955
	(0.0536)	(0.0566)	(0.0509)	(0.0517)	(0.0514)	(0.0472)	(0.0531)	(0.0655)	(0.0497)
Income	1.024	1.07	1.012	1.066*	1.073**	1.072**	1.116***	1.091**	1.025
	(0.0326)	(0.0451)	(0.0311)	(0.0355)	(0.0305)	(0.0299)	(0.0337)	(0.0442)	(0.0283)
Sex	0.933	1.204	1.094	0.796	1.401*	0.918	1.449**	0.896	0.955
	(0.189)	(0.277)	(0.200)	(0.150)	(0.244)	(0.160)	(0.261)	(0.198)	(0.166)
Education	1.339***	1.277***	1.164**	1.333***	1.443***	1.176***	1.251***	1.330***	1.341***
	(0.110)	(0.119)	(0.0774)	(0.0946)	(0.0956)	(0.0724)	(0.0857)	(0.108)	(0.0862)
White	0.7	0.577	0.972	1.091	0.641	1.181	0.487	0.678	0.578
	(0.424)	(0.306)	(0.443)	(0.578)	(0.297)	(0.412)	(0.285)	(0.403)	(0.240)
Black	0.53	0.68	0.542	1.155	0.684	0.825	0.284**	0.623	0.314**
	(0.363)	(0.446)	(0.301)	(0.726)	(0.359)	(0.369)	(0.180)	(0.453)	(0.157)
Hispanic	0.315*	0.79	1.085	1.596	0.753	1.25	0.284**	1.229	0.401*
	(0.204)	(0.488)	(0.563)	(0.939)	(0.406)	(0.552)	(0.180)	(0.833)	(0.199)
Asian	0.119***	0.445	0.649	0.626	0.382	0.533	0.399	0.535	0.323

Table B-10. Continued

	Voted	Protest	Boycott	Donate (Campaign)	Volunteer (Party)	Information	Donate (Charity)	Volunteer (Party)	Contact Official
	(0.0980)	(0.375)	(0.504)	(0.561)	(0.254)	(0.390)	(0.302)	(0.467)	(0.255)
Native	0.323	1.289	0.553	0.949	1.814	1.341	0.269	1.18e-06***	1.797
	(0.595)	(2.428)	(0.712)	(0.596)	(1.408)	(1.602)	(0.232)	(9.85e-07)	(2.210)
Ideology	1.136	0.909	0.994	0.876	1.117	1.005	1.031	0.922	0.925
	(0.110)	(0.105)	(0.103)	(0.0870)	(0.104)	(0.100)	(0.0956)	(0.113)	(0.0867)
Age	1.028***	0.976***	0.986**	1.019***	0.991	0.991	1.014**	0.986*	1.005
	(0.00759)	(0.00852)	(0.00613)	(0.00708)	(0.00591)	(0.00567)	(0.00625)	(0.00802)	(0.00601)
Cut 1	0.336	1.984	0.388	6.106**	3.631*	0.453	0.97	4.435	0.499
	(0.316)	(1.925)	(0.299)	(5.042)	(2.772)	(0.318)	(0.858)	(4.079)	(0.358)
Cut 2	0.963	4.466	0.633	13.79***	7.552***	0.941	1.926	10.12**	0.943
	(0.906)	(4.308)	(0.486)	(11.44)	(5.770)	(0.662)	(1.692)	(9.434)	(0.676)
Observations	605	606	606	606	605	606	604	604	606

Table B-11. Factor loadings for the experiment's civic attitudes scale. This combined 5 items designed by Pew Research intended to tap into teens' sense of civic engagement. This was the dependent variable in Figures 5-9 and 6-2.

Variable	Factor Loading
Everyone should be involved	0.6235
It is important to be involved	0.6741
It is my responsibility to get involved	0.7666
I can learn from people of different backgrounds than my own	0.6166
I am interested in politics	0.3974

Table B-12. Regression output for the mediation analyses seen in Figure 5-9, on the experimental investigations into gaming and civic attitudes. Each column is one set of models, focused on moral, political, and social issues respectively. OLS coefficients reported with standard errors in parentheses. $p < 0.1$, ** $p < 0.05$, *** $p < 0.001$.

	Moral Issues	Political Issues	Social Issues
DV: MEDIATOR			
Final Earth 2	0.392***	0.510***	0.0858
	(0.0912)	(0.0878)	(0.0910)
Habitat	0.190**	0.207**	0.0034
	(0.0894)	(0.0860)	(0.0891)
Sort the Court	0.478***	0.519***	0.0327
	(0.0888)	(0.0855)	(0.0886)
Constant	0.429***	0.388***	0.735***
	(0.0607)	(0.0585)	(0.0606)
Observations	173	173	173
R-squared	0.166	0.228	0.006
DV: CIVIC ATTITUDES			
Mediator	0.0619*	0.0846**	0.0775**
	(0.0351)	(0.0362)	(0.0350)
Final Earth 2	0.0146	-0.0043	0.0322
	(0.0443)	(0.0457)	(0.0420)
Habitat	-0.0147	-0.0205	-0.00318
	(0.0418)	(0.0417)	(0.0410)
Sort the Court	0.0659	0.0515	0.0929**
	(0.0443)	(0.0449)	(0.0408)
Constant	0.690***	0.683***	0.659***
	(0.0318)	(0.0312)	(0.0379)
Observations	173	173	173
R-squared	0.056	0.069	0.066

Table B-13. Factor loadings for the 10 item participatory intent score used as the dependent variable in the experimental analysis in Figure 5-10 and 6-3.

Variable	Factor Loading
Sign a Petition	0.6009
Donate to a Candidate	0.5634
Participate in a Protest	0.6209
Join an Online Group or Community	0.6507
Boycott goods and services	0.5673
Vote	0.5482
Talk to People Online	0.4896
Talk to People in Real Life	0.5147
Volunteer with a Charity	0.6535
Donate Money to a Charity	0.5746

Table B-14. Regression output for the mediation analyses seen in Figure 5-10, on the experimental investigations into gaming and participatory intent. Each column is one set of models, focused on moral, political, and social issues respectively. OLS coefficients reported with standard errors in parentheses. $p < 0.1$, ** $p < 0.05$, *** $p < 0.001$.

	Moral Issues	Political Issues	Social Issues
DV: MEDIATOR			
Final Earth 2	0.392***	0.510***	0.0858
	(0.0912)	(0.0878)	(0.0910)
Habitat	0.190**	0.207**	0.0034
	(0.0894)	(0.0860)	(0.0891)
Sort the Court	0.478***	0.519***	0.0327
	(0.0888)	(0.0855)	(0.0886)
Constant	0.429***	0.388***	0.735***
	(0.0607)	(0.0585)	(0.0606)
Observations	173	173	173
R^2	0.166	0.228	0.006
DV: PARTICIPATORY INTENT			
Mediator	0.0906***	0.0706**	0.0790**
	(0.0338)	(0.0354)	(0.0341)
Final Earth 2	0.00489	0.0044	0.0336
	(0.0426)	(0.0447)	(0.0408)
Habitat	-0.0194	-0.0168	-0.00241
	(0.0402)	(0.0407)	(0.0399)
Sort the Court	0.00839	0.0151	0.0491
	(0.0427)	(0.0439)	(0.0397)
Constant	0.559***	0.571***	0.540***
	(0.0306)	(0.0305)	(0.0369)
Observations	173	173	173
R^2	0.054	0.037	0.045

Table B-15. Regression output for the mediation analyses seen in Figure 5-11, on the experimental investigations into gaming and the amount of money donated to charity. Each column is one set of models, focused on moral, political, and social issues respectively. OLS coefficients reported with standard errors in parentheses. $p < 0.1$, ** $p < 0.05$, *** $p < 0.001$.

	Moral Issues	Political Issues	Social Issues
DV: MEDIATOR			
Final Earth 2	0.392***	0.510***	0.0858
	(0.0912)	(0.0878)	(0.0910)
Habitat	0.190**	0.207**	0.0034
	(0.0894)	(0.0860)	(0.0891)
Sort the Court	0.478***	0.519***	0.0327
	(0.0888)	(0.0855)	(0.0886)
Constant	0.429***	0.388***	0.735***
	(0.0607)	(0.0585)	(0.0606)
Observations	173	173	173
R^2	0.166	0.228	0.006
DV: DONATION AMOUNT			
Mediator	1.311	1.087	-0.211
	(0.924)	(0.962)	(0.932)
Final Earth 2	0.192	0.152	0.724
	(1.166)	(1.214)	(1.118)
Habitat	-0.641	-0.617	-0.39
	(1.100)	(1.107)	(1.092)
Sort the Court	-1.025	-0.962	-0.39
	(1.166)	(1.191)	(1.086)
Constant	2.091**	2.231***	2.808***
	(0.837)	(0.828)	(1.010)
Observations	173	173	173
R^2	0.018	0.014	0.007

Table B-16. Regression output for the mediation analyses mentioned in Chapter 5, on the experimental investigations into gaming and whether participants donated any money to charity. Each column is one set of models, focused on moral, political, and social issues respectively. OLS coefficients reported with standard errors in parentheses. $p < 0.1$, ** $p < 0.05$, *** $p < 0.001$.

	Moral Issues	Political Issues	Social Issues
DV: MEDIATOR			
Final Earth 2	0.392***	0.510***	0.0858
	(0.0912)	(0.0878)	(0.0910)
Habitat	0.190**	0.207**	0.0034
	(0.0894)	(0.0860)	(0.0891)
Sort the Court	0.478***	0.519***	0.0327
	(0.0888)	(0.0855)	(0.0886)
Constant	0.429***	0.388***	0.735***
	(0.0607)	(0.0585)	(0.0606)
Observations	173	173	173
R^2	0.166	0.228	0.006
DV: DONATION AT ALL			
Mediator	0.1	0.102	-0.0147
	(0.0779)	(0.0810)	(0.0785)
Final Earth 2	0.0235	0.0107	0.0641
	(0.0984)	(0.102)	(0.0942)
Habitat	-0.00207	-0.0042	0.0171
	(0.0928)	(0.0932)	(0.0921)
Sort the Court	-0.0602	-0.0654	-0.0119
	(0.0984)	(0.100)	(0.0915)
Constant	0.202***	0.205***	0.256***
	(0.0706)	(0.0697)	(0.0851)
Observations	173	173	173
R^2	0.013	0.013	0.004

Table B-17. Ordered-logistic regression models featured in Figure 5-12, on the ability of video games to set the agenda. Each column is an issue area and the figure in "Effect on Ranking" reports the log-odds coefficient measuring the average change in ranking among those who played a game making them think about that issue area versus those who did not think about it. Heteroskedastic-robust standard errors in parentheses. $p < 0.1$, ** $p < 0.05$, *** $p < 0.001$.

	Climate	Infrastructure	Economy/Jobs
Effect on Ranking	0.794	1.138	1.254
	(0.214)	(0.311)	(0.352)
Cut 1	0.337***	0.00624***	0.283***
	(0.0712)	(0.00621)	(0.0594)
Cut 2	0.652**	0.0590***	0.537***
	(0.130)	(0.0217)	(0.102)
Cut 3	0.846	0.102***	0.927
	(0.168)	(0.0302)	(0.170)
Cut 4	1.331	0.182***	1.261
	(0.265)	(0.0451)	(0.232)
Cut 5	1.758***	0.314***	1.816***
	(0.356)	(0.0661)	(0.343)
Cut 6	2.689***	0.561***	2.358***
	(0.581)	(0.108)	(0.462)
Cut 7	3.930***	0.854	3.453***
	(0.943)	(0.162)	(0.728)
Cut 8	5.555***	1.189	6.369***
	(1.433)	(0.227)	(1.464)
Cut 9	6.856***	1.990***	19.72***
	(1.895)	(0.392)	(6.793)
Cut 10	11.06***	4.942***	186.8***
	(3.507)	(1.163)	(185.9)
Observations	170	170	170

Table B-18. OLS regression models featured in Figure 5-13, on the ability of video games to prime considerations of elites. Each column is an issue area, the dependent variable in all three models is approval of President Trump on a 0–100 scale. Heteroskedastic-robust standard errors in parentheses. $p < 0.1$, ** $p < 0.05$, *** $p < 0.001$.

	Environment	Economy/Jobs	Infrastructure
Trump issue performance	0.718***	0.693***	0.637***
	(0.0810)	(0.0405)	(0.0913)
Game made them think of issue	-1.173**	0.423	0.118
	(0.559)	(0.267)	(0.481)
Think x Trump Performance	0.299**	-0.123	-0.0071
	(0.149)	(0.0762)	(0.142)
Constant	0.815***	1.368***	1.366***
	(0.306)	(0.144)	(0.266)
Observations	147	142	103
R^2	0.498	0.644	0.484

Table B-19. Factor loadings for the five-item environmental policy attitude scale used in the experimental investigation into whether games can affect policy positions. This was the dependent variable for the bottom row on Figure 5-14.

Variable	Loading
The environment is an important resource	0.6454
Government should make an effort to advance green tech	0.8881
Believers in climate change are overdramatic	-0.8397
Government should make an effort to reduce negative planetary impacts	0.8851
Economic growth it more important than sustainability	-0.6431

Table B-20. Factor loadings for the five-item economic policy attitude scale used in the experimental investigation into whether games can affect policy positions. This was the dependent variable for the middle row on Figure 5-14.

Variable	Loading
Many people in the United States are struggling to get by	0.6036
The current tax system advantages the wealthy	0.8001
We need larger income differences to incentivize people to work harder	-0.6224
People can only get rich at the expense of others	0.5116
Economic inequality is not a serious issue in the United States	-0.5678

Table B-21. Factor loadings for the five-item infrastructure policy attitude scale used in the experimental investigation into whether games can affect policy positions. This was the dependent variable for the top row on Figure 5-14.

Variable	Loading
A nation is only as strong as its infrastructure	0.6035
The federal government should spend more money on maintaining our infrastructure	0.6192
To have an economically successful state, proper infrastructure management is a must	0.8186
Planning is a hindrance to growth	-0.5847
Government services are often needed for citizens to thrive	0.4141

Table B-22. Regression output for the mediation analyses seen in Figure 5-14, on the experimental investigations into gaming and changes in policy attitudes. Each column is one set of models focused on either moral issues, social issues, or political issues as the mediator with the dependent variable being respondents' positions on climate change, the economy, and infrastructure. Standard errors reported in parentheses under the coefficients. $p < 0.1$, ** $p < 0.05$, *** $p < 0.001$.

Policy Area	Climate Attitudes			Economic Attitudes			Infrastructure Attitudes		
Mediator	Moral	Political	Social	Moral	Political	Social	Moral	Political	Social
DV: MEDIATOR									
Think about policy area	0.257***	0.282***	0.124*	0.259***	0.283***	0.0967	0.302***	0.302***	0.159**
	(0.0698)	(0.0693)	(0.0655)	(0.0691)	(0.0685)	(0.0652)	(0.0676)	(0.0676)	(0.0641)
Constant	0.581***	0.571***	0.714***	0.574***	0.564***	0.723***	0.551***	0.551***	0.694***
	(0.0438)	(0.0434)	(0.0411)	(0.0446)	(0.0442)	(0.0420)	(0.0445)	(0.0445)	(0.0422)
Observations	173	173	173	173	173	173	173	173	173
R^2	0.073	0.087	0.02	0.075	0.09	0.013	0.104	0.104	0.035
DV: POLICY ATTITUDE									
Mediator	0.0781**	0.0528	0.0838**	0.0971**	0.0291	0.143***	0.0724**	0.0401	0.0860***
	(0.0345)	(0.0351)	(0.0368)	(0.0411)	(0.0421)	(0.0429)	(0.0290)	(0.0294)	(0.0304)
Think about policy area	0.0187	0.024	0.0284	-0.0163	0.000654	-0.00491	0.0449*	0.0547**	0.0531**
	(0.0329)	(0.0334)	(0.0320)	(0.0389)	(0.0397)	(0.0370)	(0.0272)	(0.0276)	(0.0261)
Constant	0.723***	0.738***	0.708***	0.548***	0.588***	0.501***	0.529***	0.547***	0.510***
	(0.0282)	(0.0283)	(0.0329)	(0.0337)	(0.0341)	(0.0391)	(0.0233)	(0.0236)	(0.0271)
Observations	173	173	173	173	173	173	173	173	173
R^2	0.037	0.021	0.037	0.032	0.003	0.06	0.07	0.046	0.079

Table B-23. Direct, uncontrolled effects of the games on the three dependent variables used in the structural equation models seen in Figures 5-10, 5-11,5-12, 6-2, 6-3 and 6-4. The figures are regression coefficients, parentheses feature standard errors. $p < 0.1$, ** $p < 0.05$, *** $p < 0.001$.

	Civic Attitudes	Participation Intentions	Donate
Final Earth 2	0.0388142	0.0403796	0.7059131
	(0.043)	(0.042)	(1.128)
Habitat	-0.0029148	-0.0021421	-0.3911565
	0.0446061	(0.042)	(1.105)
Sort the Court	0.095**	0.0517146	-0.3972473
	(0.043)	(0.041)	(1.098)
Constant	0.716***	0.598***	2.653***
	(0.032)	(0.027)	(0.751)
Observations	173	173	173
R^2	0.0392	0.015	0.0069

Table C-1. Factor loadings for the interactivity scale constructed and used in Chapter 6. This was the second variable in the sequential mediation analysis—as well as a variable of interest in itself. It was used in Figures 6-2, 6-3, and 6-4.

Variable	Loading
Mentally involved	0.652
Turned out differently	0.460
Present rather than watching	0.571

Table C-2. Regression output for the mediation analyses seen in Figure 6-2, on the experimental investigation into gaming's effects on civic attitudes through feelings of narrative transportation. Each column relates to one of the three main mediating variables and corresponds to a column in Figure 6-2. OLS coefficients reported with standard errors in parentheses. $p < 0.1$, ** $p < 0.05$, *** $p < 0.001$.

	Moral Issue	Social Issue	Political Issue
DV: MEDIATOR 1			
Final Earth 2	0.392***	0.0858	0.510***
	(0.0915)	(0.0911)	(0.0881)
Habitat	0.190**	0.0034	0.207**
	(0.0897)	(0.0893)	(0.0863)
Sort the Court	0.476***	0.0272	0.517***
	(0.0897)	(0.0893)	(0.0863)
Constant	0.429***	0.735***	0.388***
	(0.0609)	(0.0607)	(0.0586)
Observations	172	172	172
R^2	0.164	0.006	0.226
DV: INTERACTIVITY			
Mediator 1	0.130***	0.118***	0.144***
	(0.0354)	(0.0358)	(0.0366)
Final Earth 2	0.0407	0.0816*	0.0181
	(0.0447)	(0.0429)	(0.0462)
Habitat	0.0815*	0.106**	0.0763*
	(0.0422)	(0.0419)	(0.0421)
Sort the Court	0.101**	0.160***	0.0884*
	(0.0449)	(0.0419)	(0.0455)
Constant	0.489***	0.458***	0.488***
	(0.0321)	(0.0388)	(0.0315)
Observations	172	172	172
R^2	0.147	0.134	0.156

Table C-2. Continued.

	Moral Issue	Social Issue	Political Issue
DV: CIVIC ATTITUDES			
Interactivity	0.275***	0.266***	0.262***
	(0.0726)	(0.0719)	(0.0728)
Mediator 1	0.0256	0.0449	0.0461
	(0.0350)	(0.0348)	(0.0365)
Final Earth 2	0.0036	0.0106	-0.00874
	(0.0427)	(0.0409)	(0.0441)
Habitat	-0.037	-0.0314	-0.0404
	(0.0406)	(0.0402)	(0.0406)
Sort the Court	0.034	0.0463	0.0244
	(0.0434)	(0.0412)	(0.0439)
Constant	0.556***	0.538***	0.555***
	(0.0468)	(0.0492)	(0.0466)
Observations	172	172	172
R^2	0.125	0.131	0.13

Table C-3. Regression output for the mediation analyses seen in Figure 6-3, on the experimental investigation into gaming's effects on participatory intent through feelings of narrative transportation. Each column relates to one of the three main mediating variables and corresponds to a column in Figure 6-3. OLS coefficients reported with standard errors in parentheses. $p < 0.1$, ** $p < 0.05$, *** $p < 0.001$.

	Moral Issue	Social Issue	Political Issue
DV: MEDIATOR 1			
Final Earth 2	0.392***	0.0858	0.510***
	(0.0915)	(0.0911)	(0.0881)
Habitat	0.190**	0.0034	0.207**
	(0.0897)	(0.0893)	(0.0863)
Sort the Court	0.476***	0.0272	0.517***
	(0.0897)	(0.0893)	(0.0863)
Constant	0.429***	0.735***	0.388***
	(0.0609)	(0.0607)	(0.0586)
Observations	172	172	172
R^2	0.164	0.006	0.226
DV: INTERACTIVITY			
Mediator 1	0.130***	0.118***	0.144***
	(0.0354)	(0.0358)	(0.0366)
Final Earth 2	0.0407	0.0816*	0.0181
	(0.0447)	(0.0429)	(0.0462)
Habitat	0.0815*	0.106**	0.0763*
	(0.0422)	(0.0419)	(0.0421)
Sort the Court	0.101**	0.160***	0.0884*
	(0.0449)	(0.0419)	(0.0455)
Constant	0.489***	0.458***	0.488***
	(0.0321)	(0.0388)	(0.0315)
Observations	172	172	172
R^2	0.147	0.134	0.156

Table C-3. Continued.

	Moral Issue	Social Issue	Political Issue
DV: CIVIC ATTITUDES			
Interactivity	0.995***	1.037***	1.058***
	(0.336)	(0.334)	(0.340)
Mediator 1	0.296*	0.245	0.178
	(0.162)	(0.162)	(0.170)
Final Earth 2	-0.0164	0.0747	0.00305
	(0.197)	(0.190)	(0.206)
Habitat	-0.172	-0.121	-0.159
	(0.188)	(0.187)	(0.189)
Sort the Court	-0.0795	0.048	-0.0409
	(0.201)	(0.191)	(0.205)
Constant	-0.770***	-0.846***	-0.746***
	(0.216)	(0.229)	(0.217)
Observations	172	172	172
R^2	0.099	0.093	0.087

Table C-4. Regression output for the mediation analyses seen in Figure 6-4, on the experimental investigation into gaming's effects on amount donated through feelings of narrative transportation. Each column relates to one of the three main mediating variables and corresponds to a column in Figure 6-4. OLS coefficients reported with standard errors in parentheses. $p < 0.1$, ** $p < 0.05$, *** $p < 0.001$.

	Moral Issue	Social Issue	Political Issue
DV: MEDIATOR 1			
Final Earth 2	0.392***	0.0858	0.510***
	(0.0915)	(0.0911)	(0.0881)
Habitat	0.190**	0.0034	0.207**
	(0.0897)	(0.0893)	(0.0863)
Sort the Court	0.476***	0.0272	0.517***
	(0.0897)	(0.0893)	(0.0863)
Constant	0.429***	0.735***	0.388***
	(0.0609)	(0.0607)	(0.0586)
Observations	172	172	172
R^2	0.164	0.006	0.226
DV: INTERACTIVITY			
Mediator 1	0.130***	0.118***	0.144***
	(0.0354)	(0.0358)	(0.0366)
Final Earth 2	0.0407	0.0816*	0.0181
	(0.0447)	(0.0429)	(0.0462)
Habitat	0.0815*	0.106**	0.0763*
	(0.0422)	(0.0419)	(0.0421)
Sort the Court	0.101**	0.160***	0.0884*
	(0.0449)	(0.0419)	(0.0455)
Constant	0.489***	0.458***	0.488***
	(0.0321)	(0.0388)	(0.0315)
Observations	172	172	172
R^2	0.147	0.134	0.156

Table C-4. Continued.

	Moral Issue	Social Issue	Political Issue
DV: CIVIC ATTITUDES			
Interactivity	1.614	2.513	1.752
	(1.956)	(1.947)	(1.971)
Mediator 1	1.063	-0.605	0.793
	(0.943)	(0.942)	(0.987)
Final Earth 2	0.141	0.527	0.141
	(1.149)	(1.107)	(1.194)
Habitat	-0.765	-0.656	-0.742
	(1.093)	(1.090)	(1.098)
Sort the Court	-1.47	-1.094	-1.396
	(1.169)	(1.115)	(1.189)
Constant	1.319	1.73	1.392
	(1.262)	(1.332)	(1.261)
Observations	172	172	172
R^2	0.025	0.02	0.021

Table D-1. Ordered logistic regression models from the YPPSP survey (2011, 2013, 2015) measuring the association between the frequency of social gaming on political interest. Each column was one year out of the data set. Odds-ratios reported with their heteroskedastic-robust coefficients in parentheses beneath them. $p < 0.1$, ** $p < 0.05$, *** $p < 0.001$. These models were featured in Figure 7-5.

	2011	2013	2015
Social Gaming	1.037	1.133***	1.162***
	(0.0254)	(0.0460)	(0.0527)
Education	1.228***	1.182**	1.139*
	(0.0599)	(0.0943)	(0.0884)
Age	0.99	1.007	0.988
	(0.0159)	(0.0240)	(0.0203)
Gender (1 = Female)	0.854**	0.653***	0.724***
	(0.0626)	(0.0786)	(0.0874)
Income	1.018**	0.999	1.004
	(0.00794)	(0.0139)	(0.0138)
Black	1.231**	0.908	1.244
	(0.122)	(0.153)	(0.199)
Latinx	0.827**	0.987	0.847
	(0.0786)	(0.161)	(0.139)
Asian	0.975	0.854	0.929
	(0.104)	(0.155)	(0.173)
Other Race	–	1.241	1.304
		(0.436)	(0.489)
Cut 1	0.282***	0.272**	0.225***
	(0.0873)	(0.140)	(0.107)
Cut 2	1.448	1.362	1.144
	(0.449)	(0.698)	(0.544)
Cut 3	12.77***	16.21***	12.80***
	(4.070)	(8.505)	(6.221)
Observations	2658	991	976

Table D-2. Ordered logistic regression models from the GAmEPLS survey measuring the association between social gaming and political interest. Each column represents one of four ways that respondents could play socially: In the same room with others, with those they know online, with strangers online, or by themselves (e.g., in the absence of social play). Odds-ratios reported with their heteroskedastic-robust coefficients in parentheses beneath them. $p < 0.1$, ** $p < 0.05$, *** $p < 0.001$. These models were featured in Figure 7-6.

	Same Room	Know Online	Strangers Online	Alone
Social Gaming	1.186***	1.198***	1.141**	1.068
	(0.0723)	(0.0803)	(0.0720)	(0.0443)
Party ID (7 = "Strong Republican")	1.001	1.005	1.001	1.005
	(0.0493)	(0.0492)	(0.0489)	(0.0491)
Income	1.055*	1.061**	1.055*	1.060**
	(0.0300)	(0.0305)	(0.0304)	(0.0306)
Sex (1 = Female)	0.593***	0.599***	0.603***	0.591***
	(0.101)	(0.102)	(0.103)	(0.100)
Education	1.225***	1.221***	1.234***	1.229***
	(0.0753)	(0.0749)	(0.0755)	(0.0758)
White	0.942	0.855	0.921	0.911
	(0.444)	(0.401)	(0.431)	(0.423)
Black	0.61	0.545	0.581	0.604
	(0.329)	(0.291)	(0.312)	(0.322)
Latinx	0.648	0.608	0.659	0.678
	(0.329)	(0.309)	(0.333)	(0.340)
Asian	0.562	0.434	0.538	0.578
	(0.384)	(0.303)	(0.370)	(0.400)
Native	1.719	1.553	1.736	1.959
	(1.921)	(1.771)	(1.854)	(2.003)
Ideology (5 = Strong conservative)	0.916	0.916	0.924	0.911
	(0.0853)	(0.0846)	(0.0858)	(0.0851)
Age	1.053***	1.052***	1.052***	1.049***
	(0.00642)	(0.00637)	(0.00648)	(0.00611)
Cut 1	0.972	0.858	0.879	0.747
	(0.710)	(0.616)	(0.646)	(0.531)
Cut 2	3.982*	3.518*	3.585*	3.026
	(2.840)	(2.453)	(2.546)	(2.080)
Cut 3	19.31***	17.02***	17.16***	14.42***
	(13.83)	(11.91)	(12.23)	(9.915)
Observations	607	607	607	607

Table D-3. Negative binomial regression models from the YPPSP survey measuring the association between social gaming and political participation. Each column represents one of the three waves. Incident rate ratios reported with their heteroskedastic-robust coefficients in parentheses beneath them. $p < 0.1$, ** $p < 0.05$, *** $p < 0.001$. These models were featured in Figure 7-7.

	2011	2013	2015
Social Gaming	1.148***	1.217***	1.150***
	(0.0202)	(0.0364)	(0.0356)
Political Interest	1.815***	1.540***	1.738***
	(0.0582)	(0.0842)	(0.0949)
Education	1.202***	1.097	1.145**
	(0.0405)	(0.0697)	(0.0660)
Age	0.973**	0.991	0.995
	(0.0121)	(0.0181)	(0.0140)
Gender	1.143***	1.007	1.061
	(0.0581)	(0.0939)	(0.0982)
Income	1	0.987	0.993
	(0.00544)	(0.00970)	(0.00951)
Black	1.171**	1.466***	1.273**
	(0.0813)	(0.168)	(0.147)
Asian	1.1	1.172	0.967
	(0.0784)	(0.141)	(0.113)
Hispanic	0.992	0.968	1.022
	(0.0661)	(0.128)	(0.128)
Other	–	1.163	–
		(0.178)	

Table D-3. Continued.

α	0.613***	0.580***	0.708***
	(0.0386)	(0.0573)	(0.0687)
Constant	0.403***	0.611	0.324**
	(0.119)	(0.280)	(0.143)
Observations	1804	540	740

Table D-4. Negative binomial regression models from the GAmEPLS survey measuring the association between social gaming and political participation. Each column represents one of the four kinds of social gaming measured in the model (including the absence of social gaming: playing alone). Incident rate ratios reported with their heteroskedastic-robust coefficients in parentheses beneath them. $p < 0.1$, ** $p < 0.05$, *** $p < 0.001$. These models were featured in Figure 7-8.

	Same Room	Know Online	Strangers Online	Alone
Social Gaming	1.081***	1.087***	1.078***	1.016
	(0.0182)	(0.0185)	(0.0202)	(0.0108)
Political Interest	0.731***	0.729***	0.725***	0.719***
	(0.0284)	(0.0286)	(0.0284)	(0.0286)
Party ID (7 = Strong R)	0.975	0.977	0.975	0.976
	(0.0159)	(0.0157)	(0.0158)	(0.0168)
Income	1.021***	1.023***	1.021**	1.022***
	(0.00819)	(0.00821)	(0.00826)	(0.00837)
Sex	1.011	1.014	1.025	1.013
	(0.0469)	(0.0469)	(0.0478)	(0.0478)
Education	1.110***	1.108***	1.112***	1.111***
	(0.0201)	(0.0201)	(0.0202)	(0.0202)
White	0.91	0.871	0.903	0.894
	(0.106)	(0.101)	(0.105)	(0.101)
Black	0.83	0.785*	0.802	0.824
	(0.120)	(0.114)	(0.117)	(0.119)
Latinx	0.909	0.886	0.907	0.91
	(0.141)	(0.136)	(0.139)	(0.139)
Asian	0.713	0.627**	0.689*	0.733
	(0.158)	(0.145)	(0.154)	(0.161)
Native	0.829	0.819	0.843	0.86
	(0.212)	(0.204)	(0.212)	(0.226)
Ideology (5 = Strong Con)	0.991	0.991	0.997	0.991
	(0.0288)	(0.0281)	(0.0285)	(0.0299)
Age	0.999	0.999	0.999	0.997**
	(0.00170)	(0.00158)	(0.00164)	(0.00158)
Constant	4.315***	4.638***	4.459***	5.524***
	(0.864)	(0.880)	(0.875)	(1.059)
Observations	601	601	601	601

Table D-5. Ordered-logistic regression results from the GAmEPLS data, measuring the association between the frequency of playing games with friends in the same room how frequently they performed the 9 individual actions comprising the survey's participation scale. These models, as well as those in Tables D-6, D-7 and D-8, featured in Figure 7-9. Heteroskedastic-robust standard errors reported in parentheses under the coefficients. $p < 0.1$, ** $p < 0.05$, *** $p < 0.001$.

	Voted	Protest	Boycott	Donate (Campaign)	Volunteer (Party)	Information	Donate (Charity)	Volunteer (Party)	Contact Official
Social Gaming	0.974	1.355***	1.146**	1.215***	1.109	1.211***	1.061	1.450***	1.183***
	(0.0641)	(0.113)	(0.0763)	(0.0825)	(0.0701)	(0.0725)	(0.0676)	(0.112)	(0.0714)
Political Interest	0.483***	0.639***	0.369***	0.456***	0.639***	0.379***	0.565***	0.601***	0.404***
	(0.0542)	(0.0957)	(0.0562)	(0.0745)	(0.0815)	(0.0516)	(0.0651)	(0.0882)	(0.0516)
Party ID (7 = Strong R)	0.936	0.887*	0.927	0.939	1.009	0.896**	1.033	0.965	0.965
	(0.0534)	(0.0563)	(0.0511)	(0.0520)	(0.0511)	(0.0467)	(0.0526)	(0.0665)	(0.0488)
Income	1.024	1.046	1	1.051	1.067**	1.060**	1.110***	1.067	1.014
	(0.0325)	(0.0429)	(0.0306)	(0.0347)	(0.0304)	(0.0295)	(0.0333)	(0.0425)	(0.0280)
Sex	0.932	1.145	1.047	0.777	1.372*	0.896	1.417*	0.854	0.92
	(0.188)	(0.259)	(0.190)	(0.145)	(0.238)	(0.155)	(0.253)	(0.190)	(0.159)
Education	1.341***	1.303***	1.177**	1.339***	1.452***	1.182***	1.258***	1.355***	1.349***
	(0.110)	(0.121)	(0.0782)	(0.0950)	(0.0961)	(0.0735)	(0.0855)	(0.114)	(0.0875)
White	0.697	0.651	1.027	1.205	0.662	1.255	0.495	0.785	0.622
	(0.424)	(0.366)	(0.478)	(0.670)	(0.304)	(0.434)	(0.292)	(0.492)	(0.263)
Black	0.529	0.93	0.646	1.406	0.732	0.961	0.301*	0.859	0.368**
	(0.364)	(0.625)	(0.361)	(0.908)	(0.379)	(0.430)	(0.192)	(0.636)	(0.184)
Latinx	0.316*	0.86	1.163	1.771	0.776	1.299	0.295*	1.372	0.428*
	(0.205)	(0.561)	(0.613)	(1.086)	(0.416)	(0.574)	(0.188)	(0.977)	(0.214)
Asian	0.122**	0.63	0.823	0.797	0.422	0.662	0.442	0.695	0.402
	(0.0997)	(0.529)	(0.620)	(0.701)	(0.277)	(0.475)	(0.335)	(0.605)	(0.307)
Native	0.326	0.788	0.449	0.789	1.585	1.092	0.238*	1.48e-06***	1.498
	(0.616)	(1.737)	(0.562)	(0.536)	(1.234)	(1.336)	(0.205)	(1.37e-06)	(1.762)

Table D-5. Continued.

	Voted	Protest	Boycott	Donate (Campaign)	Volunteer (Party)	Information	Donate (Charity)	Volunteer (Party)	Contact Official
Ideology (5 = Strong Con)	1.133	0.865	0.973	0.854	1.102	0.982	1.02	0.891	0.906
	(0.109)	(0.101)	(0.101)	(0.0853)	(0.101)	(0.0953)	(0.0933)	(0.113)	(0.0829)
Age	1.027***	0.975***	0.984**	1.018**	0.991	0.991	1.012**	0.99	1.005
	(0.00761)	(0.00864)	(0.00623)	(0.00729)	(0.00610)	(0.00580)	(0.00627)	(0.00850)	(0.00612)
Cut 1	0.292	1.425	0.273*	4.950*	3.472	0.401	0.74	5.472*	0.415
	(0.277)	(1.399)	(0.214)	(4.286)	(2.669)	(0.281)	(0.652)	(5.306)	(0.300)
Cut 2	0.835	3.141	0.44	11.06***	7.210**	0.826	1.463	12.49**	0.778
	(0.791)	(3.061)	(0.345)	(9.580)	(5.556)	(0.581)	(1.280)	(12.28)	(0.562)
Observations	605	606	606	606	605	606	604	604	606

Table D-6. Ordered-logistic regression results from the GAmEPLS data, measuring the association between the frequency of playing games with friends online and how frequently they performed the 9 individual actions comprising the survey's participation scale. These models, as well as those in Tables D-5, D-7 and D-8, featured in Figure 7-9. Heteroskedastic-robust standard errors reported in parentheses under the coefficients. $p < 0.1$, ** $p < 0.05$, *** $p < 0.001$.

	Voted	Protest	Boycott	Donate (Campaign)	Volunteer (Party)	Information	Donate (Charity)	Volunteer (Party)	Contact Official
Social Gaming	0.937	1.408***	1.191***	1.257***	1.132**	1.173**	1.059	1.575***	1.161**
	(0.0653)	(0.108)	(0.0794)	(0.0852)	(0.0692)	(0.0743)	(0.0696)	(0.127)	(0.0709)
Political Interest	0.479***	0.625***	0.366***	0.452***	0.640***	0.375***	0.565***	0.587***	0.400***
	(0.0534)	(0.0971)	(0.0562)	(0.0738)	(0.0823)	(0.0517)	(0.0654)	(0.0893)	(0.0518)
Party ID (7 = Strong R)	0.935	0.9	0.928	0.943	1.012	0.901**	1.034	0.982	0.971
	(0.0529)	(0.0582)	(0.0510)	(0.0528)	(0.0519)	(0.0471)	(0.0527)	(0.0692)	(0.0495)
Income	1.022	1.054	1.007	1.059*	1.071**	1.066**	1.111***	1.084**	1.019
	(0.0325)	(0.0423)	(0.0305)	(0.0350)	(0.0303)	(0.0297)	(0.0333)	(0.0432)	(0.0281)
Sex	0.925	1.191	1.056	0.772	1.385*	0.9	1.422**	0.89	0.927
	(0.187)	(0.272)	(0.191)	(0.145)	(0.240)	(0.155)	(0.254)	(0.199)	(0.160)
Education	1.347***	1.287***	1.171**	1.332***	1.445***	1.176***	1.256***	1.332***	1.341***
	(0.111)	(0.122)	(0.0778)	(0.0944)	(0.0951)	(0.0728)	(0.0853)	(0.113)	(0.0862)
White	0.706	0.548	0.937	1.068	0.619	1.128	0.483	0.604	0.577
	(0.430)	(0.313)	(0.436)	(0.587)	(0.287)	(0.388)	(0.282)	(0.391)	(0.240)
Black	0.541	0.753	0.574	1.21	0.675	0.844	0.292*	0.614	0.337**
	(0.372)	(0.518)	(0.322)	(0.782)	(0.355)	(0.379)	(0.185)	(0.466)	(0.167)
Latinx	0.321*	0.784	1.092	1.65	0.742	1.207	0.292*	1.175	0.412*
	(0.209)	(0.515)	(0.571)	(0.997)	(0.401)	(0.531)	(0.184)	(0.858)	(0.203)
Asian	0.133**	0.37	0.626	0.54	0.349	0.513	0.41	0.306	0.322
	(0.110)	(0.335)	(0.491)	(0.499)	(0.240)	(0.374)	(0.312)	(0.294)	(0.252)
Native	0.336	0.738	0.432	0.793	1.509	1.047	0.235*	1.09e-06***	1.459
	(0.669)	(1.829)	(0.512)	(0.556)	(1.223)	(1.192)	(0.203)	(1.15e-06)	(1.727)

Table D-6. Continued.

	Voted	Protest	Boycott	Donate (Campaign)	Volunteer (Party)	Information	Donate (Charity)	Volunteer (Party)	Contact Official
Ideology (5 = Strong Con)	1.131	0.873	0.976	0.857	1.103	0.979	1.02	0.884	0.904
	(0.108)	(0.102)	(0.101)	(0.0847)	(0.102)	(0.0951)	(0.0933)	(0.111)	(0.0833)
Age	1.026***	0.973***	0.984***	1.017**	0.991	0.988**	1.012**	0.987*	1.002
	(0.00740)	(0.00800)	(0.00610)	(0.00696)	(0.00600)	(0.00553)	(0.00605)	(0.00797)	(0.00586)
Cut 1	0.266	1.175	0.260*	4.329*	3.325	0.289*	0.7	4.163	0.328
	(0.248)	(1.111)	(0.201)	(3.562)	(2.509)	(0.195)	(0.604)	(3.866)	(0.230)
Cut 2	0.761	2.609	0.421	9.691***	6.918**	0.594	1.383	9.677**	0.615
	(0.711)	(2.444)	(0.325)	(7.978)	(5.232)	(0.400)	(1.183)	(9.052)	(0.430)
Observations	605	606	606	606	605	606	604	604	606

Table D-7. Ordered-logistic regression results from the GAmEPLS data, measuring the association between the frequency of playing games with strangers online and how frequently they performed the 9 individual actions comprising the survey's participation scale. These models, as well as those in Tables D-5, D-6 and D-8, featured in Figure 7-9. Heteroskedastic-robust standard errors reported in parentheses under the coefficients. $p < 0.1$, ** $p < 0.05$, *** $p < 0.001$.

	Voted	Protest	Boycott	Donate (Campaign)	Volunteer (Party)	Information	Donate (Charity)	Volunteer (Party)	Contact Official
Social Gaming	0.932	1.358***	1.136*	1.273***	1.08	1.170**	1.04	1.438***	1.065
	(0.0634)	(0.100)	(0.0756)	(0.0925)	(0.0681)	(0.0774)	(0.0738)	(0.110)	(0.0688)
Political Interest	0.480***	0.609***	0.362***	0.448***	0.631***	0.371***	0.562***	0.578***	0.396***
	(0.0534)	(0.0939)	(0.0557)	(0.0731)	(0.0809)	(0.0513)	(0.0648)	(0.0872)	(0.0510)
Party ID (7 = Strong R)	0.937	0.886*	0.924	0.934	1.009	0.897**	1.033	0.966	0.969
	(0.0530)	(0.0582)	(0.0505)	(0.0516)	(0.0507)	(0.0465)	(0.0525)	(0.0672)	(0.0485)
Income	1.024	1.041	1.001	1.053	1.067**	1.059**	1.110***	1.065	1.014
	(0.0326)	(0.0425)	(0.0303)	(0.0348)	(0.0301)	(0.0293)	(0.0333)	(0.0421)	(0.0277)
Sex	0.918	1.222	1.072	0.801	1.394*	0.914	1.429**	0.916	0.935
	(0.186)	(0.279)	(0.195)	(0.150)	(0.243)	(0.157)	(0.256)	(0.202)	(0.161)
Education	1.343***	1.310***	1.180**	1.347***	1.454***	1.187***	1.259***	1.364***	1.349***
	(0.111)	(0.122)	(0.0782)	(0.0943)	(0.0955)	(0.0728)	(0.0853)	(0.112)	(0.0865)
White	0.683	0.661	1.014	1.189	0.649	1.201	0.492	0.775	0.609
	(0.415)	(0.388)	(0.470)	(0.651)	(0.304)	(0.421)	(0.289)	(0.505)	(0.255)
Black	0.529	0.852	0.612	1.277	0.71	0.881	0.298*	0.74	0.363**
	(0.362)	(0.598)	(0.342)	(0.825)	(0.375)	(0.399)	(0.189)	(0.560)	(0.179)
Latinx	0.313*	0.9	1.161	1.747	0.77	1.262	0.296*	1.384	0.428*
	(0.203)	(0.602)	(0.607)	(1.053)	(0.418)	(0.559)	(0.187)	(1.007)	(0.212)
Asian	0.124**	0.573	0.781	0.687	0.411	0.602	0.437	0.597	0.408
	(0.102)	(0.505)	(0.590)	(0.609)	(0.271)	(0.430)	(0.328)	(0.544)	(0.306)
Native	0.326	0.889	0.464	0.848	1.608	1.096	0.243	8.35e-07***	1.555
	(0.644)	(2.000)	(0.572)	(0.587)	(1.278)	(1.257)	(0.211)	(8.15e-07)	(1.935)

Table D-7. Continued.

	Voted	Protest	Boycott	Donate (Campaign)	Volunteer (Party)	Information	Donate (Charity)	Volunteer (Party)	Contact Official
Ideology (5 = Strong Con)	1.125	0.903	0.988	0.879	1.108	0.991	1.021	0.92	0.906
	(0.108)	(0.107)	(0.101)	(0.0862)	(0.102)	(0.0954)	(0.0933)	(0.115)	(0.0823)
Age	1.025***	0.975***	0.983***	1.019***	0.990*	0.989*	1.012*	0.988	1.001
	0.246	1.401	0.256*	5.573**	3.031	0.321*	0.683	4.804	0.275*
Cut 1	(0.234)	(1.381)	(0.201)	(4.725)	(2.340)	(0.219)	(0.601)	(4.620)	(0.198)
	0.703	3.085	0.412	12.48***	6.286**	0.66	1.349	10.92**	0.512
Cut 2	(0.670)	(3.007)	(0.323)	(10.60)	(4.857)	(0.450)	(1.178)	(10.60)	(0.369)
Observations	605	606	606	606	605	606	604	604	606

Table D-8. Ordered-logistic regression results from the GAmEPLS data, measuring the association between the frequency of playing games alone and how frequently they performed the 9 individual actions comprising the survey's participation scale. These models, as well as those in Tables D-5, D-6 and D-7, featured in Figure 7-9. Heteroskedastic-robust standard errors reported in parentheses under the coefficients. $p < 0.1$, ** $p < 0.05$, *** $p < 0.001$.

	Voted	Protest	Boycott	Donate (Campaign)	Volunteer (Party)	Information	Donate (Charity)	Volunteer (Party)	Contact Official
Social Gaming	0.978	1.069	1.053	1.059	0.953	1.064	1.043	1.051	1.025
	(0.0502)	(0.0588)	(0.0497)	(0.0491)	(0.0422)	(0.0457)	(0.0466)	(0.0563)	(0.0435)
Political Interest	0.484***	0.598***	0.362***	0.444***	0.619***	0.371***	0.562***	0.569***	0.395***
	(0.0539)	(0.0924)	(0.0559)	(0.0727)	(0.0797)	(0.0512)	(0.0648)	(0.0864)	(0.0509)
Party ID (7 = Strong R)	0.935	0.890*	0.925	0.941	1.009	0.902**	1.035	0.966	0.969
	(0.0535)	(0.0599)	(0.0512)	(0.0531)	(0.0504)	(0.0465)	(0.0526)	(0.0724)	(0.0485)
Income	1.022	1.051	1.004	1.055	1.065**	1.062**	1.113***	1.070*	1.015
	(0.0323)	(0.0421)	(0.0302)	(0.0347)	(0.0303)	(0.0293)	(0.0334)	(0.0420)	(0.0280)
Sex	0.929	1.135	1.053	0.778	1.369*	0.895	1.427**	0.868	0.929
	(0.188)	(0.253)	(0.191)	(0.145)	(0.237)	(0.154)	(0.256)	(0.190)	(0.160)
Education	1.341***	1.302***	1.178**	1.340***	1.461***	1.187***	1.258***	1.343***	1.348***
	(0.110)	(0.119)	(0.0774)	(0.0932)	(0.0966)	(0.0730)	(0.0854)	(0.108)	(0.0862)
White	0.692	0.635	1.001	1.157	0.625	1.192	0.499	0.725	0.608
	(0.426)	(0.334)	(0.461)	(0.610)	(0.293)	(0.401)	(0.294)	(0.429)	(0.254)
Black	0.52	0.913	0.646	1.394	0.695	0.937	0.311*	0.823	0.373**
	(0.365)	(0.588)	(0.359)	(0.869)	(0.366)	(0.417)	(0.199)	(0.570)	(0.185)
Latinx	0.310*	0.908	1.176	1.798	0.749	1.309	0.305*	1.341	0.434*
	(0.205)	(0.565)	(0.613)	(1.056)	(0.406)	(0.570)	(0.194)	(0.914)	(0.218)
Asian	0.120**	0.688	0.841	0.865	0.432	0.67	0.449	0.796	0.431
	(0.0989)	(0.549)	(0.617)	(0.737)	(0.280)	(0.458)	(0.336)	(0.655)	(0.315)
Native	0.313	1.036	0.49	0.883	1.585	1.195	0.257	3.87e-06***	1.618
	(0.593)	(1.890)	(0.628)	(0.561)	(1.250)	(1.413)	(0.222)	(3.17e-06)	(2.046)

Table D-8. Continued.

	Voted	Protest	Boycott	Donate (Campaign)	Volunteer (Party)	Information	Donate (Charity)	Volunteer (Party)	Contact Official
Ideology (5 = Strong Con)	1.134	0.884	0.977	0.857	1.095	0.974	1.019	0.895	0.902
	(0.109)	(0.103)	(0.100)	(0.0861)	(0.0995)	(0.0932)	(0.0930)	(0.118)	(0.0821)
Age	1.027***	0.966***	0.980***	1.012*	0.987**	0.985***	1.011*	0.977***	0.999
	(0.00730)	(0.00776)	(0.00586)	(0.00667)	(0.00572)	(0.00543)	(0.00588)	(0.00763)	(0.00568)
Cut 1	0.29	0.596	0.203**	2.927	1.823	0.245**	0.727	1.452	0.246*
	(0.278)	(0.556)	(0.156)	(2.395)	(1.383)	(0.166)	(0.631)	(1.261)	(0.179)
Cut 2	0.829	1.286	0.326	6.481**	3.780*	0.501	1.437	3.198	0.458
	(0.797)	(1.189)	(0.250)	(5.319)	(2.864)	(0.339)	(1.238)	(2.802)	(0.333)
Observations	605	606	606	606	605	606	604	604	606

Table D-9. Models testing the existence of instantaneous Granger causality in the longitudinal YPPSP data (2013–2014). The column headers reflect the dependent variable. The first two models investigate whether games can be said to cause participation and political interest. The second two models were to see if participation and political interest can be said to cause social gaming. The first model is a negative binomial regression and incident rate ratios are reported. The remaining three are ordered-logistic regression models with odds-ratio coefficients. Heteroskedastic-robust standard errors are in parentheses beneath all four models. $p < 0.1$, ** $p < 0.05$, *** $p < 0.001$. These models were featured in Figure 7-10.

	Participation 2015	Interest 2015	Gaming 2015	Gaming 2015
Gaming 2013	1.038	1.056		
	(0.0304)	(0.0469)		
Gaming 2015	1.136***	1.131**		
	(0.0379)	(0.0560)		
Participation 2015			1.154***	
			(0.0414)	
Participation 2013			1.061*	
			(0.0330)	
Interest 2013				1.143*
				(0.0915)
Interest 2015	1.747***		1.071	1.234**
	(0.0962)		(0.120)	(0.103)
Education	1.155**	1.13	0.928	0.843**
	(0.0670)	(0.0896)	(0.119)	(0.0710)
Age	0.997	0.989	0.98	0.977
	(0.0140)	(0.0210)	(0.0360)	(0.0201)
Gender	1.056	0.739**	0.782	0.568***
	(0.0990)	(0.0908)	(0.141)	(0.0724)
Income	0.994	1.003	0.974	0.999
	(0.00961)	(0.0140)	(0.0204)	(0.0142)

Table D-9. Continued

	Participation 2015	Interest 2015	Gaming 2015	Gaming 2015
Black	1.291**	1.211	1.556*	1.748***
	(0.151)	(0.195)	(0.354)	(0.303)
Latinx	1.046	0.822	2.207***	1.612***
	(0.133)	(0.136)	(0.577)	(0.276)
Asian	0.962	0.925	1.713**	1.750***
	(0.114)	(0.173)	(0.447)	(0.321)
Other	1.199	1.335	1.404	1.124
	(0.446)	(0.509)	(1.239)	(0.506)
χ^2	22.70***	11.79***	40.67***	15.04***
Constant	0.275***			
	(0.123)			
α	0.695***			
	(0.0688)			
Cut 1		0.285**	0.837	0.483
		(0.146)	(0.868)	(0.259)
Cut 2		1.439	1.799	0.956
		(0.735)	(1.876)	(0.515)
Cut 3		15.97***	3.58	1.631
		(8.332)	(3.760)	(0.882)
Cut 4			9.817**	3.964**
			(10.38)	(2.148)
Observations	732	964	515	964

Table D-10. Regression output for the mediation analyses seen in Figure 7-12, investigating the instantaneous mediation effect of political talk on the relationship between gaming and political behavior. The left column presents the results for the political participation index and the right column presents the results on poltical interest (the proxy for civic attitudes). OLS coefficients reported with standard errors in parentheses. $p < 0.1$, ** $p < 0.05$, *** $p < 0.001$.

	Political Participation	Political Attitudes
DV: 2015 GAMING		
Gaming 2013	0.426***	0.405***
	(0.0310)	(0.0278)
Constant	1.114***	1.190***
	(0.0861)	(0.0780)
Observations	732	964
R^2	0.205	0.181
DV: POLITICAL TALK		
Gaming 2015	0.116***	0.000655
	(0.0215)	(0.0200)
Gaming 2013	0.0555***	-0.00562
	(0.0202)	(0.0188)
Constant	1.191***	1.184***
	(0.0555)	(0.0479)
Observations	732	964
R^2	0.079	0.073
DV: BEHAVIOR		
Political Talk	1.936***	0.511***
	(0.139)	(0.0353)
Gaming 2015	0.191**	0.000655
	(0.0755)	(0.0200)
Gaming 2013	0.0062	-0.00562
	(0.0701)	(0.0188)

Table D-10. Continued.

	Political Participation	Political Attitudes
Age	0.00216	-0.00359
	(0.0310)	(0.00801)
Education	0.0645	0.00527
	(0.0629)	(0.0165)
Income	0.00081	0.00321
	(0.0212)	(0.00580)
Gender	0.0816	-0.146***
	(0.191)	(0.0521)
Black	0.466*	0.0612
	(0.249)	(0.0712)
Latino	-0.0967	-0.105
	(0.267)	(0.0692)
Asian	-0.187	-0.0812
	(0.288)	(0.0799)
Other Race	0.0233	0.0454
	(0.628)	(0.150)
Political Interest	0.667***	–
	(0.116)	
Constant	-3.396***	1.731***
	(0.941)	(0.220)
Observations	732	964
R^2	0.375	0.202

Table D-11. Factor loadings for the social capital scale used in the GAmEPLS survey and featured in Figure 7-13. The left column presents the loadings for all the items I originally intended to include when I designed the survey and the right column presents those that I ultimately used.

	Factor Loading (Original Scale)	Factor Loading (Used Scale)
Trust people I game with	0.8032	0.8042
I consider people I game with strangers	0.0224	–
I will try to help	0.7937	0.7936
Talk Politics with gaming partners	-0.7353	-0.7344

Table D-12. Regression results for the top three panels of Figure 7-13. Each column represents a style of social play; the mediator for the first two roles is the social capital scale (factor loadings in Table D-11) and it is social gaming in the last model. OLS coefficients reported with standard errors in parentheses. $p < 0.1$, ** $p < 0.05$, *** $p < 0.001$.

	Strangers Online	Friends Online	Same Room
DV: MEDIATOR			
Play Style	0.0410**	0.101***	
	(0.0165)	(0.0145)	
Social Capital			2.484***
			(0.357)
Constant	0.450***	0.249***	1.798***
	(0.0534)	(0.0494)	(0.219)
Observations	145	145	145
R^2	0.041	0.249	0.250
DV: PARTICIPATION			
Social Capital	2.799**	3.372**	1.159
	(1.222)	(1.355)	(1.342)
Play Style	0.189	-0.216	0.722***
	(0.254)	(0.290)	(0.260)
Party ID	-0.0929	-0.111	-0.0856
	(0.115)	(0.116)	(0.112)
Income	0.162**	0.185**	0.155**
	(0.0811)	(0.0781)	(0.0765)
Sex	-0.252	-0.325	-0.371
	(0.486)	(0.492)	(0.476)
Education	0.219	0.223	0.201
	(0.195)	(0.196)	(0.190)
White	0.269	0.239	0.0671
	(1.313)	(1.309)	(1.275)

Table D-12. Continued.

	Strangers Online	Friends Online	Same Room
Black	0.392	0.575	0.0788
	(1.528)	(1.549)	(1.496)
Hispanic	-0.231	-0.328	-0.329
	(1.441)	(1.433)	(1.399)
Asian	-2.353	-2.131	-2.346
	(1.533)	(1.565)	(1.497)
Native	0.157	0.728	-1.116
	(3.126)	(3.171)	(3.088)
Interest	0.699**	0.729**	0.628**
	(0.281)	(0.284)	(0.276)
Age	-0.0142	-0.0179	-0.0177
	(0.0210)	(0.0204)	(0.0199)
Ideology	0.247	0.239	0.254
	(0.218)	(0.218)	(0.213)
Constant	2.423	3.536	1.931
	(2.375)	(2.218)	(2.154)
Observations	145	145	145
R^2	0.209	0.209	0.245

Table D-13. Regression results for the bottom three panels of Figure 7-13. Each column represents a style of social play; the mediator for the first two roles is the social capital scale (factor loadings in Table D-11) and it is social gaming in the last model. OLS coefficients reported with standard errors in parentheses. $p < 0.1$, ** $p < 0.05$, *** $p < 0.001$.

	Strangers Online	Friends Online	Same Room
DV: MEDIATOR			
Play Style	0.0411**	0.0999***	
	(0.0162)	(0.0143)	
Social Capital			2.504***
			(0.358)
Constant	0.449***	0.251***	1.802***
	(0.0527)	(0.0489)	(0.220)
Observations	147	147	147
R2	0.042	0.249	0.249
DV: PARTICIPATION			
Social Capital	0.792**	0.514	0.569
	(0.363)	(0.402)	(0.409)
Play Style	0.0152	-0.216	0.0923
	(0.0749)	(0.290)	(0.0785)
Party ID	-0.0161	-0.00831	-0.015
	(0.0344)	(0.0345)	(0.0343)
Income	0.014	0.0127	0.0125
	(0.0241)	(0.0231)	(0.0232)
Sex	-0.187	-0.148	-0.199
	(0.145)	(0.146)	(0.145)
Education	0.0257	0.0131	0.0234
	(0.0586)	(0.0585)	(0.0582)
White	0.374	0.309	0.349
	(0.395)	(0.391)	(0.391)

Table D-13. Continued.

	Strangers Online	Friends Online	Same Room
Black	0.0916	-0.0328	0.0455
	(0.456)	(0.460)	(0.456)
Hispanic	0.0639	0.0334	0.0506
	(0.432)	(0.427)	(0.428)
Asian	0.22	0.0716	0.218
	(0.462)	(0.468)	(0.460)
Native	0.317	0.064	0.143
	(0.942)	(0.948)	(0.949)
Age	0.0239***	0.0232***	0.0234***
	(0.00601)	(0.00579)	(0.00581)
Ideology	-0.0172	-0.0135	-0.0147
	(0.0651)	(0.0645)	(0.0648)
Constant	-3.507***	-3.627***	-3.576***
	(0.650)	(0.587)	(0.588)
Observations	147	147	147
R^2	0.148	0.161	0.155

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BIOGRAPHICAL SKETCH

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