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Unbeatable? Debates and Divides in Gender and Video Game Research

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Communication, Gaming, and Gender

Editor's Introduction

This issue of COMMUNICATION RESEARCH TRENDS looks at a relatively new area of communication study. Though people have played games since time immemorial, scholars have considered games and game playing only for the last 80 years. Dependent on technological advances, video games moved from laboratories to public places only in the 1970s and into the home in the late 1980s. As Cunningham notes in her review essay, communication researchers began to study these games in the late 1990s. Before that, games formed only a peripheral interest for communication.

The philosophical or sociological consideration of games entered into wider discussion with the publication of Johan Huizinga's *Homo Ludens* in its original Dutch edition in 1938. Published in English translation in England in 1949 and in the U.S. in 1955, the book examines play in human life and society. Interested in the "play element" of culture, Huizinga's lectures (and later book) focused attention on things early scholarship had dismissed as not serious. His work demonstrated both the seriousness and centrality of play. Among his observations, Huizinga notes several characteristics of play: its sense of freedom along with its rule-governed nature; the dividing line between play and ordinary life; its disinterested nature. Play, Huizinga argues, offers a necessary condition for culture and forms of play exist in every human society. Play is also immersive: It creates its own world as players enter into the game space or game experience—what Csikszentmihályi (1990) terms "flow." People playing somehow live in a world different from the world of ordinary experience.

While many different academic disciplines have studied play, communication scholars have noted how play requires a level of meta-communication, since play involves the same activities of ordinary life, but in some way re-codes or re-interprets them. The play of a boxing match requires the same aggression as a fight, but with communication signals to let the boxers know the different contexts. Similarly, much language play or joking depends on an almost simultaneous reframing of what people say. What sounds like an insult (and in

fact would count as an insult) becomes a joke with a complementary nonverbal signal (Cherry, 1966).

More recent communication study began to examine the non-play and very serious communication involved in play. For example, Ishak (2017), writing in COMMUNICATION RESEARCH TRENDS last year, reviewed the growing body of communication literature on sports and communication in sports settings. These range from player-coach communication to team communication to motivation, social support, and role negotiation. This issue takes a different approach, by looking at game playing itself, focusing on gender issues.

Communication study has become more attuned to gender in the last 20 years, examining not only gender differences in various communication contexts, but the context and construct of gender itself. Cunningham looks at precisely the confluence of gender and game play as both occur in video and computer games. Her review essay provides a brief history of both video games and game studies before she moves to the central theme of how communication scholars study gender in video game research.

* * *

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References

- Cherry, C. (1966). *On human communication: A review, a survey, and a criticism*. Cambridge, MA: MIT Press.
(First edition, 1957)
- Csikszentmihályi, M. (1990). *Flow: The psychology of optimal experience*. Harper & Row.
- Huizinga, J. (1955). *Homo ludens: A study of the play-element in culture*. Boston: Beacon Press.
- Ishak, A. W. (2017). Communication in sports teams: A review. *Communication Research Trends*, 36(4), 4–38.

Unbeatable? Debates and Divides in Gender and Video Game Research

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In recent years, video games have emerged as a popular form of media entertainment. According to the Pew Research Center, 49% of Americans report playing video games and 10% identify as “gamers” or those people who spend a majority of their media use playing video games (Duggan, 2015). People can play video games on a variety of devices, including video game consoles, televisions, computers, and smartphones. While the definition of video games has changed over time because of technological developments, in general, researchers understand video games as interactive electronic games that allow users to manipulate images on the screen (Wolf & Perron, 2014). Designers and scholars classify video games by both their technical elements, or what games allow users to do, as well as their genres. Video game genres include first-person shooter games (such as *Call of Duty*), puzzle games (such as *Tetris*), sandbox games (such as *The Sims*), casual games (such as *Candy Crush Saga*), and role-playing games (such as *Dungeons and Dragons*). [Descriptions of video games mentioned in this paper appear in the appendix on pages 22–24.]

Video games have come under a spotlight because of debates about both their positive and negative impacts. Educators often laud the benefits that students gain from playing video games, especially from their potential for developing problem-solving skills and spatial reasoning, essential skills in 21st century learning (Gee, 2008; Prensky, 2006). Additionally, video games may help players to develop pro-social skills, such as empathy and tolerance (Greitemeyer, Osswald, & Brauer, 2010). However, in addition to acknowledging the potential positive effects of video games, people have raised concern about the anti-social impacts of playing video games. There is much debate about whether playing violent

video games can cause people to be more violent and aggressive (Vieira & Krcmar, 2011). Those concerned about the effects of video games also argue that playing video games can lead to social isolation and negatively affect mental health. The Diagnostic and Statistical Manual of Mental Disorders (DSM-5) recently added Internet Gaming Disorder, or gaming addiction, as a condition in which someone has an unhealthy preoccupation with online video games (American Psychiatric Association, 2018).

In addition to anxieties over negative psychological and behavioral effects of video games, some have expressed concern about the how the content of video games reinforces hegemonic stereotypes. A great deal of debate has emerged about negative portrayals of female and minority characters (Downs & Smith, 2010; Lynch, Tompkins, van Driel, & Fritz, 2016; Williams, Martins, Consalvo, & Ivory, 2009). Representations that normalize misogyny and racism can send messages to players that this behavior is tolerable. For example, when women, who form a minority of online gamers, participate in gaming communities, they often report being victims of harassment (Fox & Tang, 2016). This behavior reflects a larger gaming culture generally unfriendly to women (Cohen, 2009). The hostility that women face when criticizing the toxic masculinity prevalent in gaming has recently garnered attention (Chess & Shaw, 2015). Many female game designers and cultural critics have come under attack because of their decisions to speak out about gender inequality in gaming communities (Blodgett & Salter, 2013; DeWinter & Kocurek, 2013).

Research on gender and video games emerged in the 1990s. With the growing recognition that playing video games may provide a pathway into computer programming, educators and policymakers turned their

attention to the disparities that existed between boys and girls when it came to video game playing (Cassell & Jenkins, 1998). Currently, women make up only about 20% of those in science, technology, engineering, and mathematics (STEM) fields and progress toward gender equality has stalled (Corbett & Hill, 2015). Additionally, only 24% of video game designers are women (Weststar & Legault, 2016). Many feel that this under-representation of women in the video game industry perpetuates negative portrayals of women and minority characters (Harvey & Fisher, 2013).

Scholars who study the intersections of gender and video games look at a range of ways that gender influences who plays games, how games are played, and how games are designed. They take the medium of video games seriously as a form of communication. Gender and video games research considers how technological developments have influenced gendered representations of video game characters and how these representations have evolved over time. This research continues to find significant gender differences in the amount of time spent playing video

games as well as preferences for types of video game play. These gender differences concern scholars because they may explain why there continues to be gender inequality in gaming.

Since research on gender and video games emerged in the 1990s, studies have shown that more women play video games now than then. Currently, women play video games in nearly equal numbers to men (Duggan, 2015). However, the widespread perception that video game players tend to be male continues (Duggan, 2015). A study by the Pew Research Center found that 60% of Americans believed that the majority of video game players are male (Duggan, 2015). Interestingly, even women who played video games believed that gamers were predominantly male, indicating the prevalence of a masculine culture of gaming.

In this review essay, I will chart the history of video game technology, the emergence of game studies as a field, provide an overview of the key aspects of gender and video game research, and highlight key debates in gender and video games research.

1. History

The rise of video game technology is closely related to the rise of the computer industry. Video game technology developed as researchers experimented with designing games and creating simulations as part of their computer research. Early experimentation with the technology occurred as computer programmers tried to simulate board games. For example, in 1958, Physicist William Higinbotham developed one of the first video games, a simple tennis game (American Physical Society, 2008).

By the 1970s, video game technology had evolved, leading to the rise in the video game industry in the 1970s and 1980s. This time saw the development of games played on mainframe computers. *Pong*, an electronic table tennis game manufactured by Atari became one of the earlier popular games. The success of games like *Pong* led to the development of the video game industry. Unlike today's game advertising, early marketing of video games in the 1970s did not focus on a male-oriented market. For example, advertising for the Magnavox Odyssey, the first home video game console, sent the message that people of all ages and genders could enjoy video games (Williams, 2006).

The late 1970s and early 1980s marked the era of arcade games. Popular games included *Donkey Kong* and *Pac-Man*. While these games included female characters, they featured two-dimensional animation and more iconic (than realistic) gendered representations. For example, the only difference between Pac-man and Ms. Pac-man was that she had a red bow. These games ran on hardware that did not have the sophisticated graphics to make female characters hyper-sexualized, as they became in the 1990s.

The development of home consoles such as the Atari 2600 and Intellivision allowed people to play video games in their homes, which led to the diffusion of video games. By the 1980s, video games were designed for playing on computers.

While early game representations in the 1970s and 1980s did not have sophisticated gendered representations, a culture of masculine gaming nevertheless began to emerge. Kocurek, in *Coin-operated Americans* (2015), documents the development of the video game industry from 1972 to 1985. She offers insight into how the medium of the video game became masculinized. She uses the term "technomasculinity" to

refer to the “consolidation of game identity as it came to be allied with an idealized vision of youth, masculinity, violence, and digital technology” (p. vxii). Her work provides new insight into the masculinities of gaming and gaming culture. She writes that, in the 1970s, as companies developed video games, they had in mind an assumed audience for both men and women. However, images in popular culture tended to feature males playing video games. The video arcades that emerged in the late 1970s offered a public place for people to play video games. However, these public places tended to become male-dominated, as Kocurek documents in her book. Kocurek argues that marketing materials emphasized video game players as male, thus contributing to the overall ideology that video games formed a male activity that did not include women. This ideology found ready confirmation in the low numbers of girls and women that played video games in arcades.

In the mid-1980s, the industry experienced a crash, with several video game companies going out of business. Several factors led to the crash, including the rise of home computers and the lack of games that appealed to a wide audience. As a result of this economic downturn, the industry reimagined what video games should be and how they marketed them.

While some argue that this crash led to the emergence of marketing video games to a primarily masculine market, and thus leading to the gendered representations that exist today, others argue that we need to understand how gender inequalities emerged as video games became a part of public culture. As Kocurek (2015) writes, “the early years of video gaming have much to teach us about the development of gaming as public culture” (p. xvi). Indeed, her investigation into video game culture includes archival sources as well as an examination of the discourse of gaming culture through a look at popular television shows and movies, as well as oral histories. Her goal is to look at the representations of gaming and gamers within a historical context.

2. Importance of Video Games

According to the Entertainment Software Association (ESA), women constitute 45% of U.S. gamers (Entertainment Software Association, 2018). However, despite the high number of women playing video games, significant gender differences continue in game playing which can lead to gender inequality. In

The re-emergence of the video game industry occurred in 1985 with the development of the Nintendo Entertainment System. This time saw innovations in technologies, which led to the development of games such as *Super Mario Bros*, which had a wide appeal.

Because it was assumed by video game marketers that girls did not play video games, they marketed most of the video games in the 1980s and 1990s toward boys. For example, in 1989, Nintendo released the Game Boy Pocket, a handheld game console. The Game Boy came loaded with the game *Tetris*, a puzzle game popular with girls and boys. However, by naming the device a Game “boy,” video game designers did not consider girls’ interests and implicitly ignored girls as players.

Hardware designers improved graphics during the 1980s, and games began to reach new or expanded audiences. This period saw the release of games such as *Street Fighter* and *The Legend of Zelda*. These games tended to appeal to a male audience because of their masculine themes, such as fighting, competition, and violence. During this time, also, academic researchers took the medium of video games more seriously, investigating the ideologies present in video games. Additionally, during this time the content of video games generated more concern among policy-makers (Kocurek, 2015). Media effects research became popular as video game technology became more graphic.

In the 2000s, other companies moved into the market, releasing multiple game consoles, further circulating video game technology. PlayStation and Xbox became two of the most popular game consoles, each with their accompanying games, a development that widened game genres. The console development pushed the hardware, making animation more sophisticated. Players started to gain more control over the characters they played in the 2000s and 2010s. By the 2010s games became more available through apps on smartphones and other portable devices.

general, research shows that women prefer different types of games than men and play for less time than men (Hamlen, 2010; Jenson & de Castell, 2010; Lucas & Sherry, 2004; Winn & Heeter, 2009). As I will discuss later in this review, several psychological and cultural explanations explain these differences.

Video games have social, cultural, economic, and political importance. Many praise the importance of video games for their educational benefits (Gee, 2005; Prensky, 2006). Playing video games can help develop cognitive skills, such as understanding three-dimensional space, reading visual images, and problem solving—important skills for 21st century learning (Gee, 2005; Greenfield & Cocking, 1994; Subrahmanyam & Greenfield, 1994). Video games allow children to solve problems on their own, engage in immersive learning environments, and teach each other skills in online learning environments. Video games offer outlets for informal learning, something necessary in the digital age (Ito et al., 2009; Jenkins, Clinton, Purushotma, Robison, & Weigel, 2007). Many have characterized the digital age as a participatory culture, which requires that youth explore how to consume and produce media on their own terms. Additionally, 21st century learning requires that students develop problem-solving and critical thinking skills to address some of society's most pressing problems. The different genres of video games offer different learning experiences. For example, while many critique the violence present in first-person shooter games, some research suggests that these games may teach players how to navigate and strategize in three-dimensional spaces (Hartanto, Toh, & Yang, 2016).

Increasingly, businesses recognize that game thinking can motivate employees and lead to innovation and so have integrated gamification into the workplace (Penenberg, 2013). Gamification emphasizes competition, achievement, and reward systems. Thus, as games become increasingly important to participating as citizens in society, it becomes even more imperative to study how to achieve gender equality in gaming.

From a cultural perspective, games offer a form of media that communicate different values and stories. Bogost (2008) writes that video games do not just facilitate cultural, social, or political practices; they are also

media where cultural values themselves can be represented for a variety of purposes such as social critique, satire, or education. Researchers also distinguish video games from other forms of media because they operate on what Bogost (2008) calls “procedural rhetoric” or the art of persuasion through rule-based representations and interactions. The design of video games features such procedures that players can engage in play that allow for different outcomes. As such, game producers design video games to influence and address a range of emotions, such as empathy and tolerance, that are important in promoting social change. In fact, recent years have seen the genre of prosocial games emerge. Prosocial games form a subset of games that promote positive outcomes, like cooperation and empathy. Research has shown that playing prosocial games can increase prosocial behaviors, such as helping others (Greitemeyer et al., 2010; Vieira, 2014).

Economically, the video game industry generated \$91 billion dollars in revenue in 2016 (SuperData, 2017). This number reflects the facts that video games are a big business and that the economy will see an increased demand for video game designers. But women continue to be under-represented in the video game industry. Women constitute only 24% of video game designers (Weststar & Legault, 2016). Some argue that the lack of diversity in the video game industry leads to what Fron, Fullerton, Morie, and Pearce (2007) call “the hegemony of play,” or the reinforcement of structures that perpetuate the status quo in the video game industry, such as lack of female characters and a masculine culture of gaming. In other words, the over-representation of men in the industry explains the lack of diversity in video game design.

Because video games form an important cultural and economic force, society must address gender inequality not only in the industry, but also in the ways that women and girls experience gaming and gaming culture.

3. The Rise of Video Game Studies

The field of game studies, or ludology, addresses the study of games, the act of video game playing, and the cultures that surround gaming (Aupperley, 2006; Consalvo & Dutton, 2006; Wolf & Perron, 2014). Game studies emerged as a field within communication studies in the late 1990s (Quandt et al.,

2015). Game studies scholarship focuses on games themselves and their distinctiveness as both visual and interactive texts (Wolf & Perron, 2014). This strand of research looks at narratives and game-worlds, as well as experiences offered up to players. The field takes an interdisciplinary approach and

includes theory and methodologies from anthropology, sociology, psychology, and cultural studies. Methodologies include a range of qualitative approaches including textual analysis, and ethnographies (Consalvo & Dutton, 2006).

Its literature appears, for example, in the online journal, *Game Studies: The International Journal of Computer Game Research*, a journal dedicated to the study of video games. Other journals include *Eudamios*, *Games and Culture*, and the *Journal of Games Criticism*. The Digital Games Research Association (DIGRA) provides a professional association for both academics and professionals who study video games. DIGRA sponsors an annual international conference and publishes research on video games. Additionally, both the National Communication Association (NCA) and the International Communication Association (ICA) have divisions dedicated to promoting video games research.

One critique of game studies scholarship notes that it tends to focus on gaming and gamers in isolation, rather than looking at the broader role that video games play in everyday lives (Shaw, 2013). Thornham (2011) argues that we need to move beyond analyzing the affect side of gaming to better understand games' social effects. She argues that much of game studies research manifests a technologically determinist mindset because it emphasizes the medium over the gamer. Additionally, as Shaw (2013) argues, much of game studies research focuses narrowly on gamers and gaming in isolation, rather than interrogating a broader sense of the role of gaming in everyday lives. Instead, Shaw argues that audience studies, like that of Radway (1988), can offer important tools for examining media in people's everyday lives. Shaw's argument aligns well with Apperley and Jayemanne's (2012) argument that more recent game studies scholarship has taken a materialist turn, looking at situations of play.

Feminist game studies also emerged in the 1990s. Feminist game scholars study video games with the perspective that "the playful is political" (Chess, 2017, p. 16). In trying to understand how women and girls choose to spend their leisure time, feminist game studies scholars look at how structures of power influence the impact of video games. There are politics involved

when examining how women and girls choose to spend their leisure time and these politics impact their career choices and cultural interests. For example, Winn and Heeter (2009) found that college women had less time than college men to play video games because they saw their leisure time as potentially productive, requiring appropriate activity. They reported that they had less leisure time than men because they engaged in both paid and unpaid labor. Men, on the other hand, did not perceive these barriers to engaging in leisure time. These gender differences can lead to differences in how women experience gaming.

Feminist game studies includes a range of perspectives and approaches, including content analyses of video game characters, qualitative research on girls and women who both play and don't play games, investigating the masculine culture of gaming, and considering intersectional approaches to the study of gaming (Cassell & Jenkins, 1998b; Chess, 2017; Shaw, 2010). Intersectional approaches include a consideration of how different identity markers, such as gender, race and ethnicity, class, age, sexuality, and ability influence video game playing.

While game studies as a field emerged in the late 1990s, social science approaches to studying media effects of video games has been around since the 1970s. From a social science perspective, researchers often use quantitative studies to study how playing video games influences emotions and behaviors (Anderson, 2004; Carnagey, Anderson, & Bushman, 2007; Persky & Blascovich, 2007). This body of research primarily studies the impact of video games on anti-social behaviors, such as violence and aggression, social isolation, and lack of social and communication skills (Cicchirillo & Chory-Assad, 2005; Cooper & Mackie, 1986; Norris, 2004; Vieira & Krcmar, 2011). For example, some research suggests that video games may have negative impacts, such as increasing children's aggression (Carnagey et al., 2007; Sherry, 2001). Some of these discussions have generated moral panics, especially around issues related to the connections between video games and violence (Kowert & Quandt, 2016; Sternheimer, 2018). The findings from some of these seminal studies will be discussed in a later section.

4. Background on Gender and Video Games Research

A. Defining gender

Researchers who study the intersection of gender and video games make the distinction between sex and gender. Sex refers to the biological categories of males and females, whereas gender refers to an historically situated and culturally contingent cultural construct. Gender studies scholars argue that a binary opposition between the categories of “masculine” and “feminine” exists. In other words, we can understand masculinity as the opposite of femininity.

Those who study the social construction of gender argue that gender is a performance enacted in its repetition (Butler, 1990; West & Zimmerman, 1987). As Butler (1990) writes, “there is no gender identity behind the expressions of gender; that identity is performatively constituted by the very ‘expressions’ that are said to be its results” (p. 25). Gender becomes recognizable through its repetition and performance.

A cultural approach to understanding the intersection of gender and video games proves useful because it shows how gender identities shift with the development of new genres and technology. However, some have expressed concern in the research on gender and video games that gender as an analytic category tends to be unproblematised (Cassell, 2002; Flanagan, 2005; Jenson & de Castell, 2008). These scholars call for a more nuanced understanding of gender that complicates researchers’ assumptions. For example, there may be more differences in video game playing among girls that needs to be interrogated.

B. Evolution of gender and video game research

In order to understand the evolution of gender and video game research, we can find it useful to look at the evolution of the most influential texts in the field. Some of the seminal works in gender and video game research appeared in the collection *From Barbie to Mortal Kombat*, edited by Justine Cassell and Henry Jenkins in 1998. This collection of research included essays from academics as well as female game designers and entrepreneurs. Many of the early concerns of feminist game studies scholars addressed how playing and designing video games could increase girls’ interest in science, technology, engineering, and mathemat-

ics (STEM) fields. This research looked at girls’ motivations for playing games, gender differences in game playing, and specific design elements that may appeal to girls. An important contribution of this book was the inclusion of interviews with female game designers who provided insight into how to design video games to engage girls’ specific interests.

Ten years later, in 2008, the edited collection *Beyond Barbie and Mortal Kombat* appeared (Kafai, Heeter, Denner, & Sun, 2008b). This edited collection looks at some of the ways that the contexts of girls’ and women’s game playing has changed, given that more girls and women played games and that new genres had emerged. Some of the ways in which the context of girls’ and women’s game playing has changed included an increase casual games (with the advent of mobile phones) and serious and educational games. Companies primarily market casual games, like *Diner Dash* and *Kim Kardashian: Hollywood* to a female audience (Chess, 2017; Juul, 2010). In some ways this simply acknowledges that women and girls were more likely to play these games. The editors caution that although research finds more ways in which girls and women can enter into gaming culture, inequalities still persist. Women continue to be under-represented in the video game industry and sexist representations of female characters continue to dominate the best-selling video games.

More recently, 20 years after *From Barbie to Mortal Kombat*, the edited collection *Diversifying Barbie and Mortal Kombat: Intersectional Perspectives and Inclusive Designs in Gaming* became available (Kafai, Richard, & Tynes, 2017). This collection offers new insights into how identity categories such as race, ethnicity, sexuality, age, and class influence how people play and design games. This collection extends previous research because it argues for better understanding not only how differences in identity markers can influence game playing, but also how these identities can work to design games that are more inclusive. In the end, this collection offers some direction for where the field of game studies is going and offers recommendations for future research.

5. How Is Gender Studied in Video Game Research?

A. Gendered representations

The majority of the research on gender and video games looks at gendered representations of video game characters. This research primarily uses both qualitative and quantitative textual analyses of female and male characters (Beasley & Collins Standley, 2002; Lynch et al., 2016; Williams et al., 2009). In general, this research has found a lack of playable female characters in video games. When such characters do appear, they often display sexist and stereotypical images (Dietz, 1998; Downs & Smith, 2010; Jansz, 2005). Designers often characterize female characters by overly large breasts and thin waists (Beasley & Collins Standley, 2002; Downs & Smith, 2010; Jansz & Martis, 2007). Additionally, the video games include misogynistic representations of women. For example, in the controversial video game *Grand Theft Auto V*, players can have sex with a prostitute, then kill her and take their money back.

Many of these studies apply Bandura's (1977) social cognitive theory to understand the impact of media portrayals; the theory argues that people learn knowledge and behavior through observation. This theory, widely used in studying media effects, also provides a theoretical framework to explain how people come to understand gender roles (Bussey & Bandura, 1999).

Research on gender representations in video games also apply cultivation theory to understand how sexist representations of video game characters may impact players (Reinhard, 2005). Cultivation theory looks at how the amount of time engaged with media impacts users' perceptions of the real world (Gerbner, Gross, Morgan, & Signorielli, 1986).

In one of the earliest studies of representations of women in video games, Dietz (1998) found that the majority of the games studied portrayed women as sex objects. In a content analysis of 33 popular Nintendo and Sega Genesis video games, she found that normative gender roles and violence provided the most common themes. Additionally, the games studied demonstrated a lack of female representation. Of games 28% depicted women as sex objects. 80% of games included aggression or violence as the main

narrative arc. Finally, there was a lack of racial diversity in the characters.

Dill and Thill (2007) conducted a content analysis of images in the most popular American video game magazines. Their study of depictions of video game characters in the magazines found female characters sexualized, wearing revealing clothing, or objectified. They found that the games and magazine images more likely portrayed male characters as aggressive, whereas female characters appeared as sexualized. They also conducted a survey of teens about their perceptions of video game characters. In the responses to the survey, participants reported that they judged male characters as powerful, aggressive, having a hostile attitude, athletic, and thugs. The teens found female characters as provocatively dressed, thin, sexual, and aggressive. The researchers noted that the single most stated character trait for males was "muscular" and the most often stated characteristic for females was "big boobs" (p. 860). They concluded that "video game characters and their common, stereotypical portrayals of gender are part of general popular culture for youth and thus are important to understand" (p. 861). They argue the importance of understanding how people respond to these representations because video games can reinforce the gendered stereotypes present in the real world.

Representations of female characters have not changed much over time. Williams, Martins, Consalvo, and Ivory (2009) conducted a content analysis of 100 top-selling video games. They found that 90% of video games contained no female characters. When they did appear, they played passive roles in the game, either as "damsels in distress" or hypersexualized. Women of color rarely appeared and when they did, they were represented in stereotypical ways. The researchers argue that the trend in representations in video games appeared as similar to what others found in content analyses of television, with a lack of diversity in characters that did not represent the demographic make up of the general U.S. population. They argue that the lack of representations of racial diversity can signal to minorities that they are not important or valued. In the end, Williams, Martins, Consalvo, and Ivory caution that additional research needs to examine the link

between representations and behavior. However, they point out that understanding gender representations “is a necessary condition which has now been demonstrated and can be tested for causality” (p. 829).

Downs and Smith (2010) studied sexuality in video game characters. Examining the top 60 games from 2003, they found that female characters were less prevalent than male characters. Female characters more likely appeared partially nude with unrealistic body types. Additionally, they wore sexually revealing clothing. Downs and Smith situate their findings within social cognitive theory, arguing that these representations can lead players to have unrealistic expectations of gender roles. They also argue that unrealistic portrayals of male characters as overly muscular can lead to negative body image for males. Playing these games, they argue, can lead adolescent males to objectify women and can reinforce negative social perceptions of gender roles. While Downs and Smith do not provide evidence of this claim and instead speculate on the impact of sexually-explicit video game representations, Yao, Mahood, and Linz (2010) conducted an experiment with college-age males and found that playing a video game which objectified female characters encouraged men to view women as sex objects. Applying Pryor’s (1987) Likelihood to Sexually Harass (LSH) scale, the experimenters gave participants 10 scenarios depicting sexually-exploitive situations, such as fulfilling a female subordinate’s request in exchange for a sexual favor, and asked them to respond to the situations. Results of the study showed that after playing the games, men self-reported a behavioral tendency to engage in inappropriate sexual advances.

Another way that scholars study gendered representations involves investigating representation in marketing materials. Burgess, Stermer, and Burgess (2007) conducted a content analysis of 225 video game covers. Male characters appeared four times more frequently than female characters. Even though female characters appeared less frequently, when they did appear, the covers exaggerated their feminine features and represented the female characters by their sexiness. The authors also found that the covers paired violence and sexiness for female characters, whereas they paired muscularity and violence for male characters.

In a content analysis of games featuring playable female characters, Lynch, Tompkins, van Driel, and Fritz (2016) found a trend of change in sexualization of female characters over time. Games released from

1983 to 1990 had the least sexualized characters. They argue that this finding is not surprising, given the technological capacities of video consoles during this time. However, they found that game developers introduced more sexualized characters in the 1990s and early 2000s. They attribute some of these trends to changes in technologies, with advances such as high-resolution 3D computer graphics. Their findings also indicate a decrease in the sexualization of female characters after 2006. They hypothesize that an increase in women’s interest in gaming as well as more organized criticism of the lack of diversity in the video game industry can explain this decrease.

Lynch et al. (2016) also found that certain genres of video games had more sexualized portrayals of female characters. Fighting games, marketed to a primarily male audience, had the most sexualized characters. Role-playing games (RPGs) had the second lowest incidence of sexualized characters. As Lynch et al. (2016) point out, women play RPGs more frequently than other genres, which may reflect why these character depictions appear as less sexualized. Despite the finding that, in general, more positive portrayals of female characters now appear in video games, Lynch et al. (2016) caution that the number of playable female characters has not changed much over time. Thus, despite the more recent trends of more realistic and varied representations of female characters, these do not appear in the majority of top-selling video games.

The lack of positive female characters in video games may lead to a lack of interest in playing video games for girls and women (Reinhard, 2005; Walkerdine, 2007). These representations can lead women and girls to choose different genres of video games, such as puzzle games and casual games. Additionally, according to social cognitive theory, these representations can send negative messages to girls and women about body image and stereotypical gender roles.

Games targeted toward women often portray different ideologies. In “A 36-24-36 Cerebrum,” Chess (2011) analyzed magazine advertisements for games played on the Nintendo DS and Nintendo Wii in women’s special interest magazines. She found that discourses of self-help and productivity dominated the advertising. Thus, she highlights how games marketed toward women tend to reinforce normative body images. Additionally, the discourses in the games suggested that women’s leisure time needed to be productive, such as engaging in physical activity for control-

ling one's weight, as can be seen in many of the Wii games that involved sports. This is one of the first studies to examine how games marketed toward women convey stereotypical ideologies. Chess (2017) continues her exploration of the genre of women-oriented games in a book, *Ready Player Two*. In this study, she looks at assumptions about women's leisure time, such as the importance of time management, especially among working women, that are built into the design of these games. Chess argues that the concept of the "second shift," where working women take on more of the household responsibilities than men, has positioned women as having less leisure time than men. As a result, women not only have less leisure time, but they often feel like their time needs to be productive. This ideology is built into the design of casual games marketed toward women, in which players, by design, can play in short amounts of time. And, time management becomes an essential aspect of game play. For example, *Diner Dash* (created in 2003) revolves around the central character Flo, a waitress in a diner, who takes orders from customers. The player earns points for accomplishing the tasks of serving the customers quickly. In this way, work, play, and time all become essential themes of the game. As Chess (2017) argues, these themes mirror the real-world constraints on time that women face as they navigate work, family, and leisure time.

In 2018, the top-selling video games continue either to lack female players or to have stereotypical representations (Entertainment Software Association, 2018). In her web-based documentary project *Tropes vs. Women in Video Games*, Sarkeesian (2017) identified five different tropes prevalent in mainstream video games including damsels in distress, fighting sex toy, sexy sidekick, sexy villainess, and females as background decoration. Sarkeesian has received both positive and negative reception from her popular culture critiques of women's representation in video games. She managed to fund her project through a Kickstarter campaign that raised more than \$150,000 (Kocurek, 2015). However, "hardcore" gamers negatively received her work; they saw her entrance into the culture as encroaching on a male-dominated space. Sarkeesian has been the victim of an online harassment campaign which has included "denial of service attacks on her website, efforts to expose her personal information online, the repeated vandalism of her Wikipedia page with racist and misogynistic language and pornographic images, hateful comments to her YouTube

video" (Kocurek, 2015, p. 189). The video game *Beat Up Anita Sarkeesian* involved players punching an image of Sarkeesian's face. As the game progressed, her face becomes bruised and disfigured. These attempts dramatically show that a largely male gaming culture still makes women feel unwelcome.

The *Lara Croft* phenomenon. In 1996, Core Design released *Tomb Raider* which featured the female protagonist Lara Croft. Many praised the creation of Lara Croft as challenging the gender stereotypes present in the 1980s and 1990s. However, some criticized the character of Croft because she continued to be sexualized, with exaggerated hips and breasts (Jansz & Martis, 2007). However, Jansz and Martis (2007) argue that even sexualized female characters can also be seen as capable, which may prove empowering to female gamers. Indeed, a number of critics see Croft as a sex symbol that still inspires the male gaze. Some debate has arisen, then, about whether Croft serves as a positive role model for young girls (Kennedy, 2002). However, Kennedy (2002) argues that we must contextualize the release of *Tomb Raider* within the cultural context of the "girl power" movement that arose in the 1990s. The girl power movement attempted to encourage girls to be empowered by their femininity.

In 2013, Core Design re-released *Tomb Raider* with an updated Lara Croft. Many regarded this version of Lara Croft as a more realistic portrayal, since her physical appearance mirrored more a woman's actual physical appearance. (MacCallum-Stewart, 2014). In the updated version, Lara becomes a more complex and emotional character. For example, her body becomes dirtied and damaged as she is played. She has normal size breasts and she has monologues throughout the game. These monologues offer insight into her character development, which reflect her as a more complex and fully developed female protagonist.

The success of *Tomb Raider* led to the development of other video games with strong female characters such as Chell from the game *Portal* or Cortana from the *Halo* series. However, although the industry saw a shift to have games that centered on female protagonists, these games have not ranked among the top-selling mainstream games.

B. Media effects

In addition to the research strand that analyzes gendered representations of female characters in video games, another strand of gender and video game research looks at the impact of sexist representations

on girls/women and boys/men. This research applies media effects research and theory including uses and gratifications (Katz, Blumler, & Gurevitch, 1973), cultivation theory (Gerbner et al., 1986), and social cognitive theory (Bandura, 2001). This research also examines how playing violent video games impacts players' emotions and physical behavior. In this section, I highlight the key studies and debates in the field of media effects and video game research.

Violence in video games has always raised concern among parents, educators, and researchers. As Kocurek (2015) writes, "the establishment of violence as a key theme of video gaming has been integral to the construction of gaming as an arena of male cultural production and consumption, tying video gaming to other areas of culture historically dominated by men, such as military culture and sports competition" (p. xix). In the 1976 game *Death Race*, players crashed into humanoid figures and killed them. At the time, the content of this game led to a moral panic about the impact of video game violence on male aggression and violence. This concern continues to appear as a topic in popular discourse. For example, many raised repeated concerns that the violence in Columbine, where Eric Harris and Dylan Klebold entered Columbine High School and killed 13 people, was caused by the boys' over-exposure to violent video games. These moral panics continue to be debated in popular culture (Sternheimer, 2018)

In their edited collection *Joystick Soldiers*, Huntemann and Payne (2010) investigate the relationship between video games and the military. Not only does the military serve as a source for video game content, as in the best-selling game *Call of Duty*, but the military uses video games as a training resource for soldiers. The editors of the collection chronicle how war has appeared as a theme in video game narratives since the invention of *Spacewar!* in 1962. Their collection examines the relationship between the military and the video game industry.

The majority of research on video game effects examines the link between playing video games and increased aggression (Cicchirillo & Chory-Assad, 2005; Cooper & Mackie, 1986; Scharrer, 2004; Schmierbach, 2010). In general, this research tends to be quantitative and experimental (Carnagey et al., 2007; Eastin, 2006; Hartmann, Möller, & Krause, 2015; Scharrer, 2004). This body of research has found that playing violent video games increases aggressive thoughts and behaviors. However, researchers caution

that people need to consider other variables when making claims about causality. In other words, correlations are not the same as causality.

The uses and gratifications tradition in communication research provides a theoretical framework for understanding why males (primarily) enjoy playing violent video games. Uses and gratifications theory contends that people choose media because of its expected impacts (Katz et al., 1973; Ruggiero, 2000). Various researchers offer different explanations for why boys may prefer playing violent video games. For example, Jansz (2005) argues that violent video games offer players the opportunity to voluntarily select emotional situations present in the game. She argues that the ability to try on different emotions can gratify particular needs for male adolescents, who are in the process of constructing different identities. Violent video games, then, provide a safe space where they can experience emotions that may not be acceptable in everyday life. As she writes, "gamers may deliberately select emotions that sustain dominant masculine identity (e.g., anger), as well as emotions that are at odds with dominant masculinity (e.g., fear)" (Jansz, 2005, p. 219).

Other studies apply the General Aggression Model (GAM) to assess how knowledge about aggression is formed, considered, and acted upon (DeWall, Anderson, & Busman, 2011). The GAM offers a social-cognitive framework for understanding aggression and violence. In general, this research has found that those who play violent video games (primarily male) more likely exhibit aggressive thoughts and behaviors (Bushman & Anderson, 2002; Gentile, Lynch, Linder, & Walsh, 2004). This research has found that playing violent video games can lead to a desensitization of violent acts, increased fearfulness of the world, and a notion that people are inherently hostile (Anderson et al., 2003).

Sherry (2001) conducted a meta-analysis of research on violent video games and found a smaller effect with playing video games versus watching television violence. However, these effects appeared positively associated with the type of game violence and negatively correlated with the time spent playing video games. Thus, it is important to parcel out the type of violence found in video games and understand how the amount of exposure to this violence impacts behavior.

In a meta-analysis of the research on playing video games and aggressive behavior, Anderson and Bushman (2001) found playing violent video games

did lead to an increase in aggressive behavior. In a meta-analysis of existing research on the effects of playing violent video games, Anderson (2004) found a link between exposure to these games and an increase in aggressive behavior and a decrease in helping behavior.

In addition to measuring the impact of violent video games on aggressive behavior, other media effects research focuses on the impact of sexist representations. Similar to research on gendered representations, media effects research employs Bandura's (2001) social cognitive theory and cultivation theory. As several scholars have noted, these messages have real-life consequences on girls' self-esteem and body image (Currie, Kelly, & Pomerantz, 2009; Lopez-Guimera, Levine, Sanchez-Carracedo, & Fauquet, 2010; Myers, 2013). Some argue that exposure to sexist depictions of women in video games increases adolescents' sexist attitudes (Beguè, Sarda, Gentile, Bry, & Roché, 2017). Others argue that these depictions impact adolescent perceptions of gender roles and ideology (Dill, Brown, & Collins, 2008). For example, in their study of French youth's relationship between video games and sexism, Bègue et al. (2017) found a correlation between video game exposure and sexist attitudes, regardless of gender, age, socioeconomic status, or religion. As Bègue et al. (2017) write, "adolescents who play video games may model beliefs about gender roles on the distorted reality presented in video games" (p. 2).

Behm-Morawitz and Mastro (2009) looked at the impact of exposure to sexualized female characters on women's self-concept through an experimental design. They enlisted undergraduate students. One group played a video game with a sexualized female protagonist, and one group played a non-sexualized one. After playing the game, participants filled out a questionnaire which asked questions about gender role beliefs, self-esteem, and self-efficacy. Male participants reported less confidence in women's physical capabilities. Male participants also reported more traditional ideas about how women should dress and appear in public. And, they reported support for more traditional gender roles when it came to career choices and domestic labor. Female participants who played sexualized characters reported lower self-efficacy than those who played non-sexualized female characters. As the authors write, "this suggests that exposure to sexualized images of women in video games (among female players) may reduce confidence in their ability to succeed in the real world." (p. 819). They cautiously con-

clude that sexualized female characters can affect not only people's beliefs about women in the real world, but also women's self-efficacy. The sexualized representations of female characters can negate the impact of female characters that may have counter-stereotypical representations. Self-efficacy refers to "how well an individual feels they can do something, whereas self-esteem is concerned with one's belief in their own worth, value, and their liking themselves" (Behm-Morawitz & Mastro, 2009, p. 819). As they argue, it is possible "to feel generally positive about oneself while feeling somewhat less confident in one's ability to accomplish tasks or goals" (p. 819). In conclusion, they found that for women, when they played sexualized video game characters, they reported less self-efficacy but did not report reduced feelings of self-worth.

Playing games with sexualized characters can normalize sexual harassment (Dill et al., 2008). In their study, Dill et al. (2008) examined the impacts of exposure to stereotypical video game characters and images of professional men and women to see how judgments and attitudes about aggression toward women was perceived. They found that men who were exposed to stereotypical content in video games were more likely to make judgments that were more tolerant of sexual harassment. Additionally, long-term exposure to violence in video games showed a correlation to a greater acceptance of sexual harassment.

When girls do play mainstream video games, they have to negotiate performances of masculinity (Walkeridine, 2006). In her research on an after school club in Sydney, Australia, Walkeridine found that girls, when playing video games that emphasize traditional notions of masculinity, have to negotiate performance of both masculinity and femininity. This requires that girls engage in masculine performances, including competition and mastery, while at the same time engaging in feminine performances, including sensitivity and cooperation. This can have an impact not only on girls' experiences of playing video games, but also on their decisions to play or not play.

Not all studies of media effects have found that playing video games lead to negative behaviors. Research on prosocial games have found a promising trend. Prosocial games are games designed to impact players' behaviors in a positive way (Greitemeyer, Osswald, & Brauer, 2010; Vieira, 2014). In an overview of international studies on prosocial games, Gentile et al. (2009) found that playing prosocial games can increase prosocial behaviors, such as empathy.

More recent research has shown that girls can develop critical media literacy about video game representations (Cunningham, 2018). In focus groups with girls about their video game playing, Cunningham (2018) found that girls reflected a critical media literacy through their discussions about their preferences for playing male or female characters. Girls' preferences were based on girls' larger understandings of gender roles. For example, some girls commented that they desired to challenge gender stereotypes by playing female characters that some may consider "weaker." These girls received satisfaction when, as they were playing female characters, they were able to beat male characters. Other girls spoke about how the technical limitations of the games determined their choice of characters. Many female characters had limited functionality resulting in girls' choosing to play male characters instead. Developing a critical media literacy is important since available research suggests that sexist representations of female video game characters can increase children's sexist attitudes (Breuer, Kowert, Festl, & Quandt, 2015; Stermer & Burkley, 2015).

C. Gender differences in video game play

Research in the 1990s suggested that boys and girls conceptualize computers differently (Cassell, 2002). Boys more likely played games, programmed, and saw the computer as a toy. Girls, on the other hand, more likely saw the computer as a tool used to accomplish tasks, like word processing. These gender differences matter because, as Greenfield and Cocking (1994) found, playing video games decreases some of these gender differences. Thus, even though gender differences may initially appear in video game play, other factors can mitigate these differences.

Research on girls and video games suggests that girls spend less time than boys playing video games (Cassell & Jenkins, 1998a; Hartmann & Klimmt, 2006). When they do play, they tend to prefer games that emphasize cooperation rather than competition. Additionally, girls tend to prefer card games, quizzes, and puzzles (Green & McNeese, 2008; Hartmann & Klimmt, 2006; Valkenburg & Soeters, 2001). In contrast, males prefer fighting games, shooting games, sports games, and fantasy role-playing games (Jansz, 2005).

In their study of gender differences in video game play, Lucas and Sherry (2004) argue for a communication-based explanation for gender differences in play. They found that girls preferred games that

encourage social interaction and communication. They argue that gender differences "can be explained best by examining the gaming experience as a multilevel communicative phenomenon" (p. 500). They draw on theories of mass and interpersonal communication. Video games often feature interactive play, with friends playing in social settings. Additionally, online video games offer a forum for interacting with players from a diverse range of backgrounds. Video games can also lead to the development of parasocial relationships. They conducted a survey which included three instruments that measured participants' preferences for video game genres, uses and gratifications related to video game play, and cumulative hours of video game play. They found that both male and female players perceived video games as a masculine domain. Additionally, they theorized that their motivations for inclusion and affection reduced female players' engagement with video games. Female players preferred different types of game play than male players. The researchers explained this by female players' lack of desire for competitive play and lack of control over one's environment. In the end, they argue for gender-inclusive design that gives female players more control in their video game play. They argue that as female players find satisfaction in playing video games, the gender differences will begin to diminish.

In their study of girls and video games, Hartmann and Klimmt (2006) found that females described themselves as less competitive than males, reported that winning was less important as a motivating factor for playing games, and appeared less confident in their gaming abilities. Hamlen (2010) examined the relationship between time spent playing video games and feelings of success. Both boys and girls reported feeling confident in their game playing abilities. However, because boys played for longer periods than girls, they more readily entered a motivational cycle that led to heightened feelings of reward and success. Hamlen (2010) argues that because girls did not play video games for long periods of time, they did not experience the same motivational cycle to continue playing. This could explain why girls do not report greater interest in playing video games.

But we should also note that some games have a crossover audience, appealing to both men and women. *The Sims*, released in 2000 by Electronic Arts, falls into the category of a sandbox game in which players create virtual people and place them in houses that they build themselves. The category "sandbox games" refers to

games in which players choose how they want to approach the content in the game; this genre of games is more open and fluid. Sandbox games differ from traditional video games that focus on competition and mastery of content. The Sims appealed to both girls and boys (Beavis & Charles, 2005; Jansz, Avis, & Vosmeer, 2010). In *The Sims* the players choose their avatars and create environments, such as houses and neighborhoods. Gee and Hayes (2010) found that women who played the game created communities of learning around the game. For these players, gaming went beyond the content of the game itself and involved players in the process of design, production of content, and participation in learning communities surrounding the game.

Debates on how to operationalize gender. While the research shows gender differences in usage, different researchers depend on different explanations for why these differences exist. In their overview on gender and gaming research, Jenson and de Castell (2010) argue that one of the problems in existing research on gender differences in gaming research arises from the fact that researchers often conflate sex with gender. While “sex” refers to biological categorizations, “gender” refers to a cultural category that varies over time and between cultures. Jenson and de Castell (2010) argue that research tends to generalize findings about gender differences in a way that assumes gender is natural and fixed, rather than culturally contingent. Instead, they argue for the importance of deconstructing what people mean by gender, so that we can have a more nuanced analysis of gender differences in gaming. Drawing on the work of Judith Butler, who argued that gender is a performance that comes to life in its enactment, Jenson and de Castell (2008) suggest that this approach can challenge some of the norms that have emerged in gender gaming research. For example, they tackle the assumption that

girls prefer cooperation over competition. Here, they argue that the notion of competition is itself gendered. In their study of an after school gaming club, they found that girls engaged in what they termed “benevolent competition” (p. 17). “Benevolent competition” constitutes a form of gameplay in which girls helped each other succeed in the game. They argue that although girls acted cooperatively, they also competed in a way appropriate for girls based on cultural norms.

Cassell (2002) also calls for expanding what researcher mean by gender. In her article “Genderizing HCI,” Cassell takes the perspective that gender forms a “context dependent notion” (p. 11). With this perspective, she critiques efforts of designing video games for girls and women. She argues that games designed for gender-specific play can reinforce gender stereotypes. Indeed, assumptions about gender differences in computer usage become integrated into educational design. As she writes, “when educators with software design experience were asked to design software specifically for boys or for girls, they tended to design learning tools for the girls and games for the boys” (p. 3). Interestingly, when planners asked them to design software for a “generic” student, they designed games. In the end, she argues that these forms of educational design fail to include girls’ interests.

As Jenson and de Castell (2008) write, “gender is and has been for some time a contested site: it is ‘at play’ and ‘in play’ in radically different ways, given different contexts, actors and tools/technologies” (p. 23). Thus, research on gender differences in gaming needs to more adequately deconstruct and interrogate what people mean by “gender.” Indeed, it is important to look at differences among girls and similarities between girls and boys in order to better understand gender differences in gaming.

6. Games Targeted Toward Girls and Women

With the recognition that girls may prefer different types of game play than boys, several toy and gaming companies have created toys that specifically target feminine play, such as games with dolls, clothing, and accessories (Seiter, 1993). How much toys have been gendered has varied throughout the 20th century (Sweet, 2013). In 1996 Mattel Media released *Barbie*

Fashion Designer. Considered one of the first mainstream video games targeted toward girls, in the game players design clothes for their Barbie dolls. The game differed from other mainstream games because Digital Domain (the designers) designed the game as an accessory for playing with dolls (Subrahmanyam & Greenfield, 1998). Additionally, the game succeeded

because it included problem-solving and cooperation. Thus, it served as an extension of the type of play that girls already engaged in.

The 1990s saw the growth of games targeted toward girls, mostly through female-owned game companies like Purple Moon and HerInteractive (Cassell & Jenkins, 1998b). Brenda Laurel founded Purple Moon in 1996, a company often cited as the first American software company to design games for girls, ages 8–14. In an interview about girl games, Laurel (1998) talks about the different preferences that girls have for video games. She comments that in her extensive research with girls, she learned that girls prefer complex characters and narrative-based play, things not available in many mainstream games that emphasized competition and violence. Narrative-based play provided an essential component to the design of Purple Moon's game, *Rockett's New School*. The game features Rockett, a brand new student in the eighth grade. Throughout the game, Rockkett deals with emotions experienced in school. Purple Moon designed the game as a “choose your own adventure” game, where players get to choose how Rockett responds to different scenarios, such as arriving at school and seeing another girl wearing the same outfit.

HerInteractive developed a series of games based on Nancy Drew, a fictional girl detective that remained popular in book form for girls. These games integrated girls' preferences for games that had more of a narrative with complex characters. Megan Geiser, CEO of HerInteractive, points out that in usability tests that informed the design of games, she found that girls did not like being portrayed as victims and were bored by violent video games (Kafai, Heeter, Denner, & Sun, 2008a).

Pink games center around gender-specific play, such as cooking and clothing. They also tend to feature character-centered plots and their narratives include those about relationships (Cassell & Jenkins, 1998a). Additionally, girl-oriented games tend to feature popular female fictional characters such as those that include Disney princesses. With little prior research on the impact of playing girl games on girls, Van Reijmersdal, Jansz, Peters, and Van Noort (2013) found that girls may enjoy playing pink games because they go through a process of identification with the main characters. The authors also employed uses and gratifications theory to uncover the motivations girls had for playing pink games. They found that girls' desire for fantasy, challenge, escapism, and social interaction accounted for some of the reasons why girls played pink games.

Not only did the content of video games change to attract a female audience, so did the hardware. Nintendo tried to capitalize on the female game market. The company advertised the Nintendo DS as a feminine accessory that women and girls could use to pass the time (Chess, 2017). Nintendo tried to appeal to a female audience in its marketing materials as well as its video game content. In 2012, Nintendo published the game *Style Savvy: Trendsetters* for the 3DS. The game centers around the players taking the role of fashion designers, managing their own boutique, and helping customers find the perfect outfit. A television commercial for the game featured Sara Hyland, who plays a teenager on the television show *Modern Family*. In the commercial, Hyland sits in her bedroom on her bed, playing on her pink pearl 3DS. She looks into the camera and states that she is not a gamer, but a designer. The message here is that girls can play video games while maintaining their femininity. Video games do not have to be a masculine domain.

A. Casual games

Casual games refer to that category of games that require less time and investment than hardcore games—the kind of games played on a smart phone, for example. These games became popular in the 2000s, due to changes in technology (Juul, 2010). Designers primarily marketed these games to a female audience (Kafai et al., 2008b). As Anable (2013) writes,

casual games are designed to be played in short bursts of five to 10 minutes and then set aside. As such, what makes a game ‘casual’ is that it functions in the myriad tasks we do on digital devices; between work and domestic obligations; between solitary play and social gaming; and between attention and distraction. (para 1.)

Casual games often attract those people who do not define themselves as gamers (Vanderhoef, 2013). The games have become feminized because the industry originally constructed them in opposition to hardcore games, which, as we have seen, were mostly played by males. As Chess (2017) writes, “while hardcore games are expensive, difficult to learn and master, and time-consuming, a ‘casual’ game is cheap, easy to learn, and can be played for variable amounts of time.” (p.13). Vanderhoef (2013) argues that despite the industry’s positioning of casual gamers as deficient, they see them as a valuable market. Vanderhoef (2013) also argues that the Nintendo Wii is marketed toward

casual gamers, especially for their size and offerings. However, the so-called feminization of casual games can prove problematic because it reinforces a gaming culture that privileges masculinity and devalues femininity. As more people see casual games as a feminine form of entertainment, feminine types of play are not considered important.

As Juul (2010) writes, the stereotypes of casual and hardcore gamers (gamers that invest lots of time and resources into playing long-format games) disappear when researchers scrutinize the data more closely. For example, Juul (2010) found that players of casual games also spent a large amount of time playing games. As Juul (2010) writes, “looking at the games commonly described as casual yields a clue in that these games allow us to have a meaningful play experience within a short time frame, but do not prevent us from spending more time on a game” (p. 8). Chess (2017) reinforces this, writing, “a person who plays *Candy Crush Saga* for three hours a day is not likely to label herself as a ‘gamer’: not because she doesn’t play video games but because those video games are not the ones commonly associated with the label” (p. 175).

Research on casual games is still emerging, since games marketed toward women and girls have become marginalized because they fall within genres seen as unimportant or trivial (Chess, 2017). However, because casual games are oriented toward women, they can have feminist undertones. For example, in her textual analysis of *Diner Dash*, Chess (2012) argues that people can read the casual game as a feminist text with the

main character Flo, since she owns her own restaurant and has a willingness to help those in need. The game depicts her as confident and ready to do the job at hand, namely serving customers in her restaurant. Chess (2012) argues that it is important to look at the nuances within different casual games to better understand the types of messages communicated.

B. Do we need games for girls?

Some feminist scholars critique pink games for reinforcing stereotypes about girls and femininity. Cassell (2002) critiques games geared toward girls as reinforcing stereotypical norms of girlhood, including a focus on appearance and emotions. As Cassell (2002) writes, designers did not often take girls into account in the design of computer games, leading to male-oriented themes such as fighting and violence. She argues that the shift in the 1990s to designing games for girls “risks ghettoizing girls as a population that needs ‘special help’ in their relation to technology” (p. 402). In other words, while benefits may accrue in developing games for girls, game companies and designers should also consider how to be more inclusive in game design so that girls can participate in gaming culture.

As Flanagan (2005) points out, creating the category of “girl” creates murky territory that can lead to generalizations about the type of games girls like to play. Instead, people must look at differences among girls to better understand the type of play that appeals to girls and the range of ways that girls can engage in video game culture.

7. Video Games and STEM

Playing video games may increase children’s interest in science, technology, engineering, and mathematics (STEM) fields (Hayes, 2008). Given the under-representation of women in STEM fields and in the video game industry, many have advocated for the need for research that appeals to girls’ and women’s interests. Research suggests that girls lose confidence in their STEM abilities during adolescence, which has detrimental effects on their future ability to excel in STEM fields (Fancsali, 2002; Leaper, 2015; McCreedy & Dierking, 2013). Currently, women make up only 26% of computing professionals and only 12% of engineers (Corbett & Hill, 2015).

Companies estimate that STEM employment will increase by 13% between 2012 and 2022 (Vilorio, 2014). These jobs are crucial not only because they offer higher wages than other occupations, but also because they are important for solving some of society’s most important problems. In 2000, the American Association of University Women (AAUW) published a report titled *Tech Savvy: Educating Girls in the New Computer Age*. This report listed a number of barriers that girls face in computer education, including a lack of interest in the ways teachers conveyed technological learning in traditional classroom settings and a male culture of computing, which tends to emphasize com-

petition and masculine metaphors. The report argued that a lack of skill did not keep girls from excelling in computer classes; rather the girls conveyed a “we can, but we don’t want to” attitude (American Association of University Women, 2000, p. ix). As the study found, a number of cultural reasons explained why girls chose to opt out of computer classes. The study emphasized an important distinction. The approach to computing presented in schools, with an emphasis on technical proficiency, did not appeal to the girls in the study. As a result, the study authors called for all-girl interventions that appealed to girls’ gender-specific interests.

More recently, 15 years later, the recommendations of the AAUW are still relevant (Corbett & Hill, 2015). The representation of women in STEM fields has declined in the past 30 years. Though 74% of girls say they are interested in STEM, they do not enroll in those majors (Girl Scout Research Institute, 2015). And, the numbers are far worse for Hispanic, African-American, and American Indian women (Corbett & Hill, 2015). Minority women often lack role models and mentors who might encourage them to enter STEM fields (Scott & White, 2013). Additionally, as Scott and Zhang (2014) write, girls face a lack of culturally-responsive curriculum that appeals to minority girls’ interests.

A. Girls as game designers

Research suggests that girls design games differently than boys (Denner, Werner, Bean, & Campe, 2005; Kafai, 1996). For example, Kafai (1998) found that boys tended to design adventure games with violent feedback, whereas girls designed games with skill development and learning embedded in them. Denner and Campe (2008) found that when girls designed their own games, the content addressed social issues and real-world problems. In a content analysis of girl-created games, Denner and Campe (2008) found that the themes in the games included fears about getting into trouble, threats of violence, negative repercussions for relationships, and failing in school, among other things. They argue that the types of games that girls create differ from those available on the market. Thus, they raise questions about the importance of adding girls’ perspectives to video game design and having more girls designing video games. In their study of girls making games, Denner, Bean, and Werner (2005)

found that when middle school girls received the chance to design their own games, they challenged current thematic trends in the industry. Their designs integrated social issues. Most took place in real-world settings and involved moral decision-making. In their analyses of girl-created games, Denner, Bean, and Werner (2005) found that themes that emerged in girl-created games included personal triumph, like making a sports team; working through fears, such as getting in trouble (e.g., detention or being grounded); the threat of violence; and negative repercussions for relationships (such as social exclusion). Additionally, the girls’ designs challenged gender role stereotypes and used humor to confront authority figures. the games allowed flexibility in choosing gender. Denner, Bean, and Werner (2005) write,

Our research suggests that when given the opportunity, girls design games that challenge the current thematic trends in the gaming industry. In particular, they use humor and defiance of authority to play with gender stereotypes and reject the expectation that girls are always well-behaved. Through their games, the girls have shown us new ways to make games and new ways to play. (p. 8)

Cunningham (2011), in an ethnographic study of a video game design class at the Girl Scouts, found that not only did girls have different ideas about designing video games, but so did the instructors. Ideologies of race and gender were embedded within the program. For example, the main female character in the game had white skin. During the class, an African American girl asked the instructor how she could change the skin color so the character would look more like her. These examples show how when girls take on the role of designer, they create different types of games with more diverse representations.

Since the 2000s, there have been several informal all-girl video game design programs (Cunningham, 2018). However, little research has examined the impact of these programs on girls’ desires to become video game designers. Additionally, more research should examine how games designed by girls may involve themes different from those available in mainstream video games. This investigation could shed light on how to incorporate girls’ interests into video game design.

8. Women and Gaming Culture

It is not just the sexist representations in video game characters that are an issue, so is the way that participants treat women in online games (Fox & Tang, 2016). Women gamers tend to face high levels of harassment in online gaming environments (Dibbel, 1993; Donath, 1999). This body of research looks at how users enact gender in online gaming environments, such as Massive Multiplayer Online Role-playing Games (MMORPGs) or virtual reality games, such as *Second Life* (Antonijevic, 2008; Green-Hamman, Eichhorn, & Sherblom, 2011; Kumar et al., 2008). This body of research looks at how users take on gender identities (whether women “pass” as male players or vice versa) as well as the treatment of women within these online spaces.

Fox and Tang (2014) identified personality variables that predicted sexist attitudes in video game players. Those players that believed in masculine

norms more likely reported sexist attitudes about women’s participation in online video games. Personality traits included an orientation toward social dominance, desire for power over women, and the need for heterosexual self-presentation; all predicted sexism in video game play. Fox and Tang argue that these sexist behaviors can drive women away from playing in online games. Additionally, Fox and Tang (2014) conclude that rather than the content of the games, the sexist attitudes they encounter in the game spaces drive women away.

The advent of games for girls and women has changed the way that players identify as gamers. As Shaw (2012) found, identity markers such as gender, race, and sexuality impact whether video game players identify as gamers. Negative associations with a masculine culture of gaming can lead players to not identify as gamers, especially if they play non-mainstream games.

9. How Has the Industry Changed to Include Girls and Women: Institutionalized Sexism

Currently, women comprise 24% of video game designers. This under-representation is consistent with women’s lack of representation in STEM fields. This under-representation can be attributed to women’s concentration in jobs in the computer industry that required less technical skill and were low-paying. This structure led to a gender gap in STEM fields that continues today.

Some initiatives have begun to provide women with opportunities to advance within the video game industry—Women in Games International is a membership organization that supports women in the video game industry. Harvey and Fisher (2015) write about the development of women in games programs and incubator projects, or short-term workshops aimed at offering women training and support to design games. The availability of software such as GameMaker has allowed for the development of independent game design, which has opened up possibilities for women to

become video game designers outside of the confines of the video game industry.

However, the industry continues to exclude women and female game designers who often speak about the challenges they face in a male-dominated industry (DeWinter & Kocurek, 2013). In their research, Harvey and Fisher (2015) found that high-profile women in digital games culture had to navigate being too feminist in a culture that is unfriendly to feminism.

Several hashtag activist campaigns, such as #1ReasonWhy and #womenaretoohardtoanimate, have raised awareness about the lack of diversity within the video game industry. In these campaigns, women game designers reported several structural issues, including discrimination and lack of support for their work, as contributing to their frustrations within the industry. Women who do enter the video game industry often face harassment. In 2014, there

was a harassment campaign, #GamerGate, that emerged in response to the rise of women in the video game industry and popular cultural critiques to sexist representations in video game representations (Chess & Shaw, 2015). Chess (2017) offers this summary: “GamerGate is a movement of hate speech wherein young, primarily male gamers have attacked, doxxed

(publishing personal information about an individual), and threatened women in and commenting on the video game industry” (p. xii). These developments have led to increased awareness of how women are treated in the video game industry. We need more research to better understand how the video game industry is responding to be more inclusive.

10. Summary of Gender and Video Games Research

Some key lessons emerge from the research presented in this article. First, video games as a medium of communication are complex, yet their importance cannot be understated. They offer a form of entertainment that many adults and children engage with, making them worthy of study. Research on video games began to emerge in the 1970s, with game studies as a field developing in the late 1990s, with multiple outlets now for presenting and disseminating research on video games. At the same time as the rise in video game studies, many voiced concerns about gender differences in video game usage. The two most prominent ways that scholars study gender in video game research lie in gendered representations and media effects.

Content analyses of video game characters dominate the field. This research has shown that, in the top-selling video games, not only are female characters sexually objectified and play passive roles in the games, but they also constitute the minority of playable characters. While this research can convey information about gendered ideologies present in games, we still need more work to better understand how players, both male and female, respond to these representations. Applying social cognitive theory, a few studies have demonstrated a link between representations and real-world ideologies about gender roles. However, here too, we need more work to better understand the impact of these representations. An additional area for further research arises from an examination of gendered representations that people might consider more positive and how players interact with or learn from those images.

Media effects research is the other dominant way that researchers study the intersections of gender and video games. In general, this research has found that playing violent video games can lead to an increase in aggressive thoughts and behaviors. This finding sug-

gests the need for further research into how to help those who play these video games. As mentioned at the beginning of this article, the APA has recently added video game addiction to its list of mental health conditions. Thus, it would be important to continue this line of inquiry to better understand how to assist those individuals for whom playing violent video games becomes addictive, thus increasing a potential in aggressive behaviors. As video game graphics become more sophisticated and video game technology becomes more immersive, researchers can offer more insight into how these new contexts impact aggressive behavior. Indeed, with the rise of violence in our society, the imperative to know whether successful interventions to curb this violence exists becomes even more urgent.

Media effects research emphasizes aggression; however, a range of other emotions and behaviors can come from playing video games and these deserve study as well. Prosocial games that emphasize behaviors such as empathy and tolerance can offer more positive benefits from playing video games. We need more research into this genre of video games to better understand how the medium can promote these behaviors. Indeed, given that Americans spend so much more of their leisure time playing games, we should foster more research to help us see how these games can have positive impacts.

Researchers who study gender and video games caution that we need to carefully interrogate what we mean by “gender” in order to challenge dominant assumptions. These scholars remind us that gender is a cultural construct that has changed over time. Using such a category of analysis, researchers need to better define their approach in order to further research. Indeed, this line of inquiry would look at differences among girls, especially in terms of race and class, as well as similarities between boys and girls.

A growing area of research examines games designed for women. First, while the top-selling video games continue to reinforce sexist and racist representations, new genres have emerged that challenge these dominant tropes. Casual games, for example, often targeted toward women, capitalize on the research on gender differences in video game playing that shows that women may prefer puzzle games and that women may play games for less time, such as in snippets of time between activities. Video game researchers such as Chess (2017) have taken these games seriously and look more closely at how ideologies of femininity become embedded into game design.

Another emerging area of research concerns better understanding of how to make systematic changes in the video game industry to encourage diversity not only in those creating games, but also in the content available. Recently, more researchers have directed their attention to the experiences of women working in the gaming industry. However, still more research

needs to be done on the video game industry. This research could look at issues including how women experience the workplace, the factors that keep them productive and employed, or the factors that lead them to leave the industry. This research could help inform parents, teachers, and policy makers about the necessary steps to take to support gender equality in the video game industry.

Video game technologies and formats continue to evolve, offering rich opportunities for examining the intersections of gender and technology. Questions emerge as to whether these newer forms of technology will reinforce or challenge differences in video game play. Virtual reality, for example, has become increasingly popular. Virtual reality begins to blur boundaries between physical and virtual space, possibly opening up new experiences that may allow players to transcend the limitations of physical bodies. How these experiences may engage players in different gendered performances offers yet another emerging area of study.

Appendix: Video Games Mentioned in this Review

Barbie Fashion Designer was published by Mattel in 1996. In this game, players design clothing for their Barbie Dolls. Players can then print the designs on paper-backed fabric. The game came with fabric paint so that the designs could be used on their dolls. The commercial success of the game helped to show the existence of a market for girls' video games.

Call of Duty is a first-person shooter game published in 2003 by Activision and made available on a number of platforms including Microsoft Windows, Apple OSX, Nintendo DS, and PlayStation. Game play revolves around simulations of infantry and warfare. The game has grown into a franchise. The early games in the series have their setting in World War II. However, several versions of the game have appeared with setting in modern or futuristic times. In 2018, *Call of Duty: WWII* was one of the top-selling games.

Candy Crush Saga is a casual, puzzle game in which players complete levels through mixing and matching different colored pieces of candy. The game was pub-

lished by King in 2012 and is free to play on iOS, Android, Windows phone, and Windows 10. Players can purchase additional features, such as those that help to solve more difficult boards. The game is one of the top-10 grossing mobile apps.

Death Race is an arcade game published in 1976. In the game, players control a car through a steering wheel and pedal attached to the outside of the game. The goal of the game is to run over "gremlins," which looked like human figures. This game proved controversial because of the violent content in the game.

Diner Dash is a casual game that centers around Flo, the owner of a diner. Throughout the game, Flo earns money to open up newer restaurants. In the game, players guide Flo around the diner to wait on customers. Players have to earn money to advance to the next level. The game indicates the moods of the customers by hearts over their heads, indicating how long they have been waiting and if that would affect the tips.

Donkey Kong was first released as an arcade game by Nintendo in 1981. It is a platform game in which players control a character that jumps between suspended levels and avoids obstacles. In the game, players take on the role of Mario who tries to rescue Pauline from the giant ape Donkey Kong. It is considered one of the most popular arcade games of all time. The game was later released for the Game Boy, a handheld device.

Dungeons and Dragons is a role-playing game and emerged as a tabletop game in 1974; many consider it the origin of modern role-playing games. During the game, players received an assignment as a character that they manipulate in the fantasy setting. Play includes solving problems, engaging in battles, and collecting treasures and information that help them advance through the levels of the game. Since its inception, the game has been released for play on computers, consoles, arcades, and mobile devices.

Grand Theft Auto V is the fifth title in the Grand Theft Auto series. The game follows three criminals as they commit crimes and flee from a government agency. The game was released in 2013 by Rockstar Games. The game was controversial because of its portrayals of women and minorities.

Halo is a first person shooter video game first developed and published by Bungie in 2001 and currently developed by 343 Studio, a subsidiary of Microsoft. The plot revolves around a military science fiction story that features a war between humans and aliens. The video game's popularity led to the franchise expansion to graphic novels, comics, and films.

Kim Kardashian: Hollywood is a causal role-playing game that was released in 2014 for iOS and Android. The game can also be played through Facebook. In the game, players gain fans, increasing their reputation and celebrity ranking. Activities that increase reputation include booking modeling and acting jobs, making appearances at clubs, and going on dates.

The Legend of Zelda is an action adventure game published by Nintendo in 1986 and released as a cartridge to play on the Nintendo home console system. In the game, players control Link who is tasked with saving Princess Zelda and the kingdom of Hyrule. The game has a mix of puzzles, battles, and exploration. Link has to navigate mazes in different dungeons. Throughout

the game, players receive rewards for their ability to solve puzzles.

Mortal Kombat is a video game franchise. The original fighting game was published in 1992. It differs from *Streetfighter* in that there are a number of moves that the players can make, including fatality, finishing moves that allows the winning character to murder their opponent in a brutal way. In addition to the game series, the franchise spun off films, a television series, and comic books made around the central themes in the game.

Ms. Pac-Man was released as an arcade game in 1981 by Midway Manufacturing. The game features a female protagonist who earns points by navigating through a maze, eating dots, and avoiding ghosts. The game was popular among female gamers because it was one of the few games at the time that featured a female protagonist.

Pac-Man is an arcade game published by Namco in 1980. In the game players control Pac-man as he moves through a maze eating Pac-Dots and avoiding ghosts. Players advance through different levels as they clear the board. The game was popular and continues to be played. Pac-Man became a recognizable figure in popular culture, with merchandise containing his figure.

Pong, produced by Atari, was released in 1972 as an arcade game. The game involves the player in a game of table tennis. The player controls a paddle by moving it across the screen. Paddles are used to hit a ball back and forth. Players earn points when their opponent does not return the ball. The success of the game helped to spur the video game industry.

Portal is a puzzle game released in 2007 by Valve Corporation. In the game, players control Chell as she navigates through different rooms. The game centers around using an “aperture science handheld portal device” that creates portals in the game. A number of groups have praised the game for its unique design.

Rockett's New School was published in 1997 by Purple Moon. The game follows Rockett as she starts eighth grade at a new school. One of the premises of the game seeks to foster communication. Players learn information about each other and develop friendships. The

game is celebrated as one of the early games designed specifically for girls.

The Sims is a life simulation game series in which players create virtual characters, called “Sims” and place them in houses and communities. The first game in the series was released in 2006 by Electronic Arts. Throughout the game, players help characters to carry out different functions. The game has been described as a “virtual dollhouse” because there are no defined goals, such as winning or advancing to the next level. Instead, players focus on manipulating characters within their constructed environments.

Spacewar! is a video game developed in 1962. The game involves two spaceships that attack each other. The game is significant because it was one of the earliest video games developed and because it led to the creation of a genre of space-related video games.

Street Fighter is an arcade game that was developed in 1987. In the game, players compete in one-on-one fighting matches. Players have 30 seconds to beat their opponent. The game was later released as a CD ROM for the PC.

Style Savvy: Trendsetters is a fashion video game released for the handheld Nintendo DS in 2012. In the game, players manage a clothing store, where they select clothing and outfits for customers.

Super Mario Bros is a video game developed and published by Nintendo in 1985. The game is a platform game, where players navigate through obstacles to get to different levels. Players control Mario, or his brother Luigi, as they travel through Mushroom Kingdom to save Princess Toadstool. The game launched a franchise, with a game series, animated television series, and a feature film.

Tetris is a puzzle game where players match different shaped tiles to form straight lines. The game was published in 1984. Versions of the game were sold for home computers and arcades. It was also released as a handheld version in 1989, bundled with the Game Boy. The game is often cited as one of the greatest games of all times.

Tomb Raider is an action adventure game published by Eidos Interactive in 1996. The game follows Lara

Croft, an archaeologist, who searches for ancient treasures. The goal of the game is to navigate Lara through a series of tombs as she looks for the treasures. The game emphasizes solving puzzles and exploring. The game, which features a female protagonist, was popular among both men and women.

References

- American Association of University Women. (2000). *Tech savvy: Educating girls in the new computer age*. Washington, DC: American Association of University Women. Retrieved August 16, 2018 from <https://history.aauw.org/files/2013/01/TechSavvy.pdf>
- American Physical Society. (2008). October 1958: Physicist invents first video game. *APS News*, 17(9). Retrieved August 9, 2018 from <https://www.aps.org/publications/apsnews/200810/physicshistory.cfm>
- American Psychiatric Association. (2018). Internet gaming. Retrieved August 9, 2018 from <https://www.psychiatry.org/patients-families/internet-gaming>
- Anable, A. (2013). Casual games, time management, and the work of affect. *ADA: A Journal of Gender, New Media, and Technology*, 2(2). Retrieved August 9, 2018 from <https://adanewmedia.org/2013/06/issue2-anable/>
- Anderson, C. A. (2004). An update on the effects of playing violent video games. *Journal of Adolescence*, 27(1), 113–122. doi:10.1016/j.adolescence.2003.10.009
- Anderson, C. A., Berkowitz, L., Donnerstein, E., Huesmann, L. R., Johnson, J. D., Linz, D., & Malamuth, N. M. (2003). The influence of media on youth. *Psychological Science in the Public Interest*, 4, 81–110.
- Anderson, C. A., & Bushman, B. J. (2001). Effects of violent video games on aggressive behavior, aggressive cognition, aggressive affect, physiological arousal, and prosocial behavior: A meta-analytic review of scientific literature. *Psychological Science*, 12(5), 353–359.
- Antonijevic, S. (2008). From text to gesture online: A microethnographic analysis of nonverbal communication in the second life virtual environment. *Information, Communication & Society*, 11(2), 221–238.
- Apperley, T. H. (2006). Genre and game studies: Toward a critical approach to video game genres. *Simulation & Gaming*, 37(1), 6–23. doi:10.1177/1046878105282278
- Apperley, T. H., & Jayemane, D. (2012). Game studies' material turn. *Westminster Papers in Communication & Culture*, 9(1), 5–25.
- Bandura, A. (1977). *Social learning theory*. Englewood Cliffs, NJ: Prentice Hall.
- Bandura, A. (2001). Social cognitive theory of mass communication. *Media Psychology*, 3, 265–299.

- Beasley, B., & Collins Standley, T. (2002). Shirts vs. skins: Clothing as an indicator of gender role stereotyping in video games. *Mass Communication & Society*, 5(3), 279–293.
- Beavis, C., & Charles, C. (2005). Challenging notions of gendered game play: Teenagers playing the Sims. *Discourse: Studies in the Cultural Politics of Education*, 26(3), 355–367.
- Beguè, L., Sarda, E., Gentile, D. A., Bry, C., & Roché, S. (2017). Video games exposure and sexism in a representative sample of adolescents. *Frontiers in Psychology*, 8(466), 1–16. doi:10.3389/fpsyg.2017.00466
- Behm-Morawitz, E., & Mastro, D. (2009). The effects of the sexualization of female video game characters on gender stereotyping and female self-concept. *Sex Roles*, 61(11–12), 808–823.
- Blodgett, B. M., & Salter, A. (2013). Hearing ‘Lady game creators’ tweet: #1ReasonWhy, women, and online discourse in the game development community. Paper presented at the *Selected Papers of Internet Research*, 14(0) 1–3, Denver, CO. Retrieved August 9, 2018 from <http://spir.aoir.org/index.php/spir/article/viewFile/694/pdf>
- Bogost, I. (2008). The rhetoric of video games. In K. Salen (Ed.), *The ecology of games: Connecting youth, games, and learning* (pp. 117–140). Cambridge, MA: The John D. and Catherine T. MacArthur Foundation Series on Digital Media and Learning.
- Breuer, J., Kowert, R., Festl, R., & Quandt, T. (2015). Sexist games = sexist gamers? A longitudinal study on the relationship between video game use and sexist attitudes. *Cyberpsychology, Behavior, and Social Networking*, 18(4), 197–202.
- Burgess, M. C. R., Stermer, S. P., & Burgess, S. R. (2007). Sex, lies, and video games: The portrayal of male and female characters on video game covers. *Sex Roles*, 57, 419–433. doi:10.1007/s11199-007-9250-0
- Bushman, B. J., & Anderson, C. A. (2002). Violent video games and hostile expectations: A test of the general aggression model. *Personality and Social Psychology Bulletin*, 28(12), 1679–1686.
- Bussey, K., & Bandura, A. (1999). Social cognitive theory of gender development and differentiation. *Psychological Review*, 106(4), 676–713.
- Butler, J. (1990). Performative acts and gender constitution: An essay on phenomenology and feminist theory. In S. E. Case (Ed.), *Performing feminism: Feminist critical theory and theatre* (pp. 270–282). Baltimore, MD: John Hopkins University Press.
- Carnagey, N. L., Anderson, C. A., & Bushman, B. J. (2007). The effect of video game violence on physiological desensitization to real-life violence. *Journal of Experimental Social Psychology*, 43(3), 489–496. doi:10.1016/j.jesp.2006.05.003
- Cassell, J. (2002). Genderizing HCI. In J. Jacko, & A. Sears (Eds.), *The handbook of human-computer interaction* (pp. 402–411). Mahwah, NJ: Erlbaum.
- Cassell, J., & Jenkins, H. (1998a). Chess for girls? Feminism and computer games. In J. Cassell, & H. Jenkins (Eds.), *From Barbie to Mortal Kombat: Gender and computer games* (pp. 2–45). Cambridge, MA: The MIT Press.
- Cassell, J., & Jenkins, H. (Eds.). (1998b). *From Barbie to Mortal Kombat: Gender and computer games*. Cambridge, MA: MIT Press.
- Chess, S. (2011). A 36–24–36 cerebrum: Productivity, gender, and video game advertising. *Critical Studies in Media Communication*, 28(3), 230–252. doi:10.1080/15295036.2010.515234
- Chess, S. (2012). Going with the Flo: *Diner Dash* and feminism. *Feminist Media Studies*, 12(1), 83–99.
- Chess, S. (2017). *Ready player two: Women gamers and designed identity*. Minneapolis, MN: University of Minnesota Press.
- Chess, S., & Shaw, A. (2015). A conspiracy of fishes, or, how we learned to stop worrying about #GamerGate and embrace hegemonic masculinity. *Journal of Broadcasting & Electronic Media*, 59(1), 208–220.
- Cicchirillo, V., & Chory-Assad, R. (2005). Effects of affective orientation and video game play on aggressive thoughts and behaviors. *Journal of Broadcasting & Electronic Media*, 49(4), 435–449. doi:10.1207/s15506878jobem4904_5
- Cohen, A. M. (2009). Closing the gender gap in online gaming. *Futurist*, 43(6), 10.
- Consalvo, M., & Dutton, N. (2006). Game analysis: Developing a methodological toolkit for the qualitative study of games. *Game Studies*, 6(1). Retrieved August 9, 2018 from http://gamestudies.org/06010601/articles/consalvo_dutton
- Cooper, J., & Mackie, D. (1986). Video games and aggression in children. *Journal of Applied Social Psychology*, 16(8), 726–744.
- Corbett, C., & Hill, C. (2015). *Solving the equation: The variable for women’s success in engineering and computing*. Washington, DC: American Association of University Women. Retrieved August 9, 2018 from <http://www.aauw.org/research/solving-the-equation/>
- Cunningham, C. (2011). Girl game designers. *New Media & Society*, 13(8), 1373–1388. doi:10.1177/1461444811410397
- Cunningham, C. (2018). *Games girls play: Contexts of girls and video games*. Lanham, MD.: Lexington.
- Currie, D. H., Kelly, D. M., & Pomerantz, S. (2009). ‘Girl power’: Girls reinventing girlhood. New York: Peter Lang.
- Denner, J., Bean, S., & Werner, L. (2005). *Girls creating games: Challenging existing assumptions about game content*. Proceedings of DiGRA 2005 Conference:

- Changing Views – Worlds in Play. Retrieved August 16, 2018 from https://www.researchgate.net/publication/221217436_Girls_Creating_Games_Challenging_Existing_Assumptions_about_Game_Content?sg=Ark8SuTYKLYLj5_Z_FPzkMr0TUlxm240MmmS7sF1zHW2jwmv2y7LC-WwNV6n1G-wqC9mnUH-HN_-rXbux2t1tQ
- Denner, J., & Campe, S. (2008). What games made by girls can tell us. In Y. B. Kafai, C. Heeter, J. Denner, & J. Y. Sun (Eds.), *Beyond Barbie and Mortal Kombat: New perspectives on gender and gaming* (pp. 129–143). Cambridge, MA: The MIT Press.
- Denner, J., Werner, L., Bean, S., & Campe, S. (2005). The girls creating games program. *Frontiers: A Journal of Women Studies*, 26(1), 90–98.
- DeWall, C. N., Anderson, C. A., & Busman, B. J. (2011). The general aggression model: Theoretical extensions to violence. *Psychology of Violence*, 1(3), 245–258.
- DeWinter, J., & Kocurek, C. (2013). #1reasonwhy women in the gaming industry matters. *Flow*, 17(7). Retrieved August 9, 2018 from <https://www.flowjournal.org/2013/02/1-reason-why-women-in-the-gaming-industry-matters/>
- Dibbel, J. (1993, December 21). A rape in cyberspace. *The Village Voice*.
- Dietz, T. L. (1998). An examination of violence and gender portrayals in video games: Implications for gender socialization and aggressive behavior. *Sex Roles*, 38, 425–442.
- Dill, K. E., Brown, B. P., & Collins, M. A. (2008). Effects of exposure to sex-stereotyped video game characters on tolerance of sexual harassment. *Journal of Experimental Psychology*, 44, 1402–1408. doi:10.1016/j.jesp.2008.06.002
- Dill, K. E. & Thill, K. P. (2007). Video game characters and the socialization of gender roles: Young people's perceptions mirror sexist media depictions. *Sex Roles*, 57(11), 851–864.
- Donath, J. (1999). Identity and deception in the virtual community. In M. Smith, & P. Kollock (Eds.), *Communities in cyberspace* (pp. 29–59). New York: Routledge.
- Downs, E., & Smith, S. (2010). Keeping abreast of hypersexuality: A video game character content analysis. *Sex Roles*, 62, 721–733.
- Duggan, M. (2015). *Gaming and gamers*. Washington, DC: Pew Research Center. Retrieved August 9, 2018 from <http://www.pewinternet.org/2015/12/15/gaming-and-gamers/>
- Eastin, M. S. (2006). Video game violence and the female game player: Self- and opponent gender effects on presence and aggressive thoughts. *Human Communication Research*, 32(3), 351–372. doi:10.1111/j.1468-2958.2006.00279.x
- Entertainment Software Association. (2018). Essential facts. Retrieved August 9, 2018 from <http://www.theesa.com/about-esa/essential-facts-computer-video-game-industry/>
- Fancsali, C. (2002). *What we know about girls, STEM, and afterschool programs: A summary*. Washington, D.C.: Educational Equity Concepts, Inc. Retrieved August 9, 2018 from <https://secwww.jhuapl.edu/MESA/Content/Docs/whatweknow.pdf>.
- Flanagan, M. (2005). Troubling 'games for girls': Notes from the edge of game design. Paper presented at the Digital Games Research Association (DiGRA) 2005 Conference: Changing Views-Worlds in Play. Vancouver, BC. Retrieved August 9, 2018 from <http://www.digra.org/wp-content/uploads/digital-library/06278.14520.pdf>
- Fox, J., & Tang, W. Y. (2014). Sexism in online video games: The role of conformity to masculine norms and social dominance orientation. *Computers in Human Behavior*, 3, 314–320. doi:10.1016/j.chb.2013.07.014
- Fox, J., & Tang, W. Y. (2016). Women's experiences with general and sexual harassment in online video games: Rumination, organizational responsiveness, withdrawal, and coping strategies. *New Media & Society*, 16(5), 703–718. doi:1461444816635778
- Fron, J., Fullerton, T., Morie, J. F., & Pearce, C. (2007). (2007). *The hegemony of play*. Paper presented at the Situated Play: Proceedings of the 2007 Digital Games Research Association Conference, Tokyo, Japan. 308–319. Retrieved August 9, 2018 from <http://homes.lmc.gatech.edu/~cpearce3/PearcePubs/HegemonyOfPlayFINAL.pdf>
- Gee, J. P. (2005). *What video games have to teach us about learning and literacy*. New York: Palgrave MacMillan.
- Gee, J. P. (2008). Learning and games. In K. Salen (Ed.), *The ecology of games: Connecting youth, games, and learning* (pp. 21–40). Cambridge, MA: The John D. and Catherine T. MacArthur Foundation Series on Digital Media and Learning.
- Gee, J. P., & Hayes, E. (2010). *Women gaming: The Sims and 21st century learning*. New York, NY: Palgrave.
- Gentile, D. A., Anderson, C. A., Yukawa, S., Ihori, N., Saleem, M., Ming, L. K., . . . Bushman, B. J. (2009). The effects of prosocial video games on prosocial behaviors: International evidence from correlational, longitudinal, and experimental studies. *Personality and Social Psychology Bulletin*, 35(6), 752–763.
- Gentile, D. A., Lynch, P. J., Linder, J. R., & Walsh, D. A. (2004). The effects of violent video game habits on adolescent hostility, aggressive behaviors, and school performance. *Journal of Adolescence*, 27(1), 5–22.
- Gerbner, G., Gross, L., Morgan, M., & Signorielli, N. (1986). Living with television: The dynamics of the cultivation process. In J. Bryant, & D. Zillman (Eds.), *Perspectives on media effects* (pp. 17–40). Hillsdale, NJ: Lawrence Erlbaum.

- Girl Scout Research Institute. (2015). *Generation STEM: What girls say about science, technology, engineering, and math*. Retrieved August 9, 2018 from https://www.girlscouts.org/content/dam/girlscouts-gsusa/forms-and-documents/about-girl-scouts/research/generation_stem_full_report.pdf
- Green, M. E., & McNeese, M. N. (2008). Factors that predict digital game play. *Howard Journal of Communications*, 19(3), 258–272. doi:10.1080/10646170802218321
- Greenfield, P. M., & Cocking, R. R. (1994). Effects of interactive entertainment technology on development. *Journal of Applied Developmental Psychology*, 15(1), 3–12.
- Green-Hamman, S., Eichhorn, K. C., & Sherblom, J. C. (2011). An exploration of why people participate in Second Life social support groups. *Journal of Computer-Mediated Communication*, 16(4), 465–491.
- Greitemeyer, T., Osswald, S., & Brauer, M. (2010). Playing prosocial video games increases empathy and decreases schadenfreude. *Emotion*, 10(6), 796–802.
- Hamlen, K. R. (2010). Re-examining gender differences in video game play: Time spent and feelings of success. *Journal of Educational Computing Research*, 43(3), 293–308.
- Hartanto, A., Toh, W. X., & Yang, H. (2016). Age matters: The effect of onset age of video game play on task-switching abilities. *Attention, Perception, & Psychophysics*, 78(4), 1125–1136.
- Hartmann, T., & Klimmt, C. (2006). Gender and computer games: Exploring females' dislikes. *Journal of Computer-Mediated Communication*, 11(4), 910–931.
- Hartmann, T., Möller, I., & Krause, C. (2015). Factors underlying male and female use of violent video games. *New Media & Society*, 17(11), 1777–1794. doi:10.1177/1461444814533067
- Harvey, A., & Fisher, S. (2013). Making a name in games. *Information, Communication & Society*, 16(3), 362–380. doi:10.1080/1369118X.2012.756048
- Harvey, A., & Fisher, S. (2015). "Everyone can make games!": The post-feminist context of women in digital game production. *Feminist Media Studies*, 15(4), 576–592.
- Hayes, E. (2008). Girls, gaming, and trajectories of IT expertise. In Y. B. Kafai, C. Heeter, J. Denner, & J. Y. Sun (Eds.), *Beyond Barbie and Mortal Kombat: New perspectives on gender and gaming* (pp. 217–230). Cambridge, MA: MIT Press.
- Huntemann, N., & Payne, M. T. (Eds.). (2010). *Joystick soldiers: The politics of play in military video games*. New York: Routledge.
- Ito, M., Baumer, S., Bittani, M., boyd, d., Cody, R., Herr-Stephenson, B., . . . Tripp, L. (2009). *Hanging out, messing around, and geeking out: Kids living with new media*. Cambridge, MA: MIT press.
- Jansz, J. (2005). The emotional appeal of violent video games for adolescent males. *Communication Theory*, 15(3), 219–241.
- Jansz, J., Avis, C., & Vosmeer, M. (2010). Playing the Sims2: An exploration of gender differences in players' motivations and patterns of play. *New Media and Society*, 12(2), 235–251. doi:10.1177/1461444809342267
- Jansz, J., & Martis, R. G. (2007). The Lara phenomenon: Powerful female characters in video games. *Sex Roles*, 56(3), 141–148. doi:10.1007/s11199-006-9158-0
- Jenkins, H., Clinton, K., Purushotma, R., Robison, A. J., & Weigel, M. (2007). *Confronting the challenges of participatory culture: Media education for the 21st century*. Chicago, IL: The MacArthur Foundation. Retrieved August 9, 2018 from https://www.macfound.org/media/article_pdfs/JENKINS_WHITE_PAPER.PDF
- Jenson, J., & de Castell, S. (2008). Theorizing gender and digital gameplay: Oversights, accidents and surprises. *Eludamos. Journal for Computer Game Culture*, 2(1), 15–25.
- Jenson, J., & de Castell, S. (2010). Gender, simulation, and gaming: Research review and redirections. *Simulation & Gaming*, 41(1), 51–71.
- Juul, J. (2010). *A casual revolution*. Cambridge, MA: MIT Press.
- Kafai, Y. B. (1996). Gender differences in children's construction of video games. In P. M. Greenfield, & R. R. Cocking (Eds.), *Interacting with video* (pp. 39–66). Norwood, NJ: Ablex Publishing.
- Kafai, Y. B. (1998). Video game design by girls and boys: Variability and consistency of gender difference. In J. Cassell, & H. Jenkins (Eds.), *From Barbie to Mortal Kombat: Gender and computer games* (pp. 90–114). Cambridge, MA: MIT Press.
- Kafai, Y. B., Heeter, C., Denner, J., & Sun, J. Y. (2008a). Interview with Megan Gaiser, Her Interactive. In Y. B. Kafai, C. Heeter, J. Denner, & J. Y. Sun (Eds.), *Beyond Barbie and Mortal Kombat: New perspectives on gender and gaming* (pp. 303–309). Cambridge, MA: The MIT Press.
- Kafai, Y. B., Heeter, C., Denner, J., & Sun, J. Y. (2008b). Preface: Pink, purple, casual, or mainstream games: Moving beyond the gender divide. In Y. B. Kafai, C. Heeter, J. Deener & J. Y. Sun (Eds.), *Beyond Barbie and Mortal Kombat: New perspectives on gender and gaming* (pp. xi–xxv). Cambridge, MA: MIT Press.
- Kafai, Y. B., Richard, G. T., & Tynes, B. M. (2017). *Diversifying Barbie and Mortal Kombat: Intersectional perspectives and inclusive designs in gaming*. Pittsburgh: Etc Press.
- Katz, E., Blumler, J. G., & Gurevitch, M. (1973). Uses and gratifications research. *The Public Opinion Quarterly*, 37(4), 509–523. Retrieved from <http://www.jstor.org/stable/2747854>

- Kennedy, H. W. (2002). Lara Croft: Feminist icon or cyber-bimbo. *Game Studies*, 2(2)
- Kocurek, C. A. (2015). *Coin-operated Americans: Rebooting boyhood at the video game arcade*. Minneapolis: University of Minnesota Press. Retrieved August 9, 2018 from <http://www.jstor.org/stable/10.5749/j.ctt19704vf>
- Kowert, R., & Quandt, T. (Eds.). (2016). *The video game debate: Unravelling the physical, social, and psychological effects of digital games*. New York, NY: Routledge.
- Kumar, S., Chhugani, J., Kim, C., Kim, D., Nguyen, A., Dubey, P., . . . Kim, Y. (2008). Second Life and the new generation of virtual worlds. *Computer*, 41(9), 46–53.
- Laurel, B. (1998). An interview with Brenda Laurel. In J. Cassell, & H. Jenkins (Eds.), *From Barbie to Mortal Kombat: Gender and computer games* (pp. 118–135). Cambridge, MA: The MIT Press.
- Leaper, C. (2015). Do I belong?: Gender, peer groups, and STEM achievement. *International Journal of Gender, Science and Technology*, 7(2), 166–179.
- Lopez-Guimera, G., Levine, M. P., Sanchez-Carracedo, D., & Fauquet, J. (2010). Influence of mass media on body image and eating disordered attitudes and behaviors in females: A review of effects and processes. *Media Psychology*, 13(4), 387–416. doi:10.1080/15213269.2010.525737
- Lucas, K., & Sherry, J. L. (2004). Sex differences in video game play: A communication-based explanation. *Communication Research*, 31(5), 499–523.
- Lynch, T., Tompkins, J. E., van Driel, I. I., & Fritz, N. (2016). Sexy, strong, and secondary: A content analysis of female characters in video games across 31 years. *Journal of Communication*, 66(4), 564–584. doi:10.1111/jcom.12237
- MacCallum-Stewart, E. (2014). “Take that, bitches!” Refiguring Lara Croft in feminist game narratives. *Game Studies*, 14(2). Retrieved August 9, 2018 from <http://gamestudies.org/1402/articles/maccallumstewart>
- McCreedy, D., & Dierking, L. D. (2013). *Cascading influences: Long-term impacts of informal STEM experiences for girls*. Philadelphia, PA: The Franklin Institute Science Museum. Retrieved August 9, 2018 from <https://www.fi.edu/sites/default/files/cascading-influences.pdf>
- Myers, K. (2013). Anti-feminist messages in American television programming for young girls. *Journal of Gender Studies*, 22(2), 192–205. doi:10.1080/09589236.2012.714074
- Norris, K. O. (2004). Gender stereotypes, aggression, and computer games: An online survey of women. *CyberPsychology & Behavior*, 7(6), 714–727. doi:10.1089/cpb.2004.7.714
- Penenberg, A. L. (2013). *Play at work: How games inspire breakthrough thinking*. New York: Penguin.
- Persky, S., & Blascovich, J. (2007). Immersive virtual environments versus traditional platforms: Effects of violent and nonviolent video game play. *Media Psychology*, 10(1), 135–156. doi:10.1080/15213260701301236
- Prensky, M. (2006). “*Don’t bother me mom, I’m learning!*”: *How computer and video games are preparing your kids for twenty-first century learning*. St. Paul, MN: Paragon House.
- Pryor, J. B. (1987). Sexual harrasment proclivities in men. *Sex Roles*, 17, 269–290.
- Quandt, T., Van Looy, J., Vogelgesang, J., Elson, M., Ivoery, J.D., Consalvo, M., & Mäyrä, F. (2015). Digital games research: A survey study on an emerging field and its prevalent debates. *Journal of Communication*, 65(6), 975–996.
- Radway, J. (1988). Reception study: Ethnography and the problems of dispersed audiences and nomadic subjects. *Cultural Studies*, 2(3), 223–238.
- Reinhard, C. (2005). *Hypersexualized females in digital games: Do men want them, do women want to be them?* Paper presented at the Annual Meeting of the International Communication Association, Dresden, Germany. 1–41. Retrieved August 9, 2018 from http://citation.allacademic.com/meta/p89526_index.html
- Rideout, V., Foehr, U. G., & Roberts, D. (2010). *Generation M2: Media in the lives of 8- to 18-year-olds*. Menlo Park, CA: Kaiser Family Foundation. Retrieved August 9, 2018 from <http://www.kff.org/ent-media/8010.cfm>
- Ruggiero, T. E. (2000). Uses and gratifications theory in the 21st century. *Mass Communication & Society*, 3(1), 3–37.
- Sarkeesian, A. (2017). Tropes vs. women. Retrieved August 9, 2018 from <https://feministfrequency.com/tag/tropes-vs-women-in-video-games/>
- Scharrer, E. (2004). Virtual violence: Gender and aggression in video game advertisements. *Mass Communication & Society*, 7(4), 393–412. Retrieved from <http://search.ebscohost.com/login.aspx?direct=true&d=b=ufh&AN=14696874&site=ehost-live>
- Schmierbach, M. (2010). “Killing spree”: Exploring the connection between competitive game play and aggressive cognition. *Communication Research*, 37(2), 256–274. doi:10.1177/0093650209356394
- Scott, K. A., & White, M. A. (2013). COMPUGIRLS’ standpoint: Culturally responsive computing and its effect on girls of color. *Urban Education*, 48(5), 657–681.
- Scott, K. A., & Zhang, X. (2014). Designing a culturally responsive computing curriculum for girls. *International Journal of Gender, Science and Technology*, 6(2), 264–276.
- Seiter, E. (1993). *Sold separately: Children and parents in consumer culture*. New York: Rutgers.

- Shaw, A. (2010). What is video game culture? Cultural studies and game studies. *Games and Culture*, 5(4), 403–424.
- Shaw, A. (2012). Do you identify as a gamer? Gender, race, sexuality, and gamer identity. *New Media & Society*, 14(1), 28–44. doi:10.1177/1461444811410394
- Shaw, A. (2013). Rethinking game studies: A case study approach to video game play and identification. *Critical Studies in Media Communication*, 30(5), 347–361.
- Sherry, J. L. (2001). The effects of violent video games on aggression: A meta-analysis. *Human Communication Research*, 27(3), 409–431.
- Stermer, S. P., & Burkley, M. (2015). SeX-box: Exposure to sexist video games predicts benevolent sexism. *Psychology of Popular Media Culture*, 4(1), 47.
- Sternheimer, K. (2018). *Connecting social problems and popular culture: Why media is not the answer* (2nd ed.). New York: Routledge.
- Subrahmanyam, K., & Greenfield, P. M. (1994). Effects of video game practice on spatial skills in girls and boys. *Journal of Applied Developmental Psychology*, 15(2), 13–32.
- Subrahmanyam, K., & Greenfield, P. M. (1998). Computer games for girls: What makes them play? In J. Cassell, & H. Jenkins (Eds.), *From Barbie to Mortal Kombat: Gender and computer games* (pp. 46–71). Cambridge, MA: The MIT Press.
- SuperData. (2017). Market brief—2017 digital games & interactive media year in review 2016. Retrieved August 9, 2018 from <https://www.superdataresearch.com/market-data/market-brief-year-in-review/>
- Sweet, E. V. (2013). *Boy builders and pink princesses: Gender, toys, and inequality over the twentieth century* (Order No. 3614279). Available from ProQuest Dissertations & Theses Global. (1517101640).
- Thornham, H. (2011). *Ethnographies of the videogame: Gender, narrative, and praxis*. New York: Routledge.
- Valkenburg, P. M., & Soeters, K. E. (2001). Children's positive and negative experiences with the Internet: An exploratory survey. *Communication Research*, 28(5), 652.
- Van Reijmersdal, E. A., Jansz, J., Peters, O., & Van Noort, G. (2013). Why girls go pink: Game character identification and game-players' motivations. *Computers in Human Behavior*, 29(6), 2640–2649.
- Vanderhoef, J. (2013). Casual threats: The feminization of casual video games. *ADA: A Journal of Gender, New Media, and Technology*, 2(2). Retrieved August 9, 2018 from <https://adanewmedia.org/2013/06/issue2-vanderhoef/>
- Vieira, E. T. (2014). The relationships among girls' prosocial video gaming, perspective-taking, sympathy, and thoughts about violence. *Communication Research*, 41(7), 892–912. doi:10.1177/0093650212463049
- Vieira, E. T., & Krcmar, M. (2011). The influences of video gaming on US children's moral reasoning about violence. *Journal of Children & Media*, 5(2), 113–131. doi:10.1080/17482798.2011.558258
- Vilorio, D. (2014). STEM 101: Intro to tomorrow's jobs. *Occupational Outlook Quarterly*, (Spring), 1–11.
- Walkerdine, V. (2006). Playing the game: Young girls performing femininity in video game play. *Feminist Media Studies*, 6(4), 519–537.
- Walkerdine, V. (2007). *Children, gender, video games: Towards a relational approach to multimedia*. New York: Palgrave MacMillan.
- West, C., & Zimmerman, D. H. (1987). Doing gender. *Gender & Society*, 1(2), 125–151.
- Weststar, J., & Legault, M. (2016). Developer satisfaction survey 2016. Retrieved August 9, 2018 from https://c.ymccdn.com/sites/www.igda.org/resource/resmgr/files_2016_dss/IGDA_DSS_2016_Summary_Report.pdf
- Williams, D. (2006). A (brief) social history of video games. In P. Vorderer, & J. Bryant (Eds.), *Playing computer games: Motives, responses, and consequences* (pp. 1–26). Mahwah, NJ: Lawrence Erlbaum.
- Williams, D., Martins, N., Consalvo, M., & Ivory, J. (2009). The virtual census: Representations of gender, race and age in video games. *New Media and Society*, 11(5), 815–834. doi:10.1177/1461444809105354
- Winn, J., & Heeter, C. (2009). Gaming, gender, and time: Who makes time to play? *Sex Roles*, 61, 1–13.
- Wolf, M., & Perron, B. (Eds.). (2014). *The Routledge companion to video game studies*. New York: Routledge.
- Yao, M. Z., Mahood, C., & Linz, D. (2010). Sexual priming, gender stereotyping, and likelihood to sexually harass: Examining the cognitive effects of playing a sexually-explicit video game. *Sex Roles*, 62(1–2), 77–88.

Book Reviews

Bruckner, Martin. *The Social Life of Maps in America, 1750-1860*. Chapel Hill: The University of North Carolina Press; and Williamsburg, VA: the Omohundro Institute of Early American History and Culture, 2017. Pp. 316, 147 illustrations, 10 color plates, 4 graphs. ISBN 978-1-4696-3260-5 (cloth) \$49.95; ISBN 978-1-4696-3261-2 (ebook) \$29.99.

This is a brilliantly written book about maps as material commodities. Though ostensibly about American printing history, the use of social science theory, especially that of the Arjun Appadurai concept of the *social life of things*, integrates this visual ethnography within the larger framework of communication research. The book's central argument is that maps became popular because they had mobility as com-

modities, could be advertised as having political value, yet could be owned by all classes. The wealth of visual evidence in the book demonstrates a consistent interactive engagement between the production of material communication culture and audience reception, shaping the larger national identity within which print communication thrived.

Copiously researched by the author, a professor in the Department of English at University of Delaware, and illustrated with more than 150 both rare and well known maps of America drawn from historical collections at Winterthur, Williamsburg, the Newberry's Cartography collections, the Library of Congress, and David Rumsey's online collection of 85,000 maps based at Stanford University (www.davidrumsey.com) among other resources, this volume both serves as a comprehensive historical survey of American material culture, and, by extension, provokes questioning about our own age of interactive geography with GPS, smartphones, tablets, and the like. Though the historical frame is the pre-Revolutionary to pre-Civil War decades, the book's reach transcends national interests by examining the sociology of maps, their cultural agency, means and processes of production, distribution, reception and construction, based on the theoretical scholarship of Benedict Anderson, Arjun Appadurai, Bruno Latour, and Henri Lefebvre among others.

Bruckner develops the book's architecture in eight chapters arranged in three parts, with a Preface and an Epilogue. The several chapters in each part are preceded by a summary introduction to the themes and illustrations to follow, and each chapter has voluminous endnotes replete with bibliographical resources (helpfully printed at the bottom of the page). In Part 1, the author explores the workers, shopkeepers, and manufacturing processes. Chief among these are names probably not well known to contemporary readers, but possibly household names in their own time: Lewis Evans, Samuel Lewis, (1750–1815), Mathew Carey, and John Melish (1790–1830), and innovators Henry Tanner and S. Augustus Mitchell (1820–1860). In Part 2, chapters most relevant to communication research theorists, the author explores the map as public Spectacle, examining their theatricality in the Decorative Arts and in American portraiture. In Part 3, the author looks at the mobilization of geographical commodities and the maps' increasing social agency through miniaturization.

Mapmaking was not lucrative—workers did not own their processes of production, and many ended up in debt, although U.S. copyright laws supported naming and dating the maps' originality by artist and place, as self-published products. Maps were both costly to produce and financially risky. Makers had to engage master draftsmen, cartouche designers, copper-platers, engravers, printers, proofreaders, editors, colorists, and sellers. Decisions had to be made about paper size, weight, and quality. Mapmakers faced more than staffing and production issues: They encountered political as well as mechanical obstacles, including tariffs, taxes, and weather along with the salt air that affected paper transported from Britain. By 1812, paper imports were no longer required, as the number of paper mills in the U.S. grew, along with new roads, cities, and towns, which forced mapmakers to keep pace, updating details, especially for railroads. Lithographic printing techniques and the invention of machine-made paper as well as the steam-powered rotary press completed the "revolution" in the American map industry from rough-hewn to geographical "pictures" (pp. 93, 120).

Communication research scholars will find Part 2 most compelling, especially for the brilliant ways in which it connects visual idioms of the fine and decorative arts with language about industry, geography with cultural identity, faith in political leadership and allegiance to home, region, and country. The epigraph for Part 2 is a quote from Guy Debord, who defined the term Spectacle as "a social relationship between people that is mediated by images . . . both the outcome and the goal of the dominant mode of production . . . news of propaganda, advertising or the actual consumption of entertainment, the spectacle epitomizes the prevailing mode of social life" (p. 117). Once reserved for European royalty, large wall maps decorating interiors could be found in middle class homes, taverns, assembly rooms and classrooms, personal libraries of affluent men, and in boys' and girls' public schools. Bruckner inquires about the "cultural work" (p. 123) of such productions, why they were "staged" (p. 123) as they were in public places, what Debord call the "heart of society's real unreality" (p. 117); that is, the reality behind the imaginary portraiture of the lands being dominated.

Bruckner's historical discussion of maps as Spectacle moves the reader into terminology that is post-modern, beginning with the 1853 Exhibition at New York's Crystal Palace. Their monumental size (ranging from 25 square feet to 54 square feet) on hardwood rollers and canvas backed, resembled oil

paintings when staged in the Palace. In Part 2 Bruckner's inquiries into the cultural work of maps, how their theatrical display as wall art shaped popular perception of the public and private sphere concludes that the work of maps was "unique" (p. 123), shaping the material culture, popular decisions over publicity and interiority, politeness and social memory. Bruckner's repertoire of classic oil portraits in the book, printed in full color, further reify this point: The Washington Family portrait by Edward Savage (c. 1798) shows the family gathered around an unfurled map on a table with all hands including those of his wife and children, pointing to different parts of the country, while in the shadows near the frame an unidentified slave stands watching, dressed in a fashionable waistcoat (p. 125). Portraits of other notable Americans depict each figure in spatial relationship to a map: these include Noah Smith by Ralph Earl (p. 187) and Abraham Lincoln by John Sartain (p. 238), among the dozen others noted as illustrative in footnotes.

A world apart from the monumental, immovable maps affixed to galleries that focused the gaze of the spectator as theatrical consumer, Part 3 of the book takes up the ways in which smaller maps moved through the retail culture and permeated the thinking about maps as everyday commodities, carried as totemic personal cargo (p. 244). Starting in bookshops, Bruckner unpacks the catalog of possibilities, including foldout maps inserted in books, pocket maps made from single sheets, folded and inserted into a pocket holder, and suggests their multiple "postconsumer" uses (p. 244) including travel companions, immigrant guides, and pocket atlases. Their mobility altered the American cartographic consciousness, according to Bruckner, and became a "rite of passage" influencing how children and adolescents fixed their gaze, thought about their place in the world, where they belonged, and what they learned. Maps, Bruckner concludes, were integral to American identity and self-representation: "between 1750 and 1860, the everyday self-image emerging among the American citizenry was that they not only had a place on a map but looked to the map as a home" (p. 313).

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Cohen, Yoel (Ed.). *Spiritual News: Reporting Religion around the World*. New York: Peter Lang, 2018. Pp.

400. ISBN 978-1-4331-2863-9 (cloth) \$109.95; ISBN 978-1-4331-2862-2 (paper) \$64.95; ISBN 1978-1-4331-4534-6 (epub) \$64.95.

In this polished, well-balanced volume of research essays by more than two dozen scholars of media, religion, and cultural identity from Israel, Western Europe, Russia, China, the Middle East, Nigeria, Malaysia, India, and the USA, Professor Yoel Cohen has advanced the body of knowledge about how the global media economy has accelerated the pace of change in media convergence, while mediatization muddies the ideological waters where constructions of cultural identity exacerbate nationalistic fervor. In a first-rate editorial and academic effort, Professor Cohen has captured the essence of contemporary debates across the globe among scholars in the field. *Spiritual News: Reporting Religion around the World* is a hallmark collection, with several standalone chapters among the 17 in the volume: All are methodologically attentive enough for graduate students, yet sufficiently topical with broad appeal for undergraduates. The gem of the collection is Leo Eko's discussion of the terrorist attack in Paris on the satiric magazine *Charlie Hebdo*, and his inclusion of the original and cover cartoons (the only visual texts in the book), and a powerful epilogue—a posthumous manifesto from the assassinated editor Stephane Charbonnier, where the editor had railed against the Muslim extremists on the Right and the "paternalism" (p. 258) of the Left that sought coexistence. Both the attack and the Right to Satire claimed by the French epitomizes the polarization and contestation that defines contemporary media space—ideological, spiritual, and with the power to galvanize points of view that become publics.

The volume is well designed, providing in the front theoretical grounding, explanation of the literature in the field, followed by horizontal trend analyses representing established and developmental investigations. Changes in spiritual news gathering and reporting are organized according to methodology, regions, events, ethics, impacts, and influences in digital convergence. Following two introductory essays by Cohen and by Stewart Hoover (the founder of this field of study), four chapters define the terms of "foreign," "religion," and the profession of a religion journalist, providing clear background essays and explanations of the hallmark literature of the past several decades. Anyone new to the field or students interested in studying how religions communicate, and how spirituality

remains an embedded, integrated, universal value upon which many cultures base their deepest convictions and identities, would be able to research how academic thinking about media and religion has developed over the past 50 years as a sub-discipline of both the sociology of religion and sociology of media.

After this bedrock history of the field, Cohen explicates the concept of “paradigm shifts” in the USA, Post-Soviet Russia, Brazil, Nigeria, and the Hindu states, in six chapters examining regional patterns. Daniel Stout analyzes media filters from three perspectives: convergence in the news industries, the power of media users in the saturated American and Australian marketplace, and hegemony in media ownership. Victor Khroul analyzes the Russian conundrum of ethnicity and religious identity, particularly as it pertains to perceptions of orthodoxy and acceptance of authoritarianism. Magali Cunha provides a content analysis of Brazilian media during 2014 to demonstrate how the myth of Catholicism being the dominant religion in the country is a media construction. Walter Ihejirika and Andrew Dewan treat a Nigerian case study using content analysis of development journalism, within the sociopolitical context of a trend toward increasingly liberal democratic governments, media liberalization, and more active engagement of diverse religious groups in a deeply religious Africa. Keval Kumar examines the “contradictions and ambiguities” of a “multi-religious and multi-linguistic society” (p. 193) within the context of critical political economic perspective of religion as a dominant business in India, across the spectrum of mediated products, as another example of how mediation promotes the myth that Hinduism is a dominant social force in the culture. Qingjiang Yao and Zhaoxi Liu provide background and historical analysis of how Chinese state control over cultural productions has affected religions news and the public response to media coverage.

A discussion of two iconic global media events constitutes the center of the book: the election of Pope Francis in Rome and the terrorist attack on *Charlie Hebdo* in Paris. Both meta-events transcended their moment in culture at the same time that their indelible imprint transfixed global publics. In a content analysis of Italian newspapers, television, and radio news, Giulia Evolvi shows how the work of media framed the new Papal identity through narratives with broad cultural appeal—a common man with Italian origins, less a leader of the Roman Catholic Church than a man who followed St. Francis in simplicity and affinity for the

poor. Leo Eko discusses the role of media in constructing public opinion about the attack on the journalists at *Charlie Hebdo*, and its impact on French collective memory, and the French satirical tradition that upholds as sacred and the Right to Satirize. He further details how the event galvanized support among European journalists, involved Al Jazeera and Turkey, and occasioned “instances of Paradigm surveillance . . . aimed at rousing reluctant media outlets to defend the right of freedom of expression, and by extension, the journalistic paradigm” (p. 255).

In the next three chapters the volume unpacks the influence of contemporary orthodoxy and religion reporting where the cultural and political definition of the nation is contested, in Saudi Arabia, Malaysia, and Israel. Noha Mellor argues there is a “subtle interplay” (p. 268) between Islamic cultural codes, religious principles that inform journalistic ethics, and the Western view of Islamic ideologies, citing two events mediated over sex segregation in Saudi Arabia. Haryati Abdul Karim uses critical discourse analysis of the coverage of LGBT festivals in 2011 by two Malaysian dailies, to conclude that the majority does not accept alternative definitions of sexuality, based on religious and secular laws, though outsider communities contest these mediated definitions. Saying his evidence is “far from conclusive” (p. 319), Cohen provides a convincing examination of the annual cycle of the Jewish Holy Days and their interpretation by the Israeli Press and News websites—including advertising—contrasting the differences between secular and religious media treatment, concluding that when mediated through secular mass media, the concept of the day as holy is “transformed” (p. 319) from its theological and historical roots.

Having covered new ground in discussions about the impact of religious journalism in the secular public square, the final three chapters take up the impact of new media on traditional religions. Following themes developed in the preceding three chapters—that mediating events plays to the strengths of cultural forces of secularization and put in the foreground divisions about the meaning of institutional events—the final three chapters examine the Catholic Church and Twitter, French Laicite and Marriage Equality, and the Internet and Islam. Daniel Arasa, Lorenzo Cantoni, and Juan Narbona argue that the Catholic Church’s use of Twitter in 2015 regarding the Bishops’ Synod about the role of the family in church and society was insufficient to overcome perceptions of a divisive debate or over-

ride the force of secular interpretation of the event in digital media. Christian Bourret and Karim Fraoua explicate the divisions Left and Right of the 2013 political debate initiated by President Francois Hollande's "Marriage for All" that aspired to "revive" (p. 348) resistance to clericalism, but proved to be a complex, personalized debate, not simply religious versus secular, one that emphasized the importance of Information and Communication Technologies (ICT) as a platform necessary for social definitions and debates, especially among minority views, but one which "officials and governments would prefer to tame" (p. 364)—not likely given the evidence in this volume. Demonstrating another layer of complexity and shifting definitions of clericalism, religious hierarchy, and authority, Babak Rahimi demonstrates the facts of a case of Shafaqna, a Shia online news agency, as evidence of the increasing participatory culture within religious institutions, and how mediatization shows how technological practices can be considered religious when they "organize" and "situate" (p. 379) social groups. In the concluding sentence of what constitutes the final chapter of the book, Rahimi argues, "The emergent media technologies change boundaries of self, community, and the world at a historic moment when Internet communication had already begun to change, based on new ways of conceiving news about religion within a world increasingly understood in terms of perpetual technological progress" (p. 379).

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Hyden, Carl T. and Theodore F. Sheckels. *Public Places: Sites of Political Communication*. Maryland: Lexington Books Lanham, 2016. Pp. 267. ISBN 978-1-4985-0725-7 (cloth) \$100.00; 978-1-4985-0726-4 (eBook) \$95.00.

"Places are political," write Carl T. Hyden and Theodore F. Sheckels in *Public Places: Sites of Political Communication*. While all kinds of people visit significant places in the United States for many reasons, communication scholars Hyden and Sheckels do so to discover how these places are political. Their hope is to "push" the whole area of public place studies in more political directions. This book is the 23rd in Lexington's political communication series edited by Robert E. Denton Jr.

Public Places provides a tour of 14 significant tourist attractions that are altogether different from each other. Whether visiting a monument, a museum, a city park, or a baseball stadium, it is clear that one or both authors spent thoughtful time at each, noting their impressions and observing the scenes in situ. The resulting first-hand accounts are vivid, immersive experiences. From here, Hyden and Scheckels ask readers to "excuse our historical 'journeys'" (p. xxv) and then provide a detailed history of each place. These histories lead into the political controversies and complicated decisions associated with each. The locations they discuss include one or two references to books previously written. For example, in the chapter on Chicago parks, Hyden and Scheckels refer to the book *The City in a Garden: A History of Chicago Parks*. For the chapter on The High Line, an elevated 13-mile line of railroad track in New York that eventually became an "urban oasis," Hyden and Scheckels include Annik La Farge's *On the High Line: Exploring America's Most Original Urban Park*. Supplying these comprehensive and in-depth references for each case serves interested readers and scholars alike.

One strength of the wildly different public places Hyden and Scheckels visit is the different insights each offers. The chapter on national 9/11 memorials, for example, has a section on the history of naming memorials as well as a discussion of "meaningful adjacencies," the creative solution to organize the names of those who perished by the relationships they shared in life. In the chapter about remembering the floods in Johnstown, Pennsylvania, the authors analyze the flood films featured in the two different museums. A final example is the chapter about the sculpture of Lincoln and his son in Richmond, Virginia. Apparently, local residents protested the sculpture. Because Lincoln's visit to Richmond was federal, protestors perceived Lincoln and his son an affront to "the South" and the struggle for states' rights.

The conclusion of *Public Places* revisits the challenges involved in reading the political into public places to discover the different tangles of power and contestation. *Public Places* offers eight questions to guide students or scholars through the process of finding these power dimensions. The conclusion also reviews each of the previous cases in light of the eight questions they developed to demonstrate the utility of their heuristic. Since the 14 cases are so different, it is easy to see the heuristic's adaptability and potential.

To look at *Public Places* as scholarship is to note how the authors define themselves, where they locate their work, how they use theory, and what their goals are. For these authors, the value of rhetorical scholarship is in tracking the intentions and designs of places and the way they are received. As researchers, Hyden and Scheckels are “not communication studies scholars masquerading as historians; rather, [they are] . . . communication scholars—more specifically, rhetorical critics—bringing to bear all of the necessary resources on a range of places that demand to be ‘read’” (p. xxv). Hyden and Scheckels locate their analyses at the intersection of rhetoric and politics, although they approach politics more “classically than quantifiably.” *Public Places* steers clear of theory. The authors reason that memory or place scholars are likely well-versed in the theories and therefore do not need a theory-driven book at this time. When they *do* refer to theory, they introduce it with phrases like “without bogging down in theory” (p. 225), which either points to their view of theory as something that slows, or points to their desire not to trap readers in theory. Their explicit plan is to draw “extant theory into a coherent but loose approach for studying public places” (p. xiv). Hyden and Scheckels discuss the political with “thinkers” such as Adorno, Gramsci, Foucault, Hall, and Bakhtin because they influence rhetorical critics. In so doing, the cases avoid being heavily academic. While written for scholars who know the theories, those scholars may find value in cases such as these. *Public Places* begins in public monuments and public memory and ends as an exploration in urban sociology.

Each case in *Public Places* is meticulously described, includes history, and prompts certain kinds of reflection, which make the book ideal for instructional purposes. Communication theory courses could have students apply theories from the field to the different cases and discuss the potential of each. Ethics or debate courses could use the case studies for illustrations and discussions. Instructors of communication or rhetoric who use cases would find *Public Places* valuable, too. Of course, this book would work well in a course on conflict and communication because places are rife with conflict over meaning.

Public Places is a worthwhile stop, whether you visit for casual interest, scholarly endeavor, or pedagogical purpose.

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Strate, Lance. *Media Ecology: An Approach to Understanding the Human Condition*. New York: Peter Lang Publishing: 2017. Pp. xiv; 258. ISBN: 978-1-4331-3121-9 (cloth) \$94.95.

After reading Lance Strate’s latest book, a reader new to media ecology will likely become aware of technological innovations previously dismissed as routine—perhaps a walking cane, the font in which an email is typed or on a sign posted in a public place (I am reminded of the documentary *Helvetica*), a podcast, or a television monitor in a gas pump. A reader experienced in media ecology will appreciate Strate for illuminating foundational principles in media ecology in a single volume that situates media ecology as a *field of inquiry* or *approach* to media studies. The book presents this approach as a center piece with key terms and concepts in media ecology radiating from it that serve as explanations and opportunities for scholars.

Media ecology may be seen as the study of media as the extensions of the human experience or media as environments with the work of Marshall McLuhan and Neil Postman providing guiding principles. While traditional media scholarship examines media in a relatively undifferentiated way, media ecologists study media as media. Studying media without thoughtful inquiry into differences in the characteristics of individual media simply doesn’t account for their power to create environments. These, as Strate puts it, are “differences that make a difference.”

Though the author does not include sections to separate his nine major chapters, it might be useful to consider the first three as historical, the second four as definitional and then Chapter 9 as pragmatic, or dealing with method.

Though media ecologists normally look to McLuhan, Postman, Ong and others as the originators of media ecology (which Strate certainly does), he also provides an excellent look at the origins of and relationships of media ecology to other disciplines and fields of inquiry (“Intersections,” Chapter 2), and they are vast. It is here that one begins to see how these will result in understanding the human condition through media ecology. Strate’s stated purpose is to “summarize foundational concepts” of media ecology, and his “Intersections” chapter explores the influences on the approach not as a sub-set of media studies nor an area of study in communication, but instead the as the substance of culture. As the author puts it:

I would certainly characterize media ecology as *communication-centered*, but I would not consider media ecology to be a subset of communication studies. A significant portion of media ecology scholarship falls outside of the field of communication, and instead is concerned with subjects such as technology and technique, art and literature, education and religion. (p. 17)

Among many intersections, Strate summarizes general semantics, biology, linguistics, and history.

With the underpinnings and philosophical intersections laid, Strate summarizes how media ecology has been defined. It is, in its essence, interdisciplinary. He addresses McLuhan's aphorism "the medium is the message" arguing that it was never meant to dismiss the content of a message or, even sillier, that it doesn't exist. It was meant to call attention to the forces, tendencies, psychological and social structures, behaviors, philosophical and religious beliefs, political structures, etc. that exist between, or mediate, human beings and their surroundings.

"The medium is the message" is an axiom much like Watzlawick's *one cannot not communicate*. This axiom guides all others in the sense that human behavior, in all its forms, has the potential to be understood or misunderstood as meaningful. He includes 12 statements, mostly his own, on the nature of the famous aphorism based on Culkin's (1968) essay. In short, as I interpret media ecology, media exist between human perception and the world separate from ourselves. Human beings perceive stimuli (sensory information) from that experience, but can never fully do so in a way that establishes truth by virtue of our separateness. Thus, we develop and constantly redevelop media that extend ourselves toward the goal of understanding. Those media in turn suspend us in a web of media-within-media that controls the way we develop further extensions—we create and control media which, in turn, control us. This view, then leads Strate to his larger focus of media ecology as a way to understand the human condition. He reviews the work of Arendt, Freud, Mumford, Korzybski, and others. After a comment from Lewis Mumford, Strate summarizes "Again, we create the conditions that condition us. And what makes us human is not our opposable thumbs, but our opposable tongues—dialogue, conversation, gossip, storytelling, time-binding" (p. 74).

In his introductory chapter, Strate quips that his answer to inquiries he receives on what the study of

media ecology might include is, "as the saying goes, it's *complicated*" (p. 2). Four chapters explore how ecologists consider key theoretical issues and, well, they're complicated. But, that's the point of writing a book about media ecology as an approach to the human condition, to dig deep into key concepts. In one chapter, the author sorts out the conceptualization of medium. He decries the use of media as a singular noun as it ignores that dramatic differences between each medium. He reveals as "false" the use of mass communication among divisions of interpersonal communication, group communication, mass communication, and so on as artificial since each is *mediated* in its own way. Strate's treatment of medium in Chapter 5 is the central chapter in the book. It is his longest and captures so much about media ecology, one could learn a great deal about media ecology from it alone.

One key aspect of media is that it is not neutral. All technology has a bias: "There is a *myth of neutrality* . . . This myth obscures the fact that the universe itself is not neutral, and that every aspect of our natural, technological, and symbolic environments has a particular bias" (pp. 134–135). He shifts the focus from what is traditionally seen as bias (a cognitive predisposition) to medium bias in the sense that bias of medium is a slant, tendency, or angle and, thus, since all media have this characteristic, "bias influences everything within the environment" (p. 129). He uses the well-known slogan from the NRA that "guns don't kill people, people kill people," but guns certainly represent a bias toward violence, expressed as manifested or potential. Media have the same sort of inherent bias. Near the end of the chapter, Strate includes an instructive class handout on bias from Christine Nystrom.

Strate addresses causality in a chapter on effects, drawing from Aristotle (formal cause). He introduces a communication model based on formal cause that is presented as concentric circles with, from outside inward, medium, audience, message, sender arguing that

a medium [is] an environment within which an audience emerges, which in turn gives rise to a message, and it is the message that creates the sender (the role of "sender" does not exist until a message is constructed and actually transmitted). (p. 162)

He identifies four major environments synthesized from other works: the oral (the environment consistent among all human beings), the chirographic (writing, or an extension of the oral culture), the typ-

graphic, and the technological. To best illustrate their relationships, the author presents a ziggurat model that has orality as its foundation which then works in concert with the chirographic yet retaining some of its own uniqueness while also becoming something new, which then take on typography and so on. Each environment contains the other having the exponential though not necessarily pattered or predictable, effect of media within media. If I were to point to a synthesis of concepts that ought to accompany explanations of media ecology in secondary textbooks, this would be it.

Whereas much media scholarship deals with *content analysis*, Strate draws from Postman (2006) to argue that media ecology is essentially the study of *context analysis*. One does not draw on media ecology as methodology, but rather as a method of inquiry which probes the layers and relationships of contextual groups and cultures. The topics in the previous four chapters—medium, bias, effects, and environment—may be seen as points around a circle with connections across the circle between bias and environment, and between medium and effects. This approach leads to a “multitude of possibilities, including moving back and forth between the terms in studying the interactions between medium and environment, for example, or bias and effects. Also, there can be alternatives to the specific questions I have linked to the four key terms” (pp. 213–214).

Lance Strate offers a comprehensive approach to media ecology in all aspects of the field of study. If you want a primer on the theory, this is the place to start, for here, you can work in any radius to learn more about its history, key terms, relationship to other disciplines, tools, etc.

Of note are the well-selected quotations from many others that take the reader straight to places to enhance one’s understanding of media ecology. Cassirer, Langer, Mumford, James Madison in the *Federalist Papers*, Freud, Ong, Postman, Innis, and many others show the great breadth of Strate’s treatment of the subject. I am invigorated by subjects that come to mind while reading this book that ought to be worth studying (and to some extent already are) from a media ecology point of view: 3D printing, artificial intelligence, the Citizens United Supreme Court Decision, Twitter and other social media, and much more.

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References

- Culkin, J. M. (1968). A schoolman’s guide to Marshal McLuhan. In R. Rosenthal (Ed.), *McLuhan: Pro and con* (pp. 242–256). New York: Funk and Wagnall’s.
- Postman, N. (2006). Media ecology education. *Explorations in Media Ecology*, 5(1), 5–14.
- Watzlawick, P., Bavelas, J. B., & Jackson, D. D. (1967). *The pragmatics of human communication*. New York: Norton.

Trusz, Sawomir and Przemysaw Bąbel (Eds.). *Interpersonal and Intrapersonal Expectancies*. Abingdon, UK and New York: Routledge Press, 2016. Pp. xiv, 188. ISBN 978-1-138-11892-8 (cloth) \$170; 978-1-138-11893-5 (paper) \$57.95; 978-1-315-65253-5 (e-book) \$28.98.

This collection provides an overview of psychological and social psychological research dealing with expectancies. “Expectancy” refers to those things that people presume will happen, often based on prior experience or on self-confidence, with perhaps the most well known instance emerging out of medical research—the placebo effect. However, as the editors point out, expectancies touch many different areas, not only psychology but also communication through various interpersonal interactions. The editors have divided their collection into two parts: the first examining intrapersonal expectancies; these squarely fall under the research areas of psychology and attempt to explain human behavior through different cognitive processing; the second, addressing interpersonal expectancy, as these explain how people influence one another’s behavior.

To give a sense of how expectancy might operate, the editors, in their introductory chapter, describe one theoretical approach to intra-personal expectancy. They write that Reis

proposed an expectancy model of the effect of classical conditioning on human fear. According to the model, what is learned in classical conditioning is an expectation regarding the occurrence or non-occurrence of the unconditional stimulus. From this perspective, fear is in part a function of the expectancy of fear as well as fear reduction may be the effect of changing the expectancy of its occurrence. This conception may be recognized as a link between stimulus expectancies and intra-personal expectancies. (p. 5)

This description highlights many of the important aspects of expectancy, particularly as researchers theo-

size it in an individual. Some (usually external) stimulus triggers the expectancy and then it affects the individual's response. Understanding expectancy forms the subject of the book.

Each of the chapters of the book summarizes a different aspect of expectancy. The editors explain the approach:

We asked the contributors to prepare review chapters on the topics that they have been studying extensively, integrating them into four main issues—i.e., (1) the beginnings (genesis) of the research (what and why the authors wanted to know about intra- and/or interpersonal expectancy effects); (2) the current state of the art (what is already known about intra- and/or interpersonal expectancy effects); (3) the future directions of the research (what the authors still want to know about intra- and/or interpersonal expectancy effects); and (4) the applications of the results (how can we apply the results of the authors' research on intra- and/or interpersonal expectancy effects?). (p. 10)

The first part of the book, on intrapersonal expectancies, consists of eight chapters. Irving Kirsch (Chapter 2) writes about response expectancy. This expectancy arises from within an organism and in some ways describes what an individual might expect to occur in a given situation. Kirsch describes the current knowledge of this area and the research, in particular studies on the placebo effect. He also offers various clinical applications. In Chapter 3, Michael Hyland ("The story of motivational concordance") offers a complement to the prior chapter, examining the various kinds of treatments that might have explained expectancy and in particular the cognitive role of motivation. After sketching a number of studies, Hyland points out that this theoretical framework still needs testing. He asks, for example, what kind of information would the various inputs that the body receives form in order to create an expectation.

James Maddux ("Self-Efficacy") begins by defining self efficacy as "people's beliefs about their ability to produce desired outcomes through their own actions" (p. 41). He points out such efficacy's importance because it allows people not only to predict responses within their own environment but also to bring them about. Here he refers to the research of Albert Bandura in examining behavioral change and describes a number of applications of these theories for psychological health and physical

health, self-regulation, education, and improving work situations.

A specific kind of intra-personal expectancy arises with hypnosis. Jessica Baltman and Steven Jay Lynn ("Hypnosis, memory, and expectations") write that, although many feel hypnosis provides a helpful way to describe or recall memories, the research over the last 30 years has indicated that "memory is reconstructive and memories elicited during hypnosis are less likely or no more likely to be accurate than recollections reported when hypnosis is not employed" (p. 47). Their discussion indicates directions for future research to test different approaches to hypnosis.

Intrapersonal expectancy does provide people a way to regulate their own experiences. Chapter 6, "Generalized expectancies for negative mood regulation: Development, assessment, and implications of a construct" (Salvatore J. Catanzaro and Jack Mearns) introduces how the process might work in terms of moods. The authors have a particular interest in regulating negative moods and report various kinds of behavioral performances under stress or distress. They call for future research in dealing with other specific emotions and in cross cultural situations. They also identify some interpersonal consequences of displaying negative emotion or negative mood, pointing out the importance of people's ability to regulate their negative emotions.

Several chapters deal with specific kinds of expectation and self-regulation. Peter S. Hendricks and Thomas H. Brandon look at smoking related expectancy in Chapter 7. Madalina Sucala, Julie Schnur, and Guy H. Montgomery review the impact of expectancy on cancer care in Chapter 8. They examine both the individual's response to the cancer treatments as well as how the individual might manage pain based on their expectancies from the ways in which their medical teams prepare them. In the last chapter of Part I, Zev M. Medoff and Luana Colloca provide an overview of the current research on the placebo effect. Much of the research they report deals with pain management or with the experience of pain. They provide a rather detailed psychoneurobiological model of how the effect might work.

Though focused on social psychology, the second part of the book, dealing with interpersonal expectancies, will hold more interest for communication researchers and students. In the preface to this part of the book, Lee Jussim offers a brief history of some of the research about interpersonal expectation, ranging from Merton's propos-

al about self-fulfilling prophecies to Rosenthal's contributions (the "Pygmalion" study of teachers' expectations affecting young student outcomes) and Brophy and Good's more comprehensive book on student-teacher relationships. The 11 chapters in this part of the volume range from those kinds of student-teacher expectations to more broadly social interactions.

Mark Snyder ("When and why do expectations create reality? Reflections on behavioral confirmation in social interaction") reviews work on how expectations influence the kinds of social interactions that people have. This could describe anything from the simple procedure of two people meeting and drawing initial conclusions about one another to more detailed interactions in long-term relationships. Snyder writes, "This 'behavioral confirmation' scenario (so named because the target's behavior comes to confirm the perceiver's expectations in the course of their social interaction) has been demonstrated for a wide range of expectations (including beliefs about personality, ability, gender, and race) and a variety of interaction contexts (including relatively unstructured interactions such as initial getting-acquainted conversations between strangers, as well as relatively structured interactions such as those between teachers and students, supervisors and workers, counselors and clients)" (pp. 89–90). In explaining some of the behaviors, he refers to things like self-fulfilling prophecies and expectations based on past experience of similar situations. These beliefs and expectations do influence people's actions.

Chapter 11 (William B. Swann, Jr. and Jennifer K. Bosson) approach "Identity negotiation in social interaction." They point out a more complex result of expectation: not only do people find their expectations ratified, but interlocutors also negotiate the identity that each wishes to present. Describing the research about this particular phenomenon in human behavior, they write, "whereas personal identities refer to traits and qualities that distinguish individuals from one another (e.g. moody, trustworthy), social identities consist of the roles and group memberships that connect people to similar others" (p. 98). Though seemingly independent, the two kinds of identity expectations can overlap. The authors point out that this kind of negotiation of social identity occurs quite frequently in work settings and other places where people have an expectation of one another and the need to predict one another's behavior.

Steven L. Neuberg explores the role of motivation in "Motivation Matters: The functional context of

expectation confirmation processes." In explaining how expectation works, Neuberg suggests that motivation plays a key role, motivation both by the perceiver and by the sender. He summarizes several lines of research in this way "perceiver accuracy motivation alters target behavioral confirmation by altering perceiver information -gathering behaviors" (p. 103). He also suggests that the self-presentational goals that a perceiver has will alter the behavior within the dyad. Similarly, the self-presentational motivation of the target will also play a role in how individuals experience the interaction as expectations are developed.

Lee Jussim and Sean T. Stevens (Chapter 13) address the question "why accuracy dominates self-fulfilling prophecies and bias." They trace the beginnings of research on expectancy to social settings, noting:

Self-fulfilling prophecies occur when initially erroneous beliefs lead to their own fulfillment. . . . When a self-fulfilling prophecy occurs, the target person actually behaves in a manner that confirms the originally false expectation. In contrast, expectancy bias refers to social beliefs that influence or distort subjective perceptions and judgments. Expectancy biases change the image of social reality in the perceiver's own mind, without changing the target's actual behavior. (p. 110)

The back and forth between the expectation and the behavior should eventually lead to accuracy. But self-fulfilling prophecies can be touched by bias. The research tradition looks at expectancies within various situations, particularly school studies (as first indicated by the Pygmalion study). The authors note that the current research suggests some difficulties in connecting expectation to self-fulfilling prophecies. They point to that meta-analyses that show that, for example, "replications of some of the most classic studies of self-fulfilling prophecy or expectancy-induced bias have often failed." "The biasing affects of expectations and stereotypes on person perception hover barely above zero, making stereotype and expectancy biases one of the smallest effects in a field characterized by generally modest effects" (p. 112). From this they construct a set of suggestions for future research on looking at the role of bias and accuracy in measuring self-fulfilling prophecies.

Jennifer Willard, Stephanie Madon explore "Understanding the connections between self-fulfilling prophecies and social problems." The line of research they describe seeks confirmation of Merton's hypothesis, but also investigates whether the prevalence of self-

fulfilling prophecy could lead to social problems. The authors propose that with relatively small effects, this may not be the case. They did discover that “some people are more susceptible to self-fulfilling prophecies than others” and that “self-fulfilling prophecy effects can accumulate” over time and across people (pp. 118–119). In the future, they hope to sort out how these things occur, commenting that too much of the prior research has focused on dyadic relationships where more needs to investigate group interactions where these effects may be more powerful.

Several of the chapters in this section explain or extend the Pygmalion effect, that is how teachers’ expectations can affect student performance. Elisha Babad (“Pygmalion, and the classroom, after 50 years”) returns to teacher expectation studies to retest the original hypothesis. He finds that a review of the literature and renewed studies show that:

Teachers indeed demonstrate substantial differential behavior in their classrooms. . . . 2. TDB [Teacher differential behavior] is reliably perceived and reported by the classroom students. . . . 3. Teachers often compensate low-expectancy students with “learning support” but they transmit more negative emotions and lower “emotional support” to the students. (p. 126)

Babad suggests a number of ways to test the phenomenon, including laboratory experiments versus classroom experiments and including measures of the magnitude of the teacher effect. The next chapter by Rhona S. Weinstein explores children’s awareness of differential treatment in the classroom and the effects of this might have on expectation fulfillment. She proposes a “child-mediated model of teacher expectancy effects” (p. 135) and goes on to propose the contextual factors within these kinds of situations, especially those that might moderate teacher expectations. Charles K. West (“Individual differences in response to expectations”) explores another aspect of the classroom. Just as children may be aware of the teachers’ expectations, we also need to consider how children may respond differently based on individual differences. Christine Rubie-Davies works in another piece of this complex set of variables and investigates differences among teachers, what she terms “high and low expectation teachers” (p.

145). The effect of teacher expectation on students depends, to some extent, on what teachers actually expect. Rubie-Davis describes an empirical project with various paired groups that should help to gauge the effect of each factor. Finally, in the last chapter dealing with the Pygmalion effect, Hester de Boer, Anneke C. Timmermans, and Margaretha P. C. Van der Werf explore inaccurate teacher expectations. Interested in long-term effects of teacher expectancies on student performance, they use a case study drawn from the Dutch school system to measure and track the effect.

The final chapter of the book (“Expectancy effects: An attempt to integrate intra- and interpersonal perspectives”) has Babel and Trusz, the editors, looking at ways in which these two parts of the tradition might work together to increase our knowledge about how expectancy effects function. The chapter lists some characteristics of the effect (process initiation, personal qualities of the perceiver and target, cognitive schemas, various mediations, and so on). The authors then sketch out two models: from intrapersonal to interpersonal expectancies and from interpersonal to intrapersonal expectancies.

The book, largely focused upon psychological research, will benefit communication scholars more from the part of the book looking at interpersonal expectation effects. Though the focus of the book, even in the interpersonal area, tends to stay close to the origins of self-fulfilling prophecy work and the related psychological experiments (especially the school experiments), the volume does offer helpful background for some communication research. Any interpersonal communication study should be aware of these kinds of affects which form a normal part of human interaction. Given the fact that much communication research simply takes this for granted and never explicitly factors it into its own study, the book could provide a helpful corrective.

This book would be a good introduction to expectation effects, though probably of greater use to faculty or graduate students. The book itself contains end notes and references with each chapter, but a common author and subject index.

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