

spread among multiple regions.) “The concordant discordance of emplotment,” says Armstrong, “is curiously and intricately correlated to the decentered, asynchronous temporality of the brain” (p. 54). The use of consonance and dissonance to create tension in art, he argues, has a neuro-perceptual basis. He elaborates:

tension at the neuronal level between pattern and change, synchrony and fluctuation, coordination and differentiation is the neural correlate of the ability of a plot to join concord and discord through temporal structures that order events while holding them open to surprise, variation, and refiguration. The ability to tell and follow stories requires much more than neural activity alone, of course, but if the temporal processes through which neuronal assemblies form, dissolve, and form again were not asynchronous in these ways, our cognitive apparatus probably could not support narrative interactions. (p. 55)

There is an uncanny similarity, then, between structural discontinuity and discord in literature and the asynchronous ways neurons group and disband. Armstrong finds an example of this correspondence in Charles Dickens’s twisting plots and surprise endings, and experiments that establish “temporal binding,” i.e., retroactive recognition of perceptual phenomena: “The fact that time is not a line, either in experience or on the neuronal level, but a to-and-fro product of pattern formation and dissolution, is what makes *Great Expectations* possible in all of its temporal complexity” (p. 66).

The assertion that non-linearity in experience and neural operations make the novel “possible” sounds causal and reductionist. But Armstrong disavows both. He says correlations “are not causation” (p. 2), and that he is “opposed to neural reductionism” (p. 5). It is necessary to repudiate causation because it leads to the absurdity of saying artistic choices are determined by neural processes inaccessible to consciousness. Furthermore, this line of thinking ultimately leads to the same (reductionist) explanation for everything: one electron whirring around another. In addition, the limits of current knowledge render reductionism a dead-end, i.e., neuroscience’s explanatory power stops at what Armstrong calls the hard problem

of how electrochemical activity at the neuronal level produces consciousness and embodied experience. It is undeniable that if someone is having an experience, there must be neuronal activity of some sort correlated to it. What hap-

pens across the divide between neurons firing and lived experience is mysterious, however, and how consciousness emerges from brain-body processes at the cellular level is a question no one can as yet answer. (p. 52)

This doesn’t mean neuroscience has nothing interesting to say about consciousness. Armstrong quotes the French neuroscientist Stanislas Dehaene, “Consciousness lives in the loops . . . reverberating neuronal activity, circulating in the web of our cortical connections, causes our conscious experiences” (p. 68). This means, says Armstrong, that the brain’s “decentered, interactive structure”—dubbed the “brain web”—permits us to experience discrete, atomized sense data as continuous, affording “a unity of perception and behavior that would otherwise be impossible” (p. 68). He identifies the literary analogue: “The process of configuration, reconfiguration, and transfiguration that constitute narrative also characterize the interactions of the brain web, and that is one reason why stories can have such deep and lasting effects on the workings of our brains” (p. 68).

Indeed, stories—even fragmented or forgotten or untrue—have deep and lasting effects. Stories endlessly structure our perceptions and feelings even as they disclose them. *Stories and the Brain* offers much more than its title promises. Beyond its stated objectives, the book expands disciplinary horizons. In doing so, it puts phenomenology into play by summoning Heidegger, Merleau-Ponty, and Sartre—thinkers whose ideas have fallen out of use or been relegated to some academic lockbox. And, of course, Armstrong has done a great service by explicating exciting discoveries in neuroscience. Most profoundly, *Stories and the Brain* represents the pursuit of knowledge as an intrinsic endeavor. And on another level, the hidden interstices it reveals and the spaces it opens are metaphorically fecund.

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## Reference

Vico, G. (1984). *The New Science of Giambattista Vico*. (T.G. Bergin, & M.H. Fisch, Trans.). Ithaca: Cornell.

**Cunningham, Carolyn.** *Games Girls Play: Contexts of Girls and Video Games*. Lanham, MD: Lexington Books, 2018. Pp. 190. ISBN 978-1-4985-5456-5 (cloth) \$95.00; 978-1-4985-5458-9 (paper) \$39.99; 978-1-4985-5457-2 (eBook) \$38.00.

When you hear the term, “gamer,” you might imagine a stereotypical white male sitting with many controllers in a gaming chair, spending hours in front of a gaming console and screen. Even though the gaming industry has a long way to go in terms of gender equality, the representation of females in the gaming community has both shifted and gained visibility since the 2010s. Mainstream and academic conversations surrounding females in gaming are evolving, making Carolyn Cunningham’s *Games Girls Play: Contexts of Girls and Video Games* a timely and relevant book. The text’s main contributions are the rich narratives and experiences collected that contribute to literature in game studies, girlhood studies, and children’s media culture. Using the girls’ voices offers an authentic and deeper understanding of how these girls think about video games and how they understand how video games have been designed and marketed to them.

The seven chapter book achieves its stated purpose of a deep dive into the connection between videogames and girls. Chapter 1 opens by outlining why gender in gaming is crucial to study and presents the scholarship outlining gender and game studies, gender differences in video games, girls as video game designers, media ecology, and studying girls. The second chapter, “Games for Girls: The Marketing of Girls’ Video Games,” focuses on the initial response of the gaming industry to the lack of video games that appealed to girls. From this, the girl video game market emerged and is expanding to this day. Pink games that focus on clothing and makeup are explained using interviews with girl gamers. In addition, Cunningham summarizes the girl game movement’s aim to shift away from games with stereotypical interests.

Chapter 3, “Killing Time: Dynamics of Girls and Video Games,” applies a uses and gratifications lens to the interviews with 54 girls. Cunningham identified key opposing forces. One was the level challenge while engaging with digital play. Girls lost interest if they were not challenged enough, but also if they were challenged too much. Cunningham’s research identified the challenge of balance for girls’ engagement. Similarly, leisure time was another finding. The girls interviewed said playing video games during their leisure time was simultaneously unproductive and productive. Chapter 4, “Video Games at Home,” explores the dynamics that take place in households, and how those dynamics impact girls’ video gaming habits. Cunningham uses the term domestication of video game technologies to dissect how gender roles and home dynamics and par-

ents’ technology regulation impact the access girls have to gaming.

With a focus on enacting change for gender inequality in the gaming industry, Chapters 5 and 6 provide practical, real life examples for how and why this shift should take place. The main message of these chapters is that female video game designers create positive change and impact democracy, society, and the economy. Chapter 5 discusses platforms females use to spark change in the industry, such as hashtag activism, blogs, and independent game production. In the same regard, Chapter 6 focuses on education by providing the foundational ideologies of ten popular video game design education programs for girls. These examples paint the picture of what has taken place and what is still to come in gender and gaming.

With the framework of girls in gaming laid, Chapter 7, “The Future of Girls and Video Games,” closes by calling attention to needed future research. Cunningham argues that girls need to be at the forefront, that more girls in the gaming industry will continue to push the needle forward, that video games should and need to appeal to girls’ interests, and that the analyses of gender and gaming should be from a female perspective.

Cunningham’s holistic approach includes using focus groups, interviews, and qualitative content analysis to uncover and discuss the relationship between girls and video games both on and off screen. She not only looks at the relationship between girls who design and play video games, she also incorporates a cultural analysis of the environments girls must navigate when engaging in digital play. Some vital topics include: 1) girls’ engagement or lack of engagement with video games, 2) femininity in video games, 3) the impact of video games on girl’s leisure time, 4) educational video game design programs tailored for and accessible to girls, 5) girl-centric video games, and 6) gaming activist efforts to better serve and represent girls.

The main strengths of the book are the writing style, the in-depth interviews that give voice and power to the female participants, and the practical examples provided. Highly academic jargon can be off-putting, overwhelming, and inaccessible for some readers. Cunningham’s vocabulary is understandable and likely applicable to readers of different skill and knowledge levels. Qualitative work seeks to uncover the lived experiences and voices of research participants. Cunningham’s book does just that—the rich data col-

lected from the interviews with the girls gives authentic depth and insight into their worlds. The real-life examples provided in the book also help bridge the connection between academic work and everyday life.

The lack of diversity of the girls interviewed, the lack of acknowledgment and/or discussion surrounding intersectionality, and how the chapters fit together are the three main limitations of *Games Girls Play*. The main focus is on gender, which is extremely important and essential, but it is challenging to study gender without acknowledging other identity markers, such as race, class, religion, disability/ability, etc. A pivotal richness would be added if intersectionality was incorporated and if girls from varied backgrounds and worldviews were interviewed. The book would also benefit from better organization. The chapters lacked the flow needed between each to better build, expand, and connect them.

Overall, Cunningham's, *Games Girls Play: Contexts of Girls and Video Games* is a poignant, foundational book that looks at gender, girlhood, video games, and the gaming industry. It would be useful as a companion text in an upper level or graduate level course focusing on gender, game studies, and/or youth media ecology. Outside of academia, it would be a beneficial read for those working in technology and gaming, and those working with youth and adolescent girls.

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**Rosenfield, Kimberly** (Ed.). *Gender Communication and the Digital Revolution*. San Diego, CA: Cognella: 2020. Pp. 274. ISBN: 978-1516542079 (paperback) \$99.95; 978-1793502292 (eBook) \$71.96.

*Gender Communication and the Digital Revolution* provides readers a comprehensive look at the way new understandings of gender and diversity intersect with the ever-changing digital landscape that dominates our collective communication conscience.

This edited collection of essays takes readers on a tour through the varied ways that digital culture distorts and disseminates gender identity, from media representation to conversational styles, from biased algorithms to sexist artificial intelligence. The textbook grounds

readers with a common vocabulary aimed at helping them understand the stakes of this digital revolution. Its central argument is this: The online world affords freedoms heretofore unknown while simultaneously engaging in suppression that serves to reify normative behaviors around identity and communication.

The 14-chapter textbook is divided into five sections. In the introductory chapter, editor Kimberly Rosenfeld of Cerritos College describes the book as a “direct response to the lack of contemporary texts that fully engage the digital revolution in the gender identity debate” (p. ix).

The first section, “Gender Conceptualization, Communication, and Digital Life,” discusses the “master narratives . . . at the heart of our gendered behaviors” (p. 1). A second chapter provides definitions of the terminology needed throughout the text to discuss gender and identity. The second section, “Representation and Communication,” takes a deeper look at the ways media and the toy industry manifest these master narratives. A third section, “Digital Me,” seeks to interrogate the ways new platforms can serve simultaneously as liberatory and repressive to gender identity.

A fourth section, “The Gendered Communicator,” looks at gendered conversation styles. One chapter in this section interrogates the ways our face-to-face communication styles overlap with our online interactions—drawing lines, for example, between intonation in oral expression and emphatic punctuation. The fifth and final section, “Gender in the Machine,” discusses the ways growing reliance on artificial intelligence works both to silence those on the margins and to perpetuate stereotypes. These chapters “bring to the fore the fact that systems are not neutral but rather vehicles of continued gender suppression” (p. 174).

The textbook's stated goal is to “help address gender diversity by developing students' communication competence as engaged citizens and future leaders” (p. xiii). The goal set is daunting, but the text does an admirable job of contextualizing the issues and meeting that challenge while also acknowledging rapid pace of change. This reader would be a lovely guiding text for a lower-division gender and communication course.

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