ABSTRACT

EVANS, SARAH BETH. Disruption by Design: Feminist Interventions in Digital Game Production on a University Campus (Under the direction of Dr. Nicholas Taylor).

The purpose of this dissertation is to enact and think through an inclusive game making curriculum that works outside of the game industry's logics and conditions (and instead operates in a way more attentive to care and personal growth). In carrying out this study I cultivated and used feminist research methods to investigate three sites of game design for women and gender minorities on a university campus: the classroom, an informal learning space, and a university-club-sponsored hackathon. In particular, this study focused on game design's benefits to beginner and amateur game makers who identified as a woman, or as other genders that have historically been marginalized from games and gaming cultures. Through this project, I garnered perspectives on the ways alternative modes of video game production that operate on the fringes of capitalist patriarchy can be employed, and what benefits gender minorities might gain from such structures. Specifically, this research asks: what might we learn about the challenges and opportunities of enacting game design-focused feminist interventionist research by conducting such work in a) the particular local and regional context of a Southeastern US university, and b) within a campus setting (and the various supports for equity and inclusivity, as well as structures for sustainability, such a context offers)? In other words, I observed and in two cases, enacted a series of events, on a university campus, that facilitated various transformations in individuals' or community's relationship to games and/or themselves.

Disruption by Design: Feminist Interventions in Digital Game Production on a University Campus

by
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DEDICATION

This work is dedicated to Denise Stenger, Jezreel Clausell, Tyler Evans, Brianna Evans, Cheyenne Evans, Nikki Evans, and Liberty Evans. You are my whole heart.

BIOGRAPHY

Sarah Evans (MA Syracuse University, 2014; Ph.D. North Carolina State University, 2018) is a media studies scholar focusing on the intersections of feminism and gaming.

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CHAPTER 1: Introduction and Background

Diversity in gaming has been a hotly debated topic for more than two decades. Yet, women, gender minorities, people of color and queer folks working with and playing video games still experience discrimination and harassment regularly. A wider audience became aware of this problem in 2014 as the online hate campaign against women, Gamergate, caught attention from mainstream new outlets. It soon became clear that the 2012 online harassment of Anita Sarkeesian for daring to analyze gender and games via YouTube videos, and the harassment of prominent women in the gaming industry during Gamergate were "not actually isolated incidents at all but illustrate a pattern of a misogynistic gamer culture and patriarchal privilege attempting to (re)assert its position" (Consalvo, 2012). This (unfortunately) comes as no surprise since heterosexual white men have long held hegemonic power in technology industries such as computer software, engineering, and video games (Hacker, 1989; Wajcman, 2006; Connell, 2009; Consalvo, 2012; Corneliussen, 2012). However, the attention these events have drawn to inequity in gaming has led to some reinvigorated efforts to fix mainstream gaming's hostility toward diversity.

Some strides have been made in past years to increase the number of women working in games via the creation of special interest groups, scholarships to help female applicants afford game design school, and celebrating the accomplishments of women in the industry (Fisher & Harvey, 2013). Recently, one effort to increase the numbers of women in games has been through community organizations that specifically aim to do so, two paradigmatic examples being Dames Making Games in Toronto (https://dmg.to/) and Pixelles in Montreal

(https://pixelles.ca/).[1] These women-in-games initiatives provide workshops, game jams, speaker series, and social events with an aim of providing a supportive community space for women and gender minorities who want to make games and further help these populations gain employment in the games industry (Harvey and Fisher, 2016). Increasing the numbers of women working in video game development is an important action working toward their improved treatment and status in gaming overall. However, it is not the only intervention possible, especially as many women who work in the industry face hostile working conditions, making retention another key problem (Harvey & Fisher, 2016). Consequently, the move to get more women working in the industry, as a standalone solution, has had limited consequences in terms of creating a more welcoming environment for disenfranchised peoples in gaming.

Feminist activism and research on this topic provide other avenues through which to "invent equity" for women and gender minorities in gaming (Jenson & de Castell, 2011, p. 79). Consalvo (2012) advocates for critical feminist research as one avenue to fight toxic gamer culture, and Jenson & de Castell (2010) call for future feminist research "on gender and gameplay that more carefully reports on, documents, and troubles identities of player, producers, and consumers of digital games, especially in relation to gender" (p. 64). Although there are many ways to heed these calls, my response to these collective calls to action is through activist scholarship on the college campus.

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[1] There was historically one WiG org; it ran in conjunction with DiGRA for a while and formed its own lobby within IGDA. More broadly, inclusive gaming initiatives and communities have existed for some time and have seen a recent surge in popularity. There are hundreds of organizations across the globe that would fall under this moniker. I specifically names Pixelles and DMG as inspiration for this project since I find there work to be particularly notable and I am also personally most familiar with their work. See Harvey & Fisher, 2016 and Flynn-Jones et al., 2016.

The purpose of my dissertation is to enact and think through an inclusive game making curriculum that works outside of the game industry's logics and conditions (and instead operates in a way more attentive to care and personal growth). In carrying out this study I cultivated and used feminist research methods to investigate three sites of game design for women and gender minorities on North Carolina State University's campus. In particular, this study focused on game design's benefits to beginner and amateur game makers who identified as a woman, or as other genders that have historically been marginalized from games and gaming cultures. Through this project, I garnered perspectives on the ways alternative modes of video game production that operate on the fringes of capitalist patriarchy can be employed, and what benefits gender minorities might gain from such structures. Specifically, this research asks: what might we learn about the challenges and opportunities of enacting game design-focused feminist interventionist research by conducting such work in a) the particular local and regional context of a Southeastern US university, and b) within a campus setting (and the various supports for equity and inclusivity, as well as structures for sustainability, such a context offers)? In other words, I observed and in two cases, enacted a series of events, on a university campus, that facilitated various transformations in individuals' or community's relationship to games and/or themselves.

This study differs from prior iterations of feminist interventions on game design communities for multiple reasons. Unlike Toronto and Montreal, locales that already house several feminist game design communities, Raleigh, North Carolina boasts no such thing— despite that it is arguably prepared for and in need of this kind of feminist intervention. This region is home to a thriving tech industry and multiple AAA game design studios, including Epic Games, Red Storm, and Funcom, as well as many small studios. The local political and cultural norms are important to note here too, as the study takes place in the Southeast United States, a

region that bears a history of particularly vehement racial and sexual oppression (Link, 2018), especially relevant since the 2016 passage of North Carolina's House Bill 2 (HB2) that prohibited transgender individuals from using the bathrooms that correspond with their gender identities.[2] The impetus for my project is to enact three discrete instances of supportive game development contexts on a college campus, even with and in some ways as a response to these challenges.

The significance of my project lies in its potential to disrupt, at a local level, widespread understandings and practices surrounding the questions of how (through what means) and why (to what end) games can or should be produced. Emma Westecott (2013) warns against reproducing the toxic culture embedded in the mainstream gaming sector in the independent game development arena. My project takes her call to action that, "game making increasingly spreads beyond the for-profit space altogether" (p. 88) to operate outside of dominant models of game development and distribution that reproduces patriarchal, capitalistic conditions.

This introduction unfolds with a literature review, a brief discussion of methods, and finally an overview of chapters. The following literature review works to connect this project to existing networks of feminist media interventions, past and present. The toxic conditions for gender minorities in technology industries have been well documented. And although I cover some foundational topics and issues within this body of literature, the aim of the following

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[2] Even though repealed, many facets of HB2 remain (ie the law was intended to prevent progressive cities from enacting legislation around job protections, not just bathrooms -- about class warfare as well as anti-transgender sentiment)

literature review is to contextualize my project within an alternative network of feminist media practices.

Masculinity and Technology

Technology and technological expertise are deeply entrenched within Western masculinities (Hacker, 1990; Wajcman, 1991). More than any other identity group, white men have historically had the most power over the means of producing and accessing technologies, and therefore continue to profit most from them politically and economically. Wajcman (2006) argues: "men's traditional monopoly of technology resulted in machinery that was literally designed by men with men in mind" (p. 9). Although this intention does not preclude use by other genders, it certainly influences patterns of use and how the technology is culturally valued. This value extends so far as to automatically assign expertise with technologies along gendered lines: women are assumed to have expertise with technologies designed for domestic (and thereby feminine) use, such as the dishwasher or vacuum cleaner (Cowan, 1983), while expertise with technologies designed for pleasure or non-domestic work like digital gaming is often automatically assigned to men (Nakamura, 2012). In other words, gaming expertise is gendered masculine and a relatively long historical connection between masculinity and technology bolsters this association.

This is not to say women have no associations with technology. As mentioned above, domestic technology such as cleaning appliances are, by nature of existing with the woman's realm of housekeeping and homemaking, gendered feminine. However, this often comes with a devaluation; domestic technologies are "appliances"—hardly technologies at all. Citing Bryson and de Castell (1996), Cockburn (1992), and Wajcman (1991), Jenson and de Castell (2010) draw attention to the ways women "sought to challenge what counts as 'technology' and have

pointed out that often 'technologies' are defined to exclude the technologies that women use and/or to 'forget' women's contributions to technological innovation" (p. 54). When women gain competency in using particular technologies, those technologies become understood as domesticated and therefore feminine (Link, 1983). This further underscores the sociocultural assumption that technological expertise is a masculine domain, by removing items of feminine expertise from the category "technology" altogether. Women remain experts over the household and its appliances, and men remain masters of technology.

Alternatives to the Mainstream

Despite these histories and conditions, women have existed in technology industries from the beginning, although their contributions are continually co-opted, devalued (Wajcman 1991; Hacker 1990), and/or erased (Plant, 1998; Dovey & Kennedy, 2007). For example, Ada Lovelace's development of the first algorithm in the 19th century is often overlooked in histories of computing (Plant, 1998). The first programmers of the ENIAC were six women with the female programmers of the time being called "computers" (Light, 1999). In the late 1970s, Roberta Williams co-founded Sierra Online and helped to create and define the adventure game genre, and also designed what is widely considered one of the first female protagonists in a game (Dovey & Kennedy, 2007). More recently, Robin Hunicke produced *Journey*, a game that was a commercial hit, won multiple 2012 Game of the Year awards, and catalyzed a shift in game design aesthetics and trends. This brief list provides only a few key examples to illustrate the ways women's contributions have always been integral to the gaming sector's success, albeit often invisibly. And of course, these stand-out figures are greatly outnumbered by the many women who have always been present working in art design, programming, community management, human resources and other behind-the-scenes roles of game design.

In the early 1990s the "pink games" movement attempted to fill a perceived gap in games designed for girls; several companies began creating digital games designed with girls' assumed preferences in mind. Barbie fashion designer along with other Barbie titles and Brenda Laurel's (2001) Purple Moon games were some of the prominent titles of this time. Although these games did capture the attention of a population that hadn't previously played games, this movement contributed to the creation of a segmented market demarcating "games for girls" thereby cementing the idea that all other games are "for boys" by default. In hindsight, the faults in this approach to getting more women into gaming are obvious, as no *innate* preferences for market-driven game genres and experiences between genders exist (Jenson & de Castell, 2008). However, Purple Moon's contribution to feminist gaming history cannot be understated as there is no way to measure how much this moment in games affected later conditions. On a cynical note, we learned that this type of solution does not work; more optimistically, Purple Moon can be understood as an early (if misguided) attempt to change the status quo in gaming as it pushed forward the reality of women-owned studios and women-made games.

Changing the rules within a broken system or working outside it entirely is often an avenue that those who are disaffected seek out. So-called "indie" games are often viewed as a major way to reject unpopular ideologies and practices extant in the mainstream gaming industry. However, making this demarcation is not so clean or easy. First, defining indie games is complex, as gradations of indie exist on a spectrum and its definition is closely tied to definitions of mainstream AAA games; succinctly, indie games are what AAA games are not (Lipkin, 2013). Indie game studios are associated with having small budgets, small teams, they make games for the "right reasons" (not for profit alone), and have close ties with their fan communities (Lipkin, 2013). Despite this generalization, not all indie studios and communities

exhibit all or any of these tenets and some sectors of indie gaming increasingly reproduce the toxic practices of AAA studios. Contrary to the dominant narrative surrounding indie gaming communities as actively defying the forces of mainstream gaming industry, Fisher and Harvey (2013) found indie gaming communities often reify "the structural inequalities of the mainstream industry through the valuation of a supposed meritocracy that not only denies persistent systemic exclusion but celebrates in its own way the precarious labour conditions of digital games production" (p. 37). This is where the aforementioned feminist indie game communities make a difference; guided by principles of intersectional feminisms and dedicated to reflexive self-assessment and change, it is possible to create and sustain communities that more closely reflect a more inclusive ideal for indie gaming production and play.

Precursors to Contemporary Feminist Game Making Communities

The idea of cultivating a feminist community around a type of media does not exist in a vacuum. There is a rich history of feminist media practice from which my project draws. Through briefly tracing the histories and effects of various feminist media communities including crafters, filmmakers, and zinesters, I draw connections between them and feminist game making in hopes of contextualizing my own project in such a way as to show how making these connections can alter and transform the ways we understand video game design.

Among the many precedents for my project, I drew on documentation of other women-led, women-created spaces and communities. Among these, crafting groups are an especially important model. Bratich (2010) articulates the historical practice of the knitting and sewing circles as a center of prior iterations of feminist work. These women-only spaces and times were prototypical sites where women could act and speak autonomously without fear of reprimand. Further, Bratich and Brush (2011) describe the ways that the slow labor that goes into craftwork

acts in opposition to the logics of mass production and capitalism. Greer (2014) coined the term "craftivism" to describe craftwork with social or political activist intent and goes as far as to say that craftwork is empowering. She says: "the creation of things by hand leads to a better understanding of democracy, because it reminds us that we have power" (p.8). While Greer's assertion may be overstated, the act of crafting is often accompanied by social value, an attribute that is difficult to capture and commoditize. Crafts often operate within a gift economy wherein items crafted may have little capital value but ample sentimental value (Bratich & Brush, 2011).

These spaces, carved out by our foremothers in even more restrictive and oppressive times, provide a pattern by which we cut out and stitch together our own feminist communities in our contemporary, digitally saturated lives. Westecott (2013) builds on Bratich's (2010) and Bratich and Brush's (2011) work to establish a DIY games genealogy that is tied to craftwork. The benefits of understanding games through the lens of craftwork arises in that it not only ties game making to feminine practices, thereby making game design less intimidating, but Westecott (2013) states: "It is possible to see aspects of this new craft movement…DIY games – as temporarily outside the capitalist machine, and thus affording a possibility space for interventionist work" (p. 87). Additionally, Westecott (2013) notes that since DIY games are often created by a single individual that the designer's perspective and values become evident in the final product, which adds an element of personal expression to the project, even when not necessarily intended. Ultimately, tracing DIY game design to histories of craftwork draws attention to the value of process over product. Again, this ethic is precious for these communities since it makes it difficult for the mainstream sector to profit from it, after which such practices become reabsorbed and neutralized.

Other feminist media communities were arguably more focused on the product than the process, and for justifiable reasons. Women and gender minorities in film face many of the same problems and issues as women and gender minorities in video gaming. However, feminist interventions in film have existed longer since film technology predates digital gaming by several decades. Operating continuously for more than 40 years, Women Make Movies (WMM) is "a multicultural, multiracial, non-profit media arts organization which facilitates the production, promotion, distribution and exhibition of independent films and videotapes by and about women" ("Women Make Movies," 2016). Founded in the late 1970s, WMM arose in response to the lack of films being made by and for women and further a lack of opportunities for the distribution and exhibition of these types of films. Executive director of WMM since 1983, Debra Zimmerman (2016) said: "The short films that were produced reflected the lives of the working class women who had never made films before" (p. 299). The founders of WMM, Sheila Paige, Ariel Dougherty, and Dolores Bargowski recruited participants through posting flyers for amateur filmmaker workshops at supermarkets and laundromats (Dougherty, 2012). The films were screened at community centers, senior citizens' centers, the local library, public schools, a city park summer program, and the public access channel in Manhattan (Zimmerman, 2016). Their model was copied by women's film organizations around the world. By the 1990s, WMM grew to be the largest distributor of films about women with yearly festivals dedicated to women's film occurring across the globe yearly.

Given the extent to which the production and study of games borrows from (and currently overlaps with) film, I look to an enduring feminist film collective as an aspirational example for what a network of feminist video gamer practitioners could look like in years to come. The scope of their reach and sustainability even in the face of repeated funding cuts over the years acts as a

goal and inspiration for creating sustainable practices from the very start. Further, community has always been an important aspect of WMM in that they saw the strength in the potential for solidarity between these women and therefore social get togethers were a part of the organization as much as the instructional and distributional aspects (Dougherty, 2012). This legacy lives on as social events are also a component of today's feminist game communities.

Another instance of feminist media practice in the face of an exclusionary industry arises through zine making. Zines are typified as small circulation, noncommercial magazines or booklets that are created, published, and distributed by their creators (Duncombe, 1997). These often photocopied documents existed for decades and range in content from music, politics, and comics to poetry, movie reviews, loose collections of personal opinions, and beyond; with no external producer or director, a zine can be about whatever its creator wants.

Not all zines are feminist, but a particular subset of feminist zines created by and about girls and women are commonly called Grrrl or Riot Grrrl Zines. These zines act(ed) as sites of identity exploration and work to "document a culture that is actively hostile to girls and women" (Piepmeier, 2009, p.11). Grrrl zines arose from a history of informal documents such as scrapbooks and health pamphlets that were spaces for women to share information and express thoughts that were not accepted for publication elsewhere (Piepmeier, 2009). Zines were the magazines for people who "weren't right" for mainstream publishing but who wanted to share their thoughts and ideas anyway. Since all one needs to create a zine is paper, a writing utensil, and (usually) some means of duplication, their barrier to entry is extremely low, making zines an extremely accessible and easily distributable medium.

In fact, because they are so affordable to make, zines were traditionally traded or given away for free, a force actively working outside capitalist logics, especially as most zines lost

money. Piepmeier (2009) clarifies: "Even when zines are for sale, zines aren't a financially motivated undertaking; instead they're community motivated" (p. 197). Through linking people to one another via a shared interest in a particular mode of media production, zine communities and networks, particularly feminist ones, form one influence for the rise of amateur video game production communities.

Anna Anthropy (2012) makes this connection explicit by likening zine production to the spread of amateur game development tools and the proliferation of amateur game maker communities surrounding Twine and other platforms. Twine is a free, interactive narrative program primarily intended for making online branching narratives. However, this tool has a wide breadth of possibility instilled within it because of its support of graphics, sound, and other design elements. Using tools like Twine, individuals can make games that "operate beyond hegemonic spheres of production and reproduction" (Harvey, 2014, p.104). Anthropy, a practitioner and thought leader in the arena of amateur game design, popularized the tool and the DIY ethos that corresponds with it. Her 2012 book advocated for the creation of single-author folk games made by "average" people with little to no programming experience. She writes:

> What do we gain from giving so many people the means to create games? We gain a lot more games that explore much wider ground, in terms of both design and subject matter... And even if a game isn't original, it's personal, in the way a game designed to appeal to target demographics can't be. And that's a cultural artifact our world is a little richer for having. (Anthropy, 2012, p.11)

Many single-author games are made using free software, are very short, relatively simple, and are shared online for free. This means the games are working outside the mainstream games industry (in a way that indie games do not) and, both in their form and content as well as the

conditions of their production, challenge the idea of what games are, what game work looks like, and who can make games.

What does it mean for feminist game design practice to be embedded within a network of diverse feminist media practices? WMM, Grrrl zines, and the Twine games movement arose in reaction to the exclusivity of the film, publishing, and game design industries. By operating outside normative channels, these organizations and communities model efforts for inclusive ethics and practices that affirm the value of the people involved and work to resist patriarchal capitalistic tendencies. Alternative modes of production and organization can seem insignificant when compared to the hegemony of the mainstream sector of any arena. However, these are the modes in which marginalized participants can feel safer to express themselves in the ways they desire, as well as participate in activities that are intimidating and unwelcoming in their mainstream forms. Some scholars have explored the ways social scripts and configurations surrounding masculinized technologies can be interrupted through constructing single gender spaces for girls to build competency with gaming technologies (Carr, 2005; Jenson & de Castell, 2008; Taylor, 2007). In such spaces, even the presence of one single boy or man can change the dynamic in ways that cause anxiety and/or discomfort (Taylor, 2007; Harvey & Fisher, 2016). To provide women and gender minorities with safer spaces to explore their relationship to games and game making, drawing connections between and learning from past and co-present feminist media communities can only strengthen the power and utility of feminist game design communities.

Methods Overview

To undertake my project, I employed a range of methods frequently associated with feminist qualitative research, including feminist intervention and ethnographic methods. I also

cultivate and employ a method that can be called a feminist software analysis. These methods provided me with opportunities to utilize qualitative techniques such as observations, semi-structured interviews and surveys, while acknowledging the structuring role I had in two contexts and allowing for my personal experiences as a facilitator and participant to contribute to the findings of this research. While participants in any of the three contexts may not necessarily have identified as feminist, I employed a *feminist mode* of organizing in both the classroom and small group sites. In other words, I acted on/by/through feminist theories by employing feminist principles to shape and guide interventions in the aforementioned spaces. The following chapter summaries outline the trajectory of the dissertation.

Chapter Summaries

This dissertation is an analysis of three sites of inclusive game design practices occurring on a college campus. It offers three distinct perspectives, presented in chronological order of occurrence: a feminist software analysis of three beginner game design tools in an undergraduate, mixed-gender classroom setting; a feminist intervention study of a short-term women's game design group; and finally, a feminist ethnography of game design during a 48-hoursoftware hackathon sponsored by a campus organization. My research questions are centered around understanding the complexities involved in establishing women and gender-minority game development communities nested within overlapping contexts: (a) a STEM-focused university in (b) a relatively prosperous and progressive area of what is otherwise (c) a politically regressive region with (d) a history of hostility toward marginalized bodies. Ultimately, this dissertation seeks to better understand the challenges and opportunities for participants involved in three inclusive game design sites within those layers of context.

Logistically, participants across the three sites were college students who were taking a game studies class; and/or approached to participate in a small game design group; and/or or self-selected into an on-campus hackathon. Unlike other feminist gaming initiatives, there was no intent on my part (within the two sites in which I had the most agency) to hone participants for the specific purpose of working in the games industry, although participation in the study did not preclude this goal. The student population was ideal for my study because (a) as (mostly) amateurs they were not (as) familiar with the norms of video game coding practices, and (b) as college students they were part of my community, a factor that acts as a common ground between all participants (to foster rapport) and also ensures they were aware of practices inherent to learning, working independently, and meeting deadlines. Taken together, these studies offer multiple ways to investigate and evaluate conditions of feminist intervention in game design through a multi-pronged investigation of select design tools (chapter 3), future possibilities of engagement (chapter 4) and existing practices (chapter 5).

Chapter 2 outlines my three discrete modes of research methods and provides explicit justification for why each method (feminist software analysis, feminist intervention research, and feminist ethnographic methods respectively) are the most effective modes of inquiry for the contexts I research and the extent of my involvement in each. I situate my overall project in traditions of participatory action research (PAR), feminist interventionist research, and feminist ethnographic methods, and highlight their similarities and divergences while articulating what I borrow from each. Further, I describe my various roles throughout the three sites, from the design and structuring of the classroom and small group workshops, to my participation in the hackathon via observations, semi-structured interviews, and surveys. For each context, I provide

details and justifications for making various decisions about navigating my various roles prior to and during data collection.

Chapter 3 centers on research questions surrounding the value of beginner game design tools in the hands of beginner game designers within a college classroom context. Through using a novel method of my own design, I report on the results of a feminist software analysis of three game design programs: RPG Maker, Stencyl, and Twine. The biases, affordances, and constraints inherent to these programs are important to acknowledge as actants in the scene since they influence how and what gets made and further provide insight into the political ramifications associated with such processes and products. This analysis comprises two parts: a critical software studies analysis done before/during data collection, juxtaposed with a qualitative analysis of these tools in use by participants.

Chapter 4 focuses on the creation, facilitation, and results of a small women's game design group that ran for 8 weeks. This group was purposefully modeled after extant inclusive gaming initiatives with one major difference: the group I invented had no intended industry-focused or professional outcomes. I made this choice to explore what benefits and challenges participants might experience when they are interested in game design but not necessarily in pursuing it as a career. This chapter focuses on my rationale, and the consequences, of this choice and others including exploring multiple meanings of failure, prioritizing care, asking participants to work individually in a group setting, and working in a college campus space. I then discuss the results of these choices and implications for future, similarly-designed groups.

Chapter 5 reports on my findings from a qualitative consideration of an inclusive, on-campus, campus-group-sponsored hackathon. Hackathons are a staple in various software industries for quick innovation and free labor while simultaneously acting as a job fair, yet

typically operate under a universalizing logic that disproportionately harms marginalized people. For example, hackathons are typically designed by assuming able, young bodies and binary gender identities, while preying on insecurities and eagerness of aspiring software designers. Through interviews with participants, an organizer, and my own embodied observations of this 48-hour hackathon, I parse through issues surrounding diversity and labor practices when industry sponsorship takes hold.

Chapter 6 concludes the dissertation, as I connect the themes that tie the dissertation together including feminist failure, inclusivity, the roles institutions like the game design industry and university play in these initiatives, and others. Overall, this dissertation provides insights into some of the challenges and benefits associated with implementing university-based interventions against the norms of game design practices. Further, the studies act as examples of what may be possible by taking an interventionist approach into other spaces of game design that do and do not directly intersect with the industry. I also address the implications, limitations, and future directions of the research I performed.

CHAPTER 2: Methods

As interest in and support for community-based gaming initiatives grow (Jenson, Fisher & de Castell, 2011; Harvey & Fisher, 2013; Harvey & Fisher, 2015), the need for understanding the challenges and opportunities involved in establishing and sustaining this programming among different populations and in different contexts grows apace. Embedding researchers in these contexts has benefitted a number of communities and provided insight into the unique complexities found in these significant and vulnerable spaces. Particularly, feminist interventionist methods (which I understand as a feminist extension of participatory action research [PAR]) and feminist ethnographic methods allow the researcher to both tease out the subtleties of the struggles, triumphs, and mundanities involved in the daily functioning of these groups, and also structure the research program in such a way as to provide tangible benefits to the communities in which they are situated. Academic work has already begun discussing issues regarding sustainability, measuring outcomes, and grappling with participants' different understandings of feminism (Fisher & Harvey, 2013; Harvey & Fisher, 2015), but more work in this area will extend the reach and effectiveness of feminist community-based gaming initiatives.

One concern regarding these initiatives has been that although they help women and underrepresented genders get into the gaming industry, the industry still treats people poorly, with people of minority genders facing the most toxicity (Consalvo, 2012). Therefore, better understanding some of the circumstances that typically precede industry involvement while cultivating and investigating alternative circumstances under which women and gender minorities might enjoy the benefits of game design are paramount. By looking at different contexts of game design guided by feminist goals, we may better understand how community-based games organizing creates benefits to participants, what those benefits are in the context at-

hand, and what prevents them. In the following chapters, I use feminist methods as a means of investigating how we might secure access to those benefits (and other still underdefined ones) for groups who typically struggle for or are denied such access.

To this end, my feminist research spans three distinct sites united by the same geographic location and similar institutional conditions. The studies took place i) during an undergraduate game studies classroom in the fall of 2016, ii) during an eight-week game design incubator for graduate and undergraduate women during the summer of 2017, and iii) over a weekend at an inclusive, campus-group-sponsored hackathon in Fall of 2017. My methodological activity in each context differed based on my role in the situation; I collected data informed by principles of PAR in the college classroom study, used feminist intervention methods in the small game design group, and adopted feminist ethnographic techniques during the hackathon. Intersectional feminism informed my methods across the three research sites, a claim that will be discussed at length below. Ethnographic methods I adopted included questionnaires, semi-structured interviews, photography, participant journals, and observations. By approaching these contexts and methods with feminist principles in mind, my study hearkens to the foundations of PAR while adding new (feminist) perspectives and bringing novel methodological practices to bear. More than is possible through documenting one single community, these three case studies in inclusive game design collectively offer one of the first multi-site, mixed methods examinations of how game development driven explicitly by feminist principles might unfold on college campuses. In what follows, I turn to foundational texts in PAR, feminist interventionist research, feminist ethnography, and intersectional feminism, both broadly and in gaming research, to describe the ways my research activity was informed by these methodological traditions.

PAR and Related Methods

PAR seeks to better understand human experiences through research methods that allow the researcher and participants, together, to determine solutions and improvements for their shared context (Whyte, 1991). PAR acknowledges the structuring role of the researcher and "treat[s] the voices of the inside-researchers as knowledge" (Krumer-Nevo, 2009, p. 290). Self-reflective inquiry that both participants and researchers take part in is a cornerstone of this method that helps lead to specific, actionable results for the participants and/or communities being researched. PAR has been used to conduct research with and on behalf of urban youth (McIntyre, 2007), public health organizations (de Koning & Martin, 1996), and indigenous communities (Davis & Reid, 1999). Its methods derive from "paradigms of critical theory and constructivism and may use a range of qualitative and quantitative methods" (Baum, McDougall & Smith, 2006). Data collection methods vary, including interviews, journals, surveys, and more. However, cultivating trusting, reciprocal relationships in the communities being researched is a standard (Khan & Chovanec, 2010). This is achieved through embedding researchers who share power and participate in shared reflection with participants to better understand how beneficial change might occur. Here, "beneficial change" is synonymous with formulating research outcomes that directly lead to social action (policy, fundraising, outreach, etc). "Shared reflection" refers to the ways that researchers work with participants to consider problems and solutions to an issue at hand. "Shared power" allows for participants to construct and guide narratives, research questions, and actions after analyzing results (Baum, McDougall & Smith, 2006). In what follows, I describe prior uses of PAR and the related methods, feminist intervention research and feminist ethnography, that inform the distinct feminist modes of research I performed across my three sites of research.

Feminist intervention methods can be viewed as an extension of PAR that puts feminism in conversation with participatory research practices to co-construct knowledges alongside participants and help them achieve their goals (Frisby, Maguire & Reid, 2009). In this way, feminist intervention methods contribute to material change at the same time as they build knowledge and theory. Put differently, feminist interventionist work builds upon PAR's principles for researchers to work on behalf of communities, but where PAR often works with pre-existing communities, feminist interventionist studies aim to transform conditions by creating, and documenting, novel structures that advance the interests of women and other underrepresented groups. For example, Nick Taylor's PAR with e-sports communities (2009) allowed him to adapt his fieldwork to produce knowledges that advanced the interests of the community. In contrast, Jenson, de Castell & Fisher (2007) actively created new, inclusive structures, in this case an after-school girls' gaming club. This feminist intervention research yielded groundbreaking knowledge that dispelled long-held beliefs about boys' and girls' innate preferences for competition and cooperation in game experiences respectively. What had been mistaken for gendered preferences were in fact differences in exposure and expertise. By cultivating the girls' gaming club, Jenson et al. were able to grow participants' competencies and dispositions that could potentially transform other gaming-related aspects of their lives, such as their leisure time at home and computer use during classes.

Although there are similarities between PAR and feminist intervention methods in researcher positionality, aims, and data collection methods, primary differences emerge through the ways feminist intervention methods prioritize feminist goals and have agency to actively construct new contexts. These two methods, PAR and feminist intervention research, are deeply intertwined, often making them difficult to distinguish due to the multiple and fluid

positionalities of researchers. Further, these two methods are not so easily differentiated in practice, particularly in contexts that are not (yet) institutionalized, informal, and precarious.

Fisher and Harvey's (2013, 2015) study on the Canadian community-based game initiatives Difference Engine Initiative (DEI) acts as precedent and touchstone for interventionist research in gaming cultures. As embedded researchers acting as "participant observers" (2013, p. 26), Fisher and Harvey were able to build rapport with participants, gain insider information, and co-participate in the incubator's activities to gain embodied understanding of the time, effort, and processes that go into game design—insights that were used to accurately represent participants' experiences. This method's focus on inventing and documenting new conditions for inclusivity has value not only for researchers, but for organizers and participants. The latter two benefit from theory-building as it aids in the historical and critical understanding of the barriers to female advancement, and strategies for overcoming those barriers, and the interventions that become possible through close observation and participation in various stages of community development. The former gain knowledges that may not be accessible through more traditional ethnographic methods. For example, their hybrid roles as organizers, researchers, and advocates meant that Fisher and Harvey (2015) were able to both locate and theorize competing understandings of feminism that caused rifts between participants, damaging the inclusive atmosphere that was foundational to the incubator's success. It is arguable that feminist intervention methods may benefit other fields or contexts with gendered patterns of privilege; however, their employment in the closed-off cultural milieu of gaming is particularly important considering this sector's massive economic growth and cultural significance.

Feminist ethnographic methods were also foundational to my approach to methods across the three sites I investigate in the following chapters. Sally Hacker's (1989, 1990) feminist

ethnographic research in telecommunications, agribusiness, engineering, and workplace cooperatives elucidated problems at the intersection of gender and technology that are still largely unresolved today. This mode of ethnography works to avoid speaking for or representing "others" (Mohanty, 1984) and failing to ignore the power differences between the researcher and subjects (Abu-Lughod, 1990). Visweswaran (1994) argues that ethnography and narrative literature need not be separated saying that when it comes to ethnography, "partial knowledge is not so much a choice as necessity" (50). Hacker's methods embody these practices and principles such as embeddedness, reflexivity, and concern with how underrepresented / marginalized members might negotiate difficult conditions. For example, through enrolling as a student for two years in MIT's engineering school to "learn more about engineering from the inside" (1989, p.34), Hacker gained firsthand insight into the ways women are systemically disadvantaged by the format of engineering programs. She gained insight by speaking with professors and students and coordinated that data with the ways she found herself changed by the expected norms of engineering students; these changes included growing impatient with students' use of her time for purely social interactions, constant thoughts about working on practice problem sets, and developing a feeling of thrill at earning an A on her engineering exams. Feminist ethnographic methods allow researcher experiences to inform research results in insightful and beneficial ways, even though they may not be able to enact change within their specific research site.

Therefore, the analyses put forth using feminist ethnographic methods are context-specific and "situated" (Haraway, 1988). This situatedness allows for acknowledging the role of the researcher in constructing knowledge. Haraway states, "only partial perspective promises objective vision…Feminist objectivity is about limited location and situated knowledge, not

about transcendence and splitting of subject and object. It allows us to become answerable for what we learn how to see" (583). In other words, researchers always carry bias into their research from inception to publication, and rather than allowing this fact to remain invisible, feminist ethnographic methods acknowledge the powerful role these commitments might play in structuring and interpreting research. Further, this is why historical grounding is so important for feminist methods in tracing the impacts and influences of varying events, dialogues, and changes for a particular site. Through framing research sites in their histories and eschewing the guise of distant objectivity, Haraway (1988) asserts that fully recognizing the situatedness of any research project is valuable and ultimately, less biased, especially in studies of marginalized peoples. Particularly in gaming, feminist ethnographies have been used to better understand women-only gaming clans (Kennedy, 2005), gay and straight women's experiences in *World of Warcraft* (Sundén & Sveningsson, 2012), and the various ways women get left out of or marginalized in the competitive e-sports scene (Taylor, Jensen & de Castell, 2009).

Intersectional Approach

Using an intersectional feminist approach is as fundamental to my methods as being able to intervene in the contexts of my research. Intersectionality is a feminist theory that considers the complicated, mutable, and interwoven nature of personal identity categories such as gender, race, sexuality, class, and ability, among others. Intersectionality theory was coined as a term by Crenshaw (1989) through her discussion of the multiple and simultaneous oppressions Black women face. Intersectional feminism has been fruitfully employed by numerous scholars and activists, including Collins who leverages intersectionality in her research on how race, class, and nation co-construct each other (1998), Black families' role in a new Black political economy (2000) and Black women's experiences of violence (2010). Other scholars have applied

intersectional feminist perspectives toward problematizing overlooked aspects of the human experience in studies of education (hooks, 1994) immigration (Abu-Laban & Gabriel, 2002), and gender (Mohammed, 2002a, 2002b) among scores of other areas.

Gray's work on intersectionality has been foundational in bringing this theory to gaming scholarship. Gray describes the process through which racism in online games plays out for Black men (2012a) and the ways Black women are oppressed online in multiple ways because of their identities as Black, woman, and for some participants also queer (2012b). Notably, something that Gray (2014) brings up that many other intersectional feminists fail to acknowledge is the "recognition of the privileges that some marginalized bodies hold" (p. 186). Because often the privilege of white women is not acknowledged, truer understandings of what is happening in any given situation is lost and others' existences and lived experiences are erased.

Intersectional feminism allows for "competing explanations about how things work and how and why people interact as they do" (Frisby, Maguire & Reid, 2009, p. 16). Significantly, my intersectional feminist lens dictated that I avoid assuming agency from any stable location. For example, in chapter 3 I consider the role of the game design software programs and campus environment as interconnecting factors that layer upon each other and influence the actions of participants. Therefore, I look beyond the human intersections alone and extend my analysis to include the role(s) that the contexts and technologies played in the scenes of my research. Drawing on posthumanist work from Barad (2003) and Puar (2012), my methods account for some of the intersections of entities that constitute particular circumstances. To be clear, Barad (2003) argues that "a posthumanist account calls into question the givenness of the differential categories of "human" and "nonhuman," examining the practices through which these

differential boundaries are stabilized and destabilized" (p. 808). Therefore, in the following chapters the agency of technological apparatuses, such as the game design tools discussed in chapter three, take on formative roles that are highlighted where applicable.

Puar (2012) pushes the aforementioned concepts further by destabilizing identity as permanent or static, placing an emphasis on the process of being or doing individual instances of personhood. In other words, Puar (2012) resists approaches to intersectional identity that imagine people as occupying discrete locations within a static grid, reframing the forces shaping identity in terms of their underlying processes, what they do. Through this understanding of intersectionality, people never maintain any one stable identity. Puar (2012) states: "The theory of intersectionality argues that all identities are lived and experienced as intersectional—in such a way that identity categories themselves are cut through and unstable" (p. 52). She does this to prevent the continued "othering" that is promoted through seeing hierarchies of intersectional attributes as overdetermining our existence, as *a priori* structures rather than continually becoming processes. Puar attributes this static and categorical understanding of intersectionality to the tendency for white, Western feminists to regard women of color as the only intersectional identities because they embody the attributes of womanhood and racial or ethnic difference from whiteness. However, all people embody dynamic intersections of identifiers, the relevance of which become more or less pertinent amid different assemblages of experiences, environments, and bodies.

Adopting this feminist posthumanist perspective allows me to consider, at a theoretical level, the potentials for invented technological and institutional conditions to induce novel states of becoming in participants. Put differently, my methods acknowledge the agentic potentials that environments and technological apparatuses may have on participants' experiences. Through my

commitments to PAR, feminist interventionist research, feminist ethnography, and intersectional

feminism, the following section more clearly distinguishes the ways I embodied and employed

these reflexive, feminist orientations toward my three sites of research. In addition to these being

similar but distinct methodologies, I also used each of them in different sites.

Notable Intersections

In considering the intersections of participants, contexts, and their attendant technologies,

I want to call attention to one particular intersection that is a meaningful and purposeful aspect of

my study: the status of many of my participants as beginners or novices to game design and

game design technologies. Differences in expertise are often mistaken for gender differences

(Jenson & de Castell, 2007), a mistake I am not replicating. Expectations about women lacking

technological skill, particularly in gaming, are commonly held assumptions but are demonstrably

untrue (Wacjman, 1991; Hacker, 1989; Bryson & de Castell, 1998; Ratan et al., 2015). I want to

make it clear that I am not conflating women with beginners; my study is particularly concerned

with understanding transformations in technical know-how and how these intersect with gender

and further, some of my participants do not fall into this category, and their differences from true

novices are noted and examined as they arise in the following chapters.

Existing research on game design and on technical production more generally suggests

beginners are more reliant on established design models and tropes since they lack the firsthand

knowledge an expert has accrued over time (McMahon, 2009). In research on design processes

of aerospace engineers, an area of design that relies on much of the same complex problem-

solving skills and technical expertise commonly required for game design, Ahmed, Wallace and

Blessing (2003) found novice designers used trial and error and deductive reasoning to solve the

design problems they faced, while experienced designers used inductive reasoning and did not

need to use trial and error since they could rely on their own experiences and memories to determine if a solution was likely to work. Ahmed, Wallace, Blessing, and Moss (2000) affirmed these findings and additionally concluded novices lacked confidence in their decisions, which contributed to their use of trial and error as a design process. Kavakli and Gero (2003) determined that other differences occurring between novices and expert designers are their rate of productivity, rate of problem-solving, and ability to carry out multiple actions concurrently. In the case of each category, novices' abilities matured more slowly.

College students who are novices to game design, as a population, are ideal for my study because as novices they are not (as) already immersed in the heterocentrist and often hypermasculine cultures of both commercial game design and, crucially, formal postsecondary game design education (Harvey, 2017; Kennedy, et al., 2018). Additionally, in instances of the research where I had some degree of control over the context and activities offered to participants, I attempted to prevent toxic practices that proliferate in the mainstream games industry. Further, as college students, participants were already familiar with the college community, a factor that acted as common ground between all participants, particularly as one initial goal of this research project overall (albeit failed) was to foster long-term organizational structures. Last, participants' status as college students ensured they were enculturated into the practices associated with post-secondary education; for example, learning both in groups and independently, and meeting deadlines. These practices were additionally relevant due to the fact that all three studies took place on school grounds and used school resources such as university building spaces, computers, and related equipment.

Additionally, while my studies focused primarily on beginner women, in some situations I purposefully included data from some experienced (varying from self-identifying intermediate-

expert level) participants' perspectives to further illustrate that "woman" and "beginner" are not synonymous, and to show how the differences between novice and experienced game designers manifest differently in different contexts. When I refer to participants with game design experience in this dissertation, I identify these differences. Relatedly, in chapters three and five I include participant responses from men and nonbinary individuals. Through these choices I seek to draw attention to the issues and experiences that may be specific to women new to game design, while also illustrating that gendered issues are not applicable to women alone; women are not the only gendered bodies. Gender essentialism, and research that works under this assumption, reifies gendered systems of privilege and oppression.

Pseudonyms are used to protect the privacy of participants when individuals are quoted or referenced. Broadly, participants were a racially and socioeconomically diverse group. As my study does not particularly focus on race or any other identity category differences—other than it being a feminist project intended to help underrepresented genders in gaming—I do not particularly look for these differences but rather indicate them when they became overt. These identity factors persist in ways I cannot possibly account for in every interaction due to the relatively narrow focus of my study. However, as this is an intersectional feminist project, when intersections between gender and race, expertise and academic level, or any other any notable intersection came to the fore as some explicit factor shaping an engagement, I noted it to the extent that it was relevant to how the situation unfolded. This choice is meant to acknowledge the role that intersectional identities play in relation to various contexts and acknowledge that what is intersecting in these moments ought not to be overdetermined by static, a priori categories.

Further, I apply this same posthuman intersectional approach to myself and my role as researcher in the three contexts as my positionality collides with, modulates, and amplifies that which I perceive. As a woman, game player, game designer, and member of the university community, I occupy a particular proximity, even intimacy, to the scenes in which I performed research. One way that I bring attention to my role as separate from the participants is in the way I offered financial compensation in as many places as possible. This was intended to honor their contributions to my research as work but also further differentiates me from participants in situ. However, from these situated knowledges we arrive at broader theoretical understandings and embedded practices that may be useful in future endeavors of game design.

The three sites of study—classroom, small game design group, and hackathon— are distinct and therefore the knowledges produced by analyzing data from these contexts are situated. Therefore, I do not apply the same exact methods in each context since each context presents different requirements and constraints. This principle threads throughout this dissertation and inspired a novel methodology presented in chapter three. As protocols for each of my three sites vary in their execution of feminist methods, the following sections will describe the recruitment, data collection activities and modes of analysis chronologically as my approach to each site builds on the experiences of the one prior. Taken together, the analyses derived from these sites provide insights into the challenges and opportunities involved in cultivating game design knowledge and skills among novices in particular university-based contexts.

My research across these three sites constitutes a constellation of feminist knowledge production regarding campus-based, inclusivity-focused game design. By offering three distinct sets of situated knowledges, I provide insight into the ways tools, institutional norms, and beginner practices (among other themes) act to advance and/or impede feminist efforts in a

university campus context. The following sections detail the sites I studied, methods employed, and participant profiles, in order to highlight the logics at play in each site and the connections between them.

Site One: Classroom Study

In the fall of 2015, I conducted an IRB-approved qualitative study in an upper-level Game Studies class offered by my institution's Communication department. The original intention of this study was to ascertain which pedagogical strategies were effective at promoting the development of confidence and proficiency with game design tools, particularly with the aim of game design as self-expression among novice users, as opposed to vocational skills training. Current research on non-commercial game design suggests that this can be a beneficial and rewarding way for people from non-technical backgrounds to gain proficiency and competence in an emerging media domain (Anthropy, 2012). Teaching game design for non-commercial reasons is relatively unexplored in post-secondary contexts, and so I attempted a reflexive, qualitatively-driven study to in order to look at how these (mostly) novice game designers situated in a formal learning context learned game design concepts and skills and employed them using the digital game design programs RPG Maker VX Ace and Twine.

I was the instructor of record for this class and had co-taught it on a previous occasion. The course was theory- and practice-driven where students learned histories, perspectives and issues related to video games and got hands-on experience designing games. Before the semester began, I created recruitment posters for the class featuring Birdo, a pink dinosaur wearing a red bow from Super Mario Brothers 3, saying "Think Game Studies isn't for you? IT IS." in an effort to entice a diverse crowd of students to the class. I wanted to approach this class as a research site because the course itself was the ideal vehicle for testing and implementing a game

design curriculum for students from non-technical backgrounds. Since the college classroom is a formal education setting in which students largely practice learning new information and skills, it is adjacent to the semi-formal context of the following two studies. Further, it was the context in which I piloted the resources and materials for the inclusive game design incubator group that I would facilitate summer 2017.

We met once per week in the late afternoon. During the first class I described the study and gave students the opportunity to participate, stating that their participation was voluntary and had no bearing on their grade or their relationship with me. No incentive was offered for participation. Upon receiving signed informed consent forms, I distributed intake questionnaires soliciting their demographic information, previous experience (if any) playing games, using game design software or other forms of digital media production. I constructed the major assignments as multi-month long, multi-tiered game design projects that gave student pairs experience designing a game that might ultimately challenge the status quo of game development and the cultural politics of games more generally. These assignments were supported by the readings, in-class activities, and written assignments of the course. At the end of the semester I gathered documents and observational notes from the course to determine which would be most useful for study. Assignments analyzed for data in this study included Twine games, RPG Maker games, weekly process journals, final reflection papers, and in-class observations. My process was to look through these documents and attempt to identify any recurrent themes, standout stories, or sentiments that may have overly effected design or experiential outcomes.

It was my intention that insights garnered from this context would offer understandings of how to best approach teaching game design to beginners on a college campus, albeit outside the classroom. While my overall dissertation concerns itself with the experiences of women and

non-binary individuals, the demographics of the class largely did not reflect those identities; out of the 21 students who chose to participate in the study, only four identified as women. Turning to a grounded theory approach (Strauss & Corbin, 1990), I shifted attention to student insights and experiences that might be more broadly applied. This led me to utilize a novel method of analysis on the game design tools in the following chapter.

Part of the students' final game design project was to write a reflection where they answered questions about the process of achieving their game's final form. One question asked them how (if at all) their game grapples with some of the themes we discussed in class, especially race, gender, and sexuality. Through asking this I was able to better understand some of their design choices with RPG Maker. Despite my encouragement of novel, inclusive storytelling and design, the games produced did not initially appear to embody these and other feminist tenets that were emphasized throughout the semester. This led me to look to the game design programs as a contributing factor of the students' products, particularly as the students cited it as an impediment to their ideal product in various ways. Following this tack, I then sought to investigate other programs used by beginners both in this class and the small group I facilitated: RPG Maker, Twine, and Stencyl. It is in this context that I was able to learn more about how differences between novices and experienced game designers manifested and what further resources and guidance the novices needed. Further, the game design tools themselves arose as significant actors influencing the products and processes that participants undertook. Therefore, Chapter Three introduces a novel method of analysis that incorporates textual and qualitative analyses of software to consider its utility toward feminist efforts.

Site Two: Women's Game Design Group (Small Group)

The second site of study was an on-campus, informal game design group which I designed, recruited for, and facilitated in early summer 2017. I recruited participants via word of mouth among peer networks to an inclusive group that would give them time, resources, and instruction on how to design a digital game, some for the first time. In total, eight women from diverse racial and ethnic backgrounds, a mix of graduate and undergraduate, and aged from early twenties to early thirties agreed to participate. By the end of the group's official meetings, half of the women had to leave the group for reasons discussed in chapter four. Following the structure of prior incubators such as those offered through Dames Making Games or Pixelles (Harvey & Fisher, 2013; Shepherd & Harvey, 2013), the group met once a week for three hours for eight consecutive weeks. Meetings took place in a semi-public media lab that had ample table room and space as well as projectors, game consoles, and computers for use. Non-graduate participants did not have keycard access to this space and so I propped the door open for them to prevent feelings of exclusion since the media lab was located adjacent to the graduate student participants' offices. Meetings were spent learning game design concepts via interactive activities and exploring the capacities of the beginner game design tools Twine and Stencyl. Participants were expected to do the bulk of the work on their games on their own time and our weekly meetings were used for new knowledge and skill acquisition, socialization, and later in the process, playtesting and feedback. Topics of weekly meetings included: ideation and facing fear of failure, game narratives, game characters, game art and sound, how to use specific tools, playtesting, and discussing future plans. Although I acted as organizer/facilitator of the group, I adjusted the contents of the weekly meetings based on participant input and the rules and norms of our space arose collectively through both formal and informal rule setting derived from

participants' input. This was one way that I built in practices informed by feminist theories, alongside additional principles of transparency, reflexivity and shared power to shape the creation of the group and guide interventions.

At our first meeting, I described what the group meetings would be used for and loosely described the intention behind the cultivation of this group. Participants introduced themselves and described their background in game design or other technical areas. All participants but one had little game design background despite their expertise in other technical areas such as Arduino microcontroller programming, film production, and theatre. I described the study and handed out informed consent forms, informing them they could hand them back at any time before the next week meeting.

After these initial activities, I conducted and co-participated in a "making" exercise to ground game design in a history of crafting as well as provide some ideation and fear of failure-breaking experiences by using craft supplies and found objects provided by myself and participants to "make something ugly." Further details of this experience and others are explained and analyzed in chapter four. Each consecutive meeting followed a similar format where we socialized at the start, interacted in some learning activity that often included playing and/or prototyping short games and then reflecting on the experience and fitting it into design concepts the participants could apply to their own games followed by periods of work and socialization.

I took observation notes on the day's activities after each meeting and asked participants to keep a process journal of their game design activity. I also performed semi-structured interviews after four weeks and again at the conclusion of the groups' formal meetings. During these interviews I asked questions about their past and current experiences designing games or

other artifacts, their thoughts on experiences with the game design tools and goals related to the context at hand. Interviews were professionally transcribed, and I analyzed them in search for themes or notable moments that would provide insights. Participants received $10 per meeting for attending for any amount of time (up to $80 USD total). Payment was delivered via check at the conclusion of the data collection period.

Cultivating and facilitating a small group of beginner game designers was meant to introduce tactics that have been successful in other contexts to a new context with relatively novel conditions in terms of documented cases of inclusive game design: the Southeastern US, a semi-formal environment, college student participants, and no focus on preparing participants for industry. A major difference in my approach was to have no particular outcomes attached to this group other than they have an inclusive space to work on some portion of a game. In this way, participants' motivations varied and were not necessarily influenced by earning a career out of the experience. Getting into the industry was not forbidden as a motivation; one participant expressed a desire to work in the games industry, but I did not design curricula to explicitly shape that desire. Instead I sought to offer participants an opportunity to make a game by themselves, for themselves. To this end I provided a low-stakes environment for women relatively unfamiliar with game design technologies to experiment in with less fear of judgment or failure. Chess argues the following in regard to the importance of women playing games: "If technology is only used for work and not for leisure, it seems impossible for women to ever gain any real expertise. Playing with technology would help women increase their comfort levels, potentially making them more at ease when using it at home and work" (2017, p . 27). I apply this assertion to *making* games as well. My goal to provide a space for women to play games,

experiment with game design and socialize is predicated on the idea that there may be other benefits involved in game design other than economic ones.

Site Three: Hackathon

In the early Fall of 2017 I conducted fieldwork at an inclusive hackathon organized by members of the campus's Women in Computer Science (WICS) club in partnership with Major League Hacking (MLH). This event was designed for "college student[s] interested in software development, computer science, or design" (https://www.ncsudiamondhacks.com/) and particularly aimed toward underrepresented genders in technology-related fields. This meant that the hackathon was open to anyone but intended primarily to accommodate women, trans, and non-binary folks. Prior to the event, I received permission from the event organizers to conduct a study during the event and then I obtained IRB approval. I participated in the hackathon while using ethnographic methods such as observations, photography and interviews to gain knowledge about participants' and one organizer's experiences. Overall, my goal was to ascertain what challenges and opportunities arose in this similarly inclusive, albeit larger in scale and broader in context space of novice game design occurring in the semi-formal space on a college campus. Further, I had no direct impact on the organization or day-to-day running of the event, allowing me to observe and support inclusivity tactics employed by larger, more institutionally stable (long-term, funded, official club supported) entities.

Taking place in a large ballroom inside the campus student center, the hackathon consisted of 48 hours of software design and was sponsored by multiple major technology companies including Cisco, Intel, and Google. To be a sponsor, most companies donated at least $2,500. This allowed them to have representatives acting in a promotional and recruiting capacities in attendance, while some representatives acted as judges, and companies also offered

prizes for winners in various categories. Prizes such as Go Pro cameras, microcontrollers, and free web services were offered for 11 categories related to the event, sponsors, or MLH. For example, "best financial hack" was a sponsor prize category while "best newcomer" was a WICS category. The hackathon had a superhero theme and participants were able to come in with fully formed teams of any size up to four members or make teams on the spot.

Beginning at 8AM Saturday and running nonstop until 4PM Sunday, the hackathon was organized in a such a way to allow both highly structured and freeform experiences. Scheduled social and professional development events were available throughout the day and night. For example, the event offered a midnight dance party and midday public speaking workshop among a dozen other offerings. Food, drink and coffee were continually available throughout the event through campus catering and a designated snack room. There were more than 100 participants and organizers at the hackathon, and although hackathon participants were encouraged to stay for the full duration and provided with sleeping spaces, not all spent all 48 hours there, which is atypical for game jams.

I spent 16 hours at the event participating, observing, and conducting interviews across the two days. It was initially difficult to identify what kinds of projects groups were working on until later in the event but I identified participants making games or game-related projects by walking around and observing, directly asking organizers, and then listening to the final presentations and approaching participants who presented a game or game-centric software product. After identifying these potential participants, I approached them and asked if they would consider being part of my study, invited them to sign an informed consent form, and then conducted the interview either immediately or scheduled it for later in the day. All participants received a $10 Amazon gift card for their involvement in my study at the end of data collection.

During the interviews, I asked questions regarding demographic information, their technical

expertise, experience at the current hackathon, and experiences in past hackathons or making

groups. In total, I conducted nine interviews with participants of diverse gender, race, and

academic backgrounds; all participants were under 30 with most of them being in their early

twenties. Further, while the technical skillsets of participants varied in kind, most participants

considered themselves novices in the skills, knowledge, and processes that they worked with

during the hackathon. For example, this might mean that the participant had ample experience

coding in Java but wanted to learn and use another language for their project during the

hackathon.

Through researching this inclusive hackathon, I explored some facets of the supportive

opportunities for aspiring game designers in the particular location and context of an

extracurricular event taking place through a large Southern University. An institutionally

sanctioned game design club exists on campus but does not have any particular agenda for

inclusivity, although all genders are theoretically invited to participate. Game jams for this group

have failed to materialize for the past two years due to lack of institutional support via

chaperones and space. The hackathon in my study was an inclusive event meant to be welcoming

to all underrepresented genders in technology, not just women, which was explicitly made clear

in the Hackathon's written, verbal, and in situ messages. This event was not explicitly marketed

as feminist, although it endeavored to uphold the common feminist belief of gender inclusivity. I

sought out the hackathon as a site of study to offer another context in which to better understand

issues related to the challenges and opportunities of primarily novice women getting into game

design in an on-campus, informal context. The hackathon had much more financial and

institutional support than my ad hoc game design group, and was therefore able to reach a

broader audience. As I learned, tracking inclusive game design activities affiliated with the campus in different ways than my own interventionist study provided insight into alternative deployments of feminist efforts in this institutional context—even if they were not explicitly named as feminist.

This chapter traced the foundations and prior uses of the methodological perspectives that influence the methods I employ in each of my chapters. Drawing from PAR, feminist intervention, feminist ethnography, and intersectional feminism provides me with the necessary tools as well as historical precedents for the type of multi-faceted, situated research that allowed for the "situated knowledges" regarding my sites and the type of feminist efforts that I report on in the following chapters. In each respective chapter I outline the specific participants and methods employed in each context as they vary per chapter to allow for a multifaceted understanding of the different contexts that call for different treatments.

The next chapter, concerning my pedagogical and research activities in my Game Studies classroom, takes the form of a critical consideration of the game design tools I opted to include for students' use in their semester-long project. Building from the posthumanist acknowledgement that technologies are actors, I consider three 'beginner' game design programs, RPG Maker, Twine, and Stencyl, as (often unruly and uncooperative) participants in my efforts to enact a feminist game design pedagogy. This chapter stands on its own right as the piloting of a new method, "feminist software analysis", which in some ways extends and challenges existing approaches to code and software studies—while also laying out the technological conditions that I employed in my interventionist work, described in Chapter 4.

CHAPTER 3—Tools and (breaking) the Rules: Feminist Software Analysis and Novice

Game Design

The fields of code and software studies emerged as ways to interrogate the "black box" that computer software or other digital technologies present. These humanities-based approaches take many forms but tend to approach code as a specific kind of text (Manovich, 2001; Hayles, 2004; Marino, 2006; Fuller, 2008; Berry, 2011). Overall, this undertaking of code and software studies adopts an overdetermining "power of the programmer" (Chun, 2008, p. 227), thereby allowing individual instances of code to be analyzed outside of the context of their employment. Such an approach fetishizes code, treating it as text that can be read in isolation (Chun, 2011). To correct for this decontextualized history of software analysis, this chapter presents three 'in situ' analyses of what beginner game design software tools make im/possible for beginner users in two campus-based contexts: the classroom and an informal game design group.

Game design tools such as software programs and game engines have been understudied in feminist research in gaming. My study seeks to understand how feminist efforts might be articulated through interactions among and between game design tools, contexts, people, and larger ideological structures. This chapter considers the ways that tools, when used in service of and informed by feminist principles do (or do not) support feminist efforts. Such efforts include diversifying access to game design and exploring non-capitalistic motivations for designing games. Particularly, this chapter focuses on the experiences of novice users in a series of quasi-informal campus settings, and asks: What are the capacities of three different tools to facilitate feminist game development? How do the tools RPG Maker VX Ace, Twine, and Stencyl allow feminist work? What kinds of interventions do these tools enable that help us to carry out efforts among the less privileged?

To undertake this task, I use a novel form of mixed-method inquiry based on qualitative observations and interviews paired with a critical software analysis. These methods, when combined, constitute what might be called feminist software analysis. The purpose of this chapter is two-fold: To answer the questions posed above, and to establish feminist software analysis as a distinct mode of inquiry capable of generating an empirically-driven understanding of the capacity for low-barrier game design tools to be used toward destabilizing of gender-based hierarchies in game design.

This feminist software analysis comprises two parts. First, I undertake a critical, textual analytic investigation into the game design tools RPG Maker VX Ace, Twine, and Stencyl. Second, I pair that analysis with a qualitative insights around how those tools were used by participants in two contexts: a formal learning environment and an extracurricular campus-based women's game design group. Multiple tools and contexts are warranted to more clearly articulate the practices, relations, and knowledges afforded by low-barrier game design tools. Franklin (1999) establishes that "technology is a multifaceted entity. It includes activities as well as a body of knowledge, structures as well as the act of structuring" (5), to which my study adds that tools may have the capacities to do feminist work in specific kinds of material circumstances. To this end, I will identify the role(s) these technologies play across the contexts of my study and how they facilitated, and in some instances restrained, the potential for participants to express themselves through computational and interactive media and, in doing so, potentially unlock unexplored avenues for feminist transformations.

I am not analyzing feminist software. Such an evaluation is impossible and erroneous because feminist technology is undefinable since the feminism of a technology cannot be extrapolated solely based on its intended uses and design. Past efforts to determine the feminist

capacities of software have proven inadequate, in part because artifacts in and of themselves cannot be understood without their contexts. Layne, Vostral, and Boyer (2010) engage the task of cultivating criteria for defining what might constitute a "feminist technology" in an edited collection. Many chapters focus on specific technologies and describe if they are feminist or not and what constitutes their feminism (intentions, outcomes, etc.). Overall, the editors and contributing authors conclude that defining feminist technologies is complicated and some technologies that may be viewed as liberatory by one person might be viewed as oppressive to others. For example, the home pregnancy test may provide empowerment to a woman who deeply desires knowledge about her body but may also work as a tool of oppression in the hands of an abusive partner enforcing regular pregnancy testing as an act of control (Layne, 2010). Therein lies the problem with this perspective. As continuously evidenced by feminist strands of theory from posthumanism to intersectionality to ethnographic methodology, part of the work of feminism[3] lies precisely in understanding oppression as a relational, contingent dynamic. Likewise, feminism itself is relational, not a property of things.

In light of this, it is not enough to only evaluate the affordances of a software when considering how game design tools might intersect with feminist goals. RPG Maker VX Ace, Twine, and Stencyl embody specific principles and affordances that have feminist potential as they also have potential to reproduce patriarchal, sexist, and racist, products and practices. We need these "situated knowledges" (Haraway, 1988) of the tools in situ to more fully understand

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[3] More accurately I might use "feminisms," plural, here since multiple forms exist and my use of the term is not universal. There are multiple, identity-based layers of oppression that contribute to the very phenomenon I describe above. Identity features like race, class, etc., contribute to this complicated relational dynamic of feminist theories and real women's lives.

the technology at play in this study as working via their assemblage. Here, assemblage is understood as a network of relations produced through a conglomeration of context-specific actors. Drawing from Deleuze and Guattari (1980), Slack and Wise describe the ways technology can be understood as assemblage in relation to another concept, articulation:

> Technology as articulation draws attention to the practices, representations, experiences, and affects that constitute technology. Technology as assemblage adds to this understanding by drawing attention to the ways that these practices, representations, experiences, and affects articulate to take a particular dynamic form with broader cultural consequences. (2005, p. 156)

Therefore, to understand the ways game design tools work for, with, and/or against participants—and particularly in this case, for, with, and/or against certain feminist goals— I must take into account the multiple and varied factors that comprise the context they are deployed within and consequently influence the associated products, practices, and processes. Although other methods might work to attach more granularity to the tools and practices involved in game design undertaken by novices, my tack is an effort to *build*. By this, I mean that I am trying to bring together a set of practices, knowledges and structures that might offer not only intellectual insights, but more importantly opportunities for diversifying access to the myriad benefits that game design can provide for people striving toward feminist ideals. Additionally, the mode of analysis illustrated in this chapter may be used in the future with other technological assemblages.

Through this chapter, I build a feminist software analysis, a method. This multi-step method requires us to understand technology as assemblage. Technology as assemblage cuts through the practice and artifact dichotomy (Slack & Wise, 2014) to cultivate a stronger means

of assessing if something is feminist. Here I apply feminism as a means to intervene in contexts of novice game designers; my findings would not necessarily apply elsewhere, such as with experts. To clarify, even within the highly specific domain of feminist game design initiatives, what constitutes a feminist initiative is highly mutable and contingent – on political economic circumstances, local and regional cultures, and participants' intersectional experiences including, of course, their levels of competence with computational and design media (Fisher & Harvey, 2016). Thus, what is feminist for this project may not be feminist for another. This is precisely what makes the possibility of a "feminist software studies" divorced from contexts of actual use, somewhat misdirected. Feminist engagement with technology, in the context of *this* study, meant allowing participants to create games with minimal explication from expert, institutionalized / hierarchized relations of knowledge. However, in other game design contexts – for instance in communities in which this kind of initiative has more firmly taken hold – what counts as feminist will certainly not (or not simply) be something that is *easy to use*. In other words, "simple to use" and/or "easy to learn" are not always appropriate measures of whether something is feminist, since the critic must first contextualize the tool and its role in a particular group whose expertise and intentions will vary.

The following section will provide background information on the extant methodological precursors and influences behind feminist software analysis. The next section proceeds through the analysis of the three tools, Twine, RPG Maker, and Stencyl. First, the tools are assessed in terms of their features. Each tool is then also investigated through analyzing qualitative evidence of their use in action. This multi-pronged approach is meant to access the feminist potential of these tools in situ, as one way to resist reproducing the toxicity of normative game design cultures. I garner insights through considering consequences of program features with

marginalized populations combined with how the participants in my contexts interacted with the programs.

Literature Review: Methodological Foundations and Constraints

I approach this chapter as a feminist engagement with perspectives drawn from critical code studies and platform studies to get at some of the underlying biases coded into a set of purposefully selected game design software tools aimed at beginners: Twine, RPG Maker VX Ace, and Stencyl. When code began being interrogated by humanities scholars, many chose to look at code as a text (Manovich, 2001; Hayles, 2004; Marino, 2006; Marino, 2014; Fuller, 2008; Berry, 2011). Looking at code in isolation from its context leads to fetishizing code (Chun, 2011), i.e. treating it as the most important factor in any interaction with software. Under this assumption, code can only be understood as a form of control (Kittler, 2008), which disregards other factors of influence within a context.

There are already methodological approaches that take into account certain aspects of context and set the groundwork for this chapter's proposed methodology of feminist software studies. One such method is critical code studies (CSS), which emerged as a way to contextualize code within its attendant apparatuses. Marino (2014) writes:

> Rather than examining source code to the exclusion of these other aspects of technology (i.e., the platforms, network, or interoperating software), CCS emphasizes the code layer in response to a lack of critical methodologies and vocabulary for exploring code through this cultural lens.

In other words, in CSS the software processes constructed by code are considered in relation to adjacent technologies and settings, including aspects such as the markup language and the

intended end-users (Dilger & Rice, 2010). Marino (2014) sums it up, saying "the effects of software are read against its processes."

Another approach that also looks at code but more closely considers the material and networked factors of the software is platform studies. Hayles (2004) asks us to consider the materiality of code in an effort to address the prior issues with isolated analyses. Materiality here refers to both the material effects of code and the physical hardware that makes code possible. Montfort and Bogost (2009) describe why platform studies is a necessary addition to analyzing software:

> When digital media creators choose a platform, they simplify development and delivery in many ways…Work that is built for a platform is supported and constrained by what the chosen platform can do. Sometimes the influence is obvious: a monochrome platform can't display color, for instance, and a videogame console without a keyboard can't accept typed input. (3)

Succinctly, platforms play a powerful role in limiting or expanding potentials for what both users and designers can accomplish with/through it.

Platform studies has drawn attention to many heretofore unseen controlling attributes from material considerations. In the simplest example, Pold (2008) discusses buttons and how they force users to make binary choices, since a button has only two states: pushed or not pushed. There is no nuance that buttons are beholden to; they switch on or off. Moreover, the effects of material platform capacities affect sociopolitical constructs. For example, the new controller and style of gameplay introduced by guitar hero (Jenson, de Castell, 2011) and the Nintendo Wii changed who had access to gaming (Jones & Thiruvathukal, 2012). Such potentials are not merely the product of code but also platforms, human actors, and sociopolitical

contexts, and platform studies offers a way of understanding these factors in relationship to one another.

In sum, methodological responses to the criticisms of code studies take several forms including distant readings (Fuller, 2008), problematizing the contexts and practices of coding (Sample, 2016) such as through platform studies (Montfort and Bogost, 2009) or critical code studies. This chapter offers a distinct method to interpret the roles game design tools may play in bringing feminist change to gaming practices. This chapter offers *a* feminist software analysis that begins with the assumption that technology is an assemblage, while intentionally leaving the door open for additional modes and practices for other feminist software analyses. Using assemblage theory here provides the theoretical underpinning for examining tools like software as not simply *artifacts*, but rather as some of many agentic objects coexisting within a network (Latour, 2005). This paradigm shift from *artifact* to *networked agent* allowed me to examine not the code itself, but rather the functioning of code and how it adds to or detracts from feminist efforts, situated within the context of the users' experience with the functional aspects of the programs. The analysis at hand remains on the representational level because the users I worked with started at a novice competency level, and therefore understood the game design tools at a surface level.

As established in chapter 2, this feminist software analysis pushes to look at technology as assemblage, this being a better way to assess the feminist capacities of something—looking at the relations a tool engenders that support feminist efforts rather than just the tools as self-contained artifacts. Put simply: artifacts can be subverted through use but by looking at artifacts *in use* one can more holistically assess their value which is what the following sections of the chapter demonstrate.

Tools by number: Contextualizing Novice Experiences of Twine, RPG Maker, and Stencyl

This section will look at three tools, RPG Maker VX Ace, Twine, and Stencyl, that

represent various levels of difficulty for beginners with little to no prior computer programming

knowledge. These tools were selected because of my familiarity with them and their accessibility

in the studies' contexts. None of these tools technically *require* coding skills to use but their

features offer different levels of depth and breadth of capability as well as different learning

curves for new users. Each tool analysis in the following subsections look different from each

other for multiple reasons. First, the tools themselves are unique in affordances and were

employed by participants in a) two different contexts and b) to three different ends: two different

graded in-class assignments and an extracurricular, intrinsically motivated practice. Therefore,

the structure of analysis and factors reported on differ by nature of my choices to shape the

analyses to best fit the contexts of their use.

Problems and Promise of Twine

Twine was designed in 2009 by Chris Klimas, a web developer, game designer, and

writer (https://chrisklimas.com/). This free, browser-based tool uses simplified HTML to allow

users to quickly and simply create interactive, branching stories reminiscent of Choose Your

Own Adventure novels or hypertext fiction (Aarseth, 1997). To make a Twine game, users

connect a series of hyperlinked boxes of text (called passages) by typing a set of double brackets

around a word or phrase in one box, corresponding to the title / tag of another box. As shown in

Figure 1, the visual interface of the tool is straightforward; connections between text boxes are

shown via the lined arrows drawn between them. This tool is not demanding of computer

processing power, compatible with Windows and Mac, and the file size of the products of this

tool are very small, easy to export and share via e-mail.
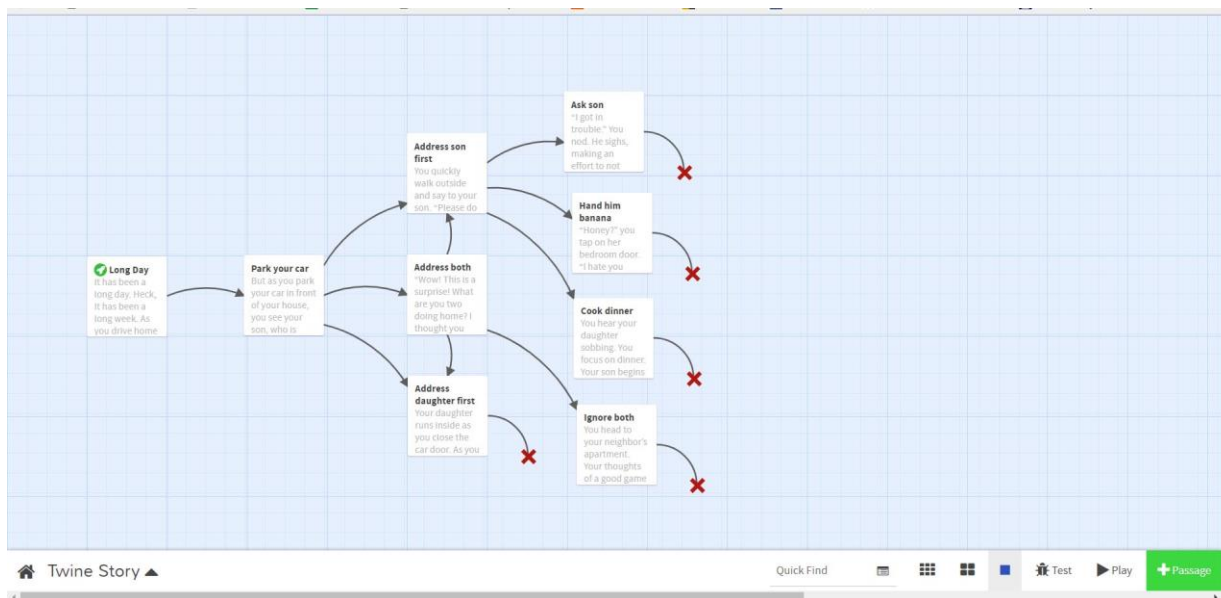
Figure 1 Twine Interface.

It is possible to make a quality game using basic Twine functions. Despite its initial simplicity, the range of expression that Twine facilitates is immense. Harvey asserts that Twine's affordances as a tool paired with its supportive online community and wealth of free, user-generated development resources has allowed Twine games to "challenge mainstream standards by subverting the celebration of difficulty, in both production and play, as they are often quick to both make and play" (Harvey, 2014, p.99). This is important as one of the ways masculine tropes denigrate feminist efforts in games is to emphasize a "dumbing down" they associate with easing access and use. Therefore, while Twine's barrier to entry is lowered, the quality of game possible with it challenges expected norms of game design both by its very nature and through its buildable complexity.

This tool boasts a range of customization options to create a broad array of different Twine games. By copying and pasting different pieces of the modified HTML that undergirds Twine from any of the free online resources, a user can change fonts' color, typeface, size, add

special effects like shudder or shadow. Copy and pasting also works to add media to their games via the embed codes from Youtube videos, gifs, or online-hosted images. Advanced mechanics such as variables, text prompts, and even rudimentary animation can be achieved with this tool in the right hands. Twine is a tool open to almost anyone with a computer and internet connection. Because of its open-endedness as a text-based program, the tool is entirely reliant upon user input for game content. It's abstract, albeit intuitive, interface and workflow, is what allows Twine to be a useful tool for the kind of interventionist work with non-experts that I undertook to study.

To assess the capacity for Twine to act as a conduit for feminist efforts in gaming, I rely on data from observations and written participant reflections derived from an IRB approved PAR study of a mixed-gender, college game studies classroom. Chronologically, this Twine work with my Game Studies students precedes the other two studies I report on in this dissertation.

Students were asked to design a Twine game with a partner for their mid-term that used between five and ten advanced techniques (defined here as design techniques that move beyond the basic passage linking), was minimally thirty-five passages in length, and thematically disrupted a norm of some type. For example, one participant designed a game that never ended while another asked the player to experience the game world as a non-playable character. As described in the methods chapter, my mode of inquiry requires that I look at a variety of participants' practices ranging from novice to expert and (in this chapter) both men and women's experiences. To benefit women, one should not study women in isolation since gender and gendered discriminations do not exist in isolation. Patriarchy affects all genders negatively in varying ways and therefore to help women's circumstances, we need to understand what experiences and issues they share with other genders, including men. Further, all of the

participants in this study were beginners when it comes to game design, thereby making all of them relevant regardless of their gender identity since this chapter is concerned, primarily, with novices encountering Twine.

Entwined in Twine

Throughout the course of the study, it was clear that some of the very features that made Twine a desirable and useful tool for novices were also features that could result in frustration or disappointments. This points to the importance of understanding tools in use with particular audiences as discussed more thoroughly in the conclusion of this chapter. Among the many such tensions that participants reported, the four most prominent/interesting regarded the limitations of a text-based interface, the obtuse advanced features, the "versioning problem" (explained below), and difficulty with collaboration.

Several participants mentioned the lack of a visual interface and limited support for in-game graphics as a feature that is both desirable and undesirable. Because Twine is text-based, it reduces complexity by eliminating the need to access and manipulate graphics. However, this same feature limits the range of game genres possible and can be experienced as a restriction or increased burden to the novice designer's creativity. Zeke describes this ambivalence:

It is nice to have my first experience with designing a game come in a simple form. Specifically, Twine doesn't require image generation or detailed mechanics. This will definitely make the design process more streamlined and will allow me to create a game that is focused heavily on story. On the other hand, I am a little nervous about the limitations of doing a text-based game. Due to the lack of imagery and detailed mechanics in a game like this, it will require a great plot, superb writing, and a working

knowledge of Twine. As someone who is not the best writer and inexperienced with

Twine, this will be a bit of a challenge for me.

Such responses were common among participants upon using the tool for the first time. The

accessibility of the interface was lauded. Peter, a first-time designer, said his first impression of

Twine was that, "the interface is simple, easy to use, and straightforward. The editing feature is

extremely simple and will make game creation rather quick." After using the tool, he maintained

this sentiment but added that the more advanced features were tough to implement. He said:

It was rather difficult to insert a formatted style sheet.[4] I was eager to do this in order to

change things up and express myself, yet we ran into several problems in doing so. It may

have simply been my lack of knowledge about coded systems and computer talk. The

only creative element I could figure out how to work, besides inserting graphics, was

changing the font. After finding out what style sheets were and how they could enhance a

game, I was disappointed with this result.

This response reflects how it may be the case that the basics of Twine are simple to pick-up by

these participants, but the more advanced techniques are obtuse and the interface hinders the ease

of use since it is text-based and comprised of many single-view windows. Jenna, a self-described

"non-gamer" and first-time designer, said:

I wish twine had a way to keep multiple windows within the program open at once. For

example, when I was adding a background photo to various passages in my twine, I kept

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[4] A formatted style sheet changes the visual style of the entire Twine.

having to open and close the stylesheet and passage to either copy and paste a code,

check and see what the tag for the image was in the passage, etc.

Like Jenna, several participants disliked the design interface saying that it looked messy and at times unwieldy when they started making larger, more complex stories.

Another feature that resulted in frustration is what I call the "versioning problem," namely that Twine has five distinct story format options which vary in many ways and can end up confusing first-time designers. Each of the five options allows different versions of the tool that require different commands, have different norms for input/use, make certain things easier/harder, and change the default graphic interface. Formats include from most to least recent: Harlowe 2.1.0, Harlowe 1.2.4, Snowman 1.3.0, SugarCube 2.21.0, and SugarCube 1.0.35. Moreover, the scripting language (based in HTML) associated with each story format is not only unique to Twine, but also differs per version. The earlier versions, called SugarCube, rely more heavily on prior HTML scripting knowledge and therefore are less accessible to beginners, albeit still accessible. Twine boasts a solid community of dedicated users who post tutorials, ask and answer questions on the official forums, and share resources. This versioning problem, although meant to help grow the tool to make it more and more accessible, flexible, and user-friendly, means that stable resources are not possible, making learning the tool more time consuming than it could otherwise be. In this study, the versioning problem tripped up first-time designers, and especially those with more advanced knowledge of computer coding in some other capacity. Greg, a first-time game designer with some prior Java experience, said: "Having three different versions that work in fundamentally different ways is really unhelpful when trying to find resources online. I can't tell you how many times I would try and look something up only to find that it wasn't for Harlowe."

The most frequent complaint among participants was about the difficulty to complete collaborative work using this tool. Margaret, a first-time game designer, reflected: "It was extremely difficult to collaborate with other people on Twine. I wish it offered some sort of option that allowed multiple people to work and edit on one story at the same time." Granted, the fact that the assignment was group-based rather than individually executed did prime participants for this kind of comment. Nevertheless, this frustration with the poor collaboration potential of Twine was brought up by many participants and elucidates an important aspect of game design practices that will be discussed further in the conclusion of this chapter.

Despite their individual issues with the tool, all students completed and turned in Twine games that exhibited degrees of creativity and expertise with the tool. Products created via Twine were of varying story quality, technical ingenuity, and overall quality. Some students performed the minimum requirements while other exceeded expectations and used Twine in novel ways. For example, one first-time game designer made an image of a book into a clickable link, allowing the book to appear and disappear along a vertical path, essentially creating an animation of the book falling. Users were tasked with catching it, by clicking it at the right time. This level of creativity and resourcefulness exhibited by a first-time game designer is a testament to the approachability and power of Twine as an introductory game design tool for some people, in some contexts—a comment I will return to and expand upon in the conclusion. To broaden the scope of that discussion, the next section explores a different tool in this same classroom context.

Problems and Promise of RPG Maker

RPG Maker VX Ace (shorthand RPG Maker) is a 2012 American release from the RPG Maker series of software titles developed since 1992 (https://web.archive.org/web/20061208105128/http://www.enterbrain.co.jp/jp/c_outline/pdf/tkoo

lxp_global.pdf). Titles from this entry-level game design tool series typically costs around

$79.99 and are marketed toward people with no coding experience. The RPG Maker website

describes the software tool as "simple enough for a child, powerful enough for a developer"

(http://www.rpgmakerweb.com/products/programs/rpg-maker-vx-ace). As implied by its name,

RPG Maker VX Ace is a tool that helps users create single-player role-playing games (RPGs), a

genre that features map exploration, turn-based combat, and roleplay. Japanese company ASCII

originally created RPG Maker and released it only in Japan, with later installments developed by

Enterbrain and Degica for multinational audiences. All but the most recent versions this tool are

compatible only with Microsoft Windows operating systems and do not support export to

mobile. Despite these limitations, this program is relatively accessible in terms of its computer

processing needs and therefore works on most Windows computers (and Macs, if using the most

recent version). This tool is primed for beginners and, like Twine, it features ample, free online

learning resources from official Degica channels and community contributions. Therefore, the

following section will describe the following three benefits of RPG Maker as a beginner game

design program: all art assets come pre-loaded into the software, it streamlines processes by

making them representational, and it only makes RPGs. One of this tool's greatest advantages

compared to many other beginner game design tools is that it includes a large repository of art

assets and logics preloaded into the program's interface. What this means is that users need not

design, upload and configure visuals (such as backgrounds, sprites[5], and battle backs[6]) music,

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[5] Sprites refer to graphics that sit on top of the background graphics of a game and are often able to be manipulated (such as a character or health bar) or interacted with (such as some furniture, items, etc.).
[6] Background graphics that appear only during battles.

sound effects, or title screens and other interfaces to be able to make an entire, cohesive game in a relatively small amount of time. The implementation of assets becomes much like collaging pre-made pieces together. This is not insignificant as asset creation is very time consuming, and often requires both artistic and technical skills to manufacture visuals that display a desired look while also being the proper size, file type, and then need to be coded with attributes such as physics for movement, transparency, etc. Further, if one wished to customize or create their own characters for the game, RPG Maker also contains a character generator[7] and supports imported assets.

RPG Maker simplifies many processes that would require coding knowledge or extra work on other platforms. For example, upon opening RPG Maker for the first time, users are greeted with the screen shown in Figure 2. Here, the user sees a grid that is currently populated with tiles[8] that look like water. A small human figure stands in the middle. If users were to playtest their game in this state without modifying anything, the controllable human figure, or player character, would be able to turn to face different directions. If users added land tiles underneath the player character and playtested again, the player would be able to walk anywhere

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[7] The character generator tool allows users to generate, save, export, and import sprites for RPG Maker by choosing various features such as skin tone, facial expression, clothing, etc. from a small set of drop-down lists.
[8] Tiles refers to the square graphics that fit over the squares in the map grid. Cumulatively, these tiles are referred to as a tileset. The graphics on the left-hand side of the screen comprise the tileset available for the map area shown.

the land was placed. This may not seem consequential, but on more advanced platforms or in a
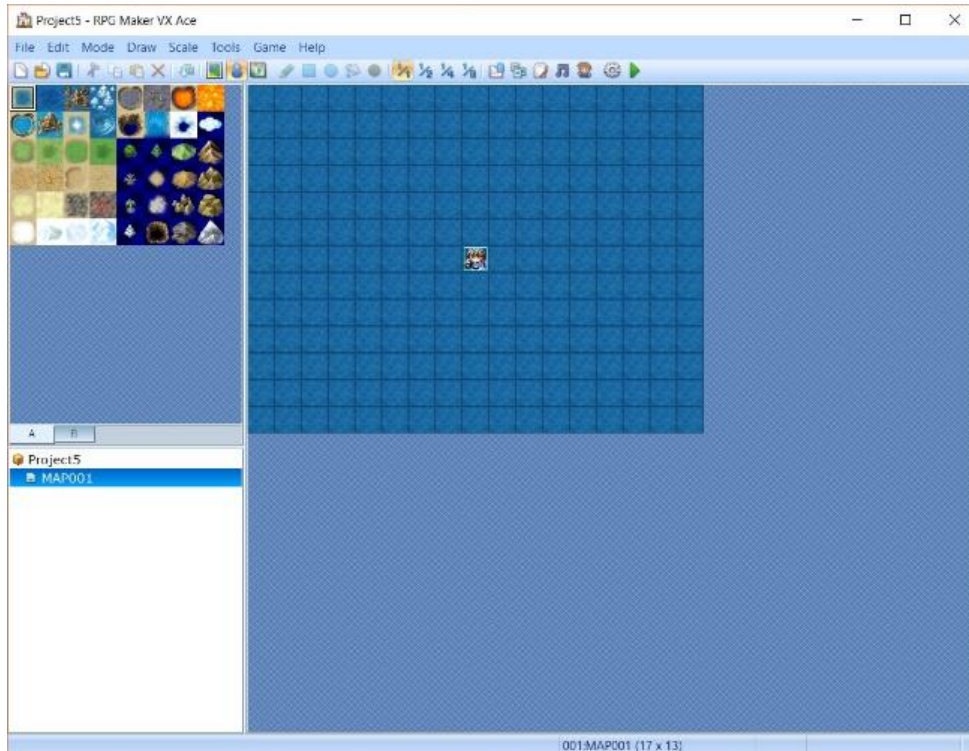
Figure 2 RPG Maker Interface.

coding environment, the player character's movement (and its interaction with other sprites)

would need to be coded through variously complex assignments of attributes such as gravity,

transparency, anchoring, etc. Through RPG Maker, instead of writing code, users navigate

interfaces and add pre-loaded assets and turn various states/logics on/off. Essentially, users apply

conditions to people or objects (as seen in Figure 3). In other words, RPG Maker makes code

more representational than abstract, and therefore easier to implement and control.

   Last, RPG Maker primarily makes RPGs. RPGs are a good starting point for beginners

with very little cultural or technical knowledge of video games since their design is more easily

identifiable as similar to other visual and narratively-driven media like television or movies,

thereby making design processes more familiar. Further, RPG Maker's 2D aerial map view lends

Figure 3 RPG Maker Event Menus.

itself well to the simplified, grid-based map-making the tool offers. The gameplay in RPGS is

primarily narrative and exploratory with opportunities for turn-based combat. Combat, as will be

discussed later, is a staple in many game genres, and RPG maker's turn-based combat is simpler

than other forms such as real-time where players would need to program physics or hit boxes.[9]

Additionally, by only making RPGs, this tool is valuable for beginner game designers,

particularly in a formal or quasi-formal context, since it imposes limits on what is possible.

Novices to any genre of media production can be overwhelmed with possibility and having

constraints helps them focus their energy and practice creative thinking (Ahmed, et al., 2000).

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[9] Hit boxes refers to the designated space in which an attack against a target succeeds; they are abstract, usually invisible spatial designations of where a targetable object can be hit. It is the coded representation of the physics of aim. If a metaphor helps, consider the strike zone in baseball—an imaginary rectangle through which the pitch must pass to be an acceptable pitch. The strike zone is like a hit box; inside the zone is a hit, outside a miss.

RPG Maker in Action

The following section relies on student reflections on their use of the tool and ethnographic observations and analysis of students' usage of RPG Maker and the games they produced with this tool. Since I've established the potentials embodied in RPG Maker, it is paramount to learn more about how users of the tool experience its affordances and constraints. In this section, I paired an analysis of ethnographic observations, self-reflections, and student work in order to look at how these novice game designers situated in a formal learning context employ RPG Maker. Therefore, I constructed the major assignment as a multi-month long, multi-tiered game design project that was meant to give student pairs experience designing a game that might ultimately challenge the status quo in some way. This assignment was supported by the readings, in-class activities, and other assignments of the course. Part of the students' final game project was to write a reflection where they answered questions about the whys and hows of their game's final form. One question asked how (if at all) their game grapples with some of the themes we discussed in class, especially race, gender, and sexuality. By asking this, I was able to better understand some of their design choices with RPG Maker for this particular assignment in this context. Despite my encouragement of novel, inclusive storytelling and design, the games produced did not initially appear to embody these and other feminist tenets that were emphasized throughout the semester. This lead me to look to the game design program itself as a contributing factor of the students' products, particularly as the students cited it as an impediment to their ideal product in a number of ways.

Gender Trouble

In gaming, feminist critique is most often leveled at representational elements. For example, contemporary mainstream gaming is notoriously bad at representing nonwhite and non-

male characters (Shaw, 2012a; Condis, 2015). Therefore, the identities of students' designed player characters are relevant to the feminism enacted in this context and through this game design tool. From this representational perspective (Shaw, 2012b), slightly over half the student groups failed to incorporate diverse identities into their games. Ten games were submitted at the end of the semester by students (all worked in pairs except one trio and two who worked solo). Two games endeavored to feature a gender-neutral character, one by using an animal player character and the other by designing a white character devoid of obviously gendered features. One group offered players a binary choice between *girl* and *boy*, and both possible avatars were white. One solo designer created a woman of color player character, and the remaining six groups chose a white man as the player character with no alternative options.

What influences the creation of representations in a design context? Despite working in a learning context that not only encouraged but specifically required representational diversity and inclusivity via formal and informal assignment requirements, many participants still chose to create a white man protagonist. One explanation for the abundance of white man player characters can be attributed to the makeup of the class's students; the class was comprised of mostly white men (19/23). Moreover, the assignment explicitly asked students to draw from personal experiences when possible to make a game about college life. Thus, as one student put it: "Ultimately I think we decided to leave our character as a white male because that's what we were personally comfortable with as it is most indicative of our experiences" (Justin). This reflects the studied phenomenon that, when people are asked to create something non-normative, they sometimes work so against type that they end up reproducing norms anyway. For example, de Castell and Jenson (2007) describe the difficulty they encountered when asking male artists to design a female character who was clearly female (to avoid the way androgynous characters are

often considered men by default) yet did not fall into a stereotype of bimbo, damsel, or butch.

The men in question reported great discomfort in doing so, mostly due to their admirable (albeit

misguided) desire not to "speak for" women or accidentally create an offensive character. This

thinking pattern undoubtedly played a role in the present study's participants' decisions, though

cannot account entirely for the ultimately mediocre results of encouraging diverse representation.

Thus, considering more factors that are at play within this study allows us to get closer to seeing

what is happening here.

An additional contributing factor might be related to the tool itself. When beginners are

working with new programs they go the path of least resistance (Ahmed, Wallace, & Blessing,

2003), so the students used default settings. In other words, since the default character offered by

RPG Maker is a white man, the students simply left him that way, rather than putting effort into

customization. Bryson and de Castell offer that gender is a "byproduct of socialization and

learned social knowledge of gender norms and expectations that are more a matter of culture

than of nature" (1996, p.242). It is possible when students saw the white man default, they did

not even consider it something worth changing since it fit their idea of normal. When the design

tool provides a default white man character, this technological affordance combines with cultural

histories and norms of the media genre where white men are historically the overwhelmingly

prevalent protagonists of video games. Therefore, the "choice" to create a straight, white, male

character can be understood as in line with these logics, while also allowing students to complete

the assignment and meet the minimum requirements. Students who chose other genders for their

player character made note of this and other limitations of the software. One student noted:

> We initially began creating our game and noticed that the default character was, to no
>
> surprise, a white boy. Ashley suggested that we change the character to either a girl or

neutral character, so we did so. We both wanted the character to not show any signs of gender nor race, but had trouble finding a character that represented these traits with the limited and medieval RPG Maker database...We were essentially aiming for a playable character that had no distinguishable features, such as a circle or basic shape, but this was not an option on this software.

Figure 4 RPG Maker Character Generator Menu.

These students were unable to find the agender sprite they hoped for in the preloaded character database and although using the character generator was the solution they chose (and were unhappy with), it too has a gender problem.

Upon opening the character generator, users must choose between two tabs, one marked "Male" and the other "Female." Here, RPG Maker enforces a binary understanding of gender (clearly conflated here with an also binary understanding of biological sex) through separating tabs that share identical interfaces and much of the same content. Because of the small size and

lack of detail in the sprites, it would be easy to make a feminine character from the "Male" components or vice versa, as there would be no way to know from which tab the components were drawn from. The program enforces a conflated gender/sex binary and thereby occludes any opportunity to explore non-binary genders, as well as the performative nature of gender more generally, within the games created by RPG Maker.

One participant did create a game with a WOC protagonist and here it is perhaps unsurprising that the creator was a woman of color herself. White men have the privilege of having their own identifying representations normalized. The woman at the margins is the one that ends up doing the most work around considering different forms of representation. And this *is* work. First, she had to take extra steps in order to customize and import the new sprite, and further indicated in her journals that she spent time researching the issues and concepts she wanted to integrate in her game to ensure accurate representation was achieved. This reflects what we already know about endeavors to expand representational diversity in media: those already marginalized often shoulder the associated burden of labor to achieve this goal (Harvey & Shepherd, 2017; Asad & Schoemann, 2017).

In sum, although some students thought it was important to put effort into changing the default playable character, most did not. The two groups reflected differently on the process, with groups who actively pursued a non-white, non-male player character claimed difficulty and/or hard work to achieve their vision, while those who did not either delegated the problem to being inherent to the program or made essentialist claims about the relationship between the creator's identity and that of the avatar. Moreover, the program customization option explicitly enforces a conceptual gender binary while simultaneously collapsing gender and sex into a single category. For novices who work almost exclusively at the representational level of game design,

this constraint drastically limits their ability to incorporate non-heteronormative, alternative design elements. Would-be game designers hoping to create counter-hegemonic gaming experiences must work against the program's defaults that reflect the larger cultural trends and biases.

Race Trouble

Another complication brought to bear by RPG Maker providing in-software art assets is that their character representations favor Caucasian skin tones. Sprite sheets[10] are provided to users to be able to quickly and easily add new non-playable characters (NPCs) and party members (characters usable in battle). Here, representations of gender was slightly more equal between men and women, but representations of races among the NPCs were not. NPCs are often integral components of RPGs since they give quests, sell goods, and populate towns to make them seem more reminiscent of real-world settlements. The default sprites provided by RPG Maker are mainly light-skinned and many students chose to utilize the pre-loaded character sprites rather than create and upload their own.

Although the students' in-class instruction included how to find and/or make and upload new sprite sheets and other art assets, students cited the tool as a key barrier to their implementation of nonwhite characters. One participant said, "One thing I noticed right away with RPG Maker is that it does not seem to feature any character sprites of color...This fact was a little troubling when we were creating the game because we felt that the game was 'white dominated' and we could not represent race like we wanted to." Where this student very well

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[10] Sprite sheets are art assets that show a character from multiple angles or positions. Through cycling through these various images, the illusion of animation occurs.

could have been offloading responsibility onto the program itself, another participant provides a more nuanced perspective:

> RPG Maker is also very limited in its stock choice of character races. Virtually all the default characters have pale skin…It is true that a user could go in and manually alter the skin color of these stock characters, but the fact that the program does not offer any variety right off the bat speaks volumes about not only RPGs as a genre, but about the genre's target demographic as well.

The burden of responsibility is on the user for making the effort to be inclusive; however, the software's offerings are important to note since most people using the program will not be specifically asked to consider the implications of its sprites' representations as I asked students to do in the classroom.
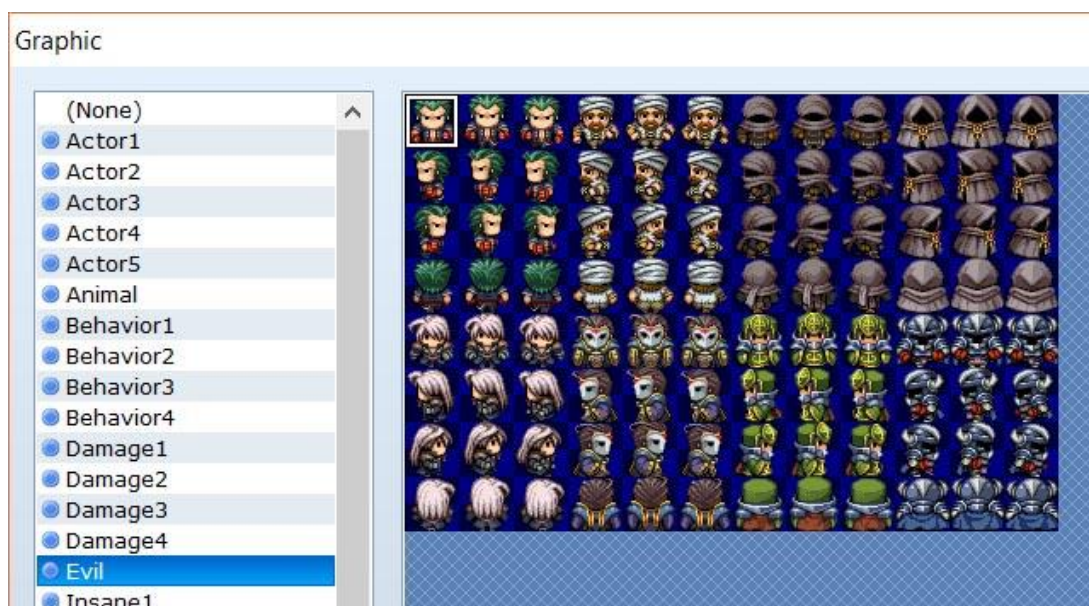
Figure 5 "Evil" Actors Menu Screen.

Beyond RPG Maker's racism via erasure, their sprite sheet also reveals racism in that one offers one slightly darker-skinned, turban-wearing sprite under the category "evil" (as seen in figure 3). The inclusion of this sprite under such a category plays on Islamophobic tropes and

harmful stereotypes, thereby reifying these ideas as the norm. Players of an RPG Maker game who would see the sprite in game would have no idea it was categorized in such a way, since the category names are used to aid the designers' navigation, but since RPG Maker is a design tool, the menus matter.

Representation is not the only, nor even the primary way that people access connection to and interact with game content, yet this hardly means it can simply be ignored (Shaw, 2012a; Shaw, 2012b). Representation is important: seeing people who look like you, share values with you, and act like you contributes to what is normalized culturally. Who we see represented in the media we digest, and what roles we see them playing, impacts how we evaluate and interact with people in other contexts However, visual representation of identifiers like race, ethnicity, and gender is not the only type of representation that exists; it can also be expressed through sound (Droumeva et al., 2017), statistical attributes such as strength (Trammel, 2014), and even architecture (Seif El-Nasr, 2008). Through this analysis of RPG Maker we see that process-oriented representation in databases matters as well. And despite the problems users encountered, RPG Maker still holds potential as a software in service of feminism as will be discussed in the analysis.

Problems and Promise of Stencyl

Stencyl is a free-to-use/pay to publish, 2-D game creation software tool marketed as available to users with no prior coding experience. Like the previously discussed tools, Stencyl has ample resources and tutorials freely available online and supports external art assets. This program is compatible with both Windows and Mac, and like RPG Maker, provides the opportunity for users to access and generate some art assets without leaving the platform. Unlike RPG Maker, the creator is responsible for designating some elements of the physics and

movement into the assets. Additionally, the uploading process is just harder in general, with extra steps and fewer points of guidance for the user. This makes Stencyl a powerful tool in the hands of a skilled user, as it boasts the potential for making games in a variety of genres, from platformer to dungeon crawler to side scroller and more. Stencyl's homepage touts, "Create Amazing Games Without Code: Stencyl is the quickest & easiest way to make a game" (http://www.stencyl.com/). However, this mantra is more idealistic than realistic. Even with step-by-step tutorials, the learning curve to using Stencyl is extremely difficult as there are so many different options and potentialities embedded within the tool.

To create games, users navigate a GUI that divides major functions into Resources (subheadings: Actor Types, Backgrounds, Fonts, Scenes, Sounds, Tilesets) and Logic (subheadings: Actor behaviors, Scene Behaviors Code). All resources, also known as assets, need to be uploaded by the user and set up in various ways. For example, uploading and setting up an actor, here synonymous with sprite, may require many steps. The Actor options tabs
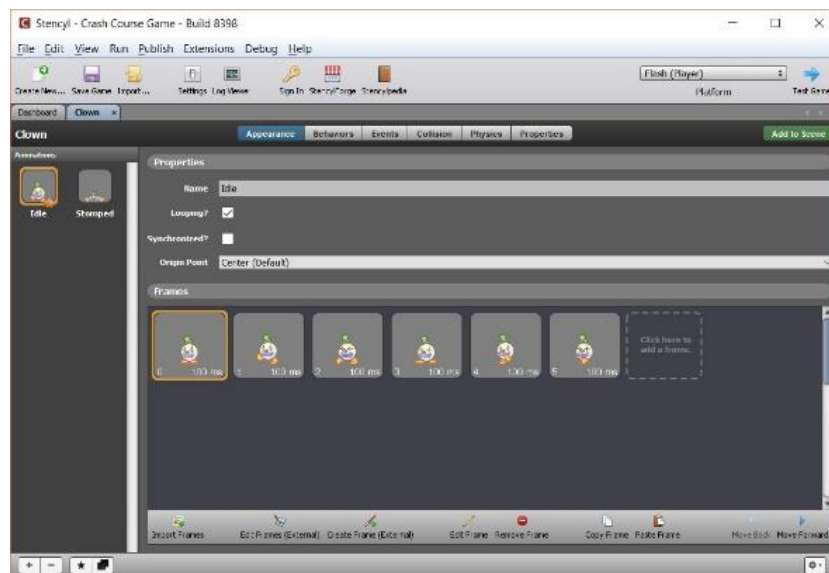
Figure 6 Stencyl Interface.

(Appearance, Behaviors, Events, Collision, Physics, Properties) near the top of the screen in

Figure 6 shows the available options that accompany uploading an actor.

In this example, under Appearance, the actor requires multiple images in various poses to

create animation. Setting up behaviors will demarcate how the actor moves and how it will be

interacted with by other in-game actors, objects, and environments. Under the Events tab, users

fit interlocking color-coded blocks together to form conditions and statements that will apply to

the actor under various circumstances such as where the actor will appear at the start of a scene,

what will happen if they are clicked, calculations for varying jump heights and speeds (Figure 7),

etc.
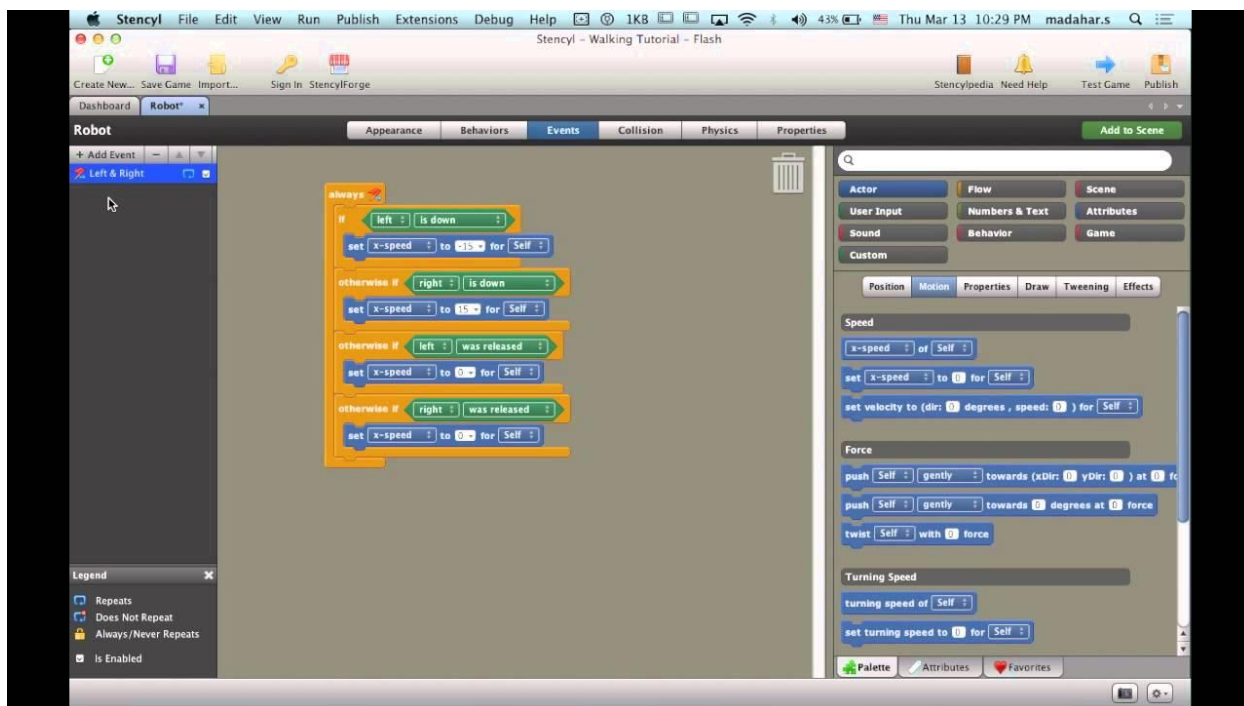
Figure 7 Stencyl's Interlocking Blocks System Simplifies Coding.

Demarcating the invisible barrier around an in-game image, or hit-box, occurs under the

Collision tab. Last, users configure options under the Physics tab to determine gravity and

orientations, and the Properties tab allows users to keep notes on the actor. If it sounds complex,

that's because it is. Even though Stencyl streamlines a great deal of coding by turning swathes of

code into "behaviors" and "events," there are so many possible configurations and such nuance to the order of operations that beginner game designers who jump into this tool face a steep learning curve despite its promise of simplicity.

Therefore, when it comes to Stencyl, users do not need to have extensive knowledge of coding, but knowledge of procedural logic, access to well-developed learning resources, and a high tolerance for trial and error are necessary to achieve anything beyond re-skinning extant Stencyl games. Although it is undoubtedly easier than building an entire game from code, users with knowledge of how code works on a fundamental level will have a much easier time than those with no introduction to coding logics. Other drawbacks of this tool are that it is somewhat demanding of computer processing power and therefore not guaranteed to work on more affordable, low-end computers. Similarly, exported files are quite large and unwieldy to store and share on budget computers.

Stencyl is intriguing because it offers so many affordances to its users and can yield polished games in experienced hands. It is among the more difficult tools still accessible to those without coding skills, and its inclusion in this analysis is meant to reaffirm my project as one intended for novices. Stencyl differs from RPG Maker and Twine because of its higher barrier to execution, yet also offers far more power to generate nuanced, open-ended game designs if a user is motivated and privileged enough to work through those barriers.

Stencyl Inaction

Stencyl was offered as a tool for participants of the Women's Game Design Group. This group was populated by eight women who learned how to design a game (some for the first time) over the course of eight weeks. It was offered free of charge to participants and was designed and

facilitated by myself.[11] During the third week of the group, I introduced the game design tools that I had expertise in: Twine, RPG Maker, and Stencyl. After showing the participants different games made with each tool, I asked everyone which tool they were considering for their own projects. Four out of the five participants in attendance that day stated they wanted to use Stencyl. I didn't originally plan on having a dedicated day to teach this tool but there was so much interest that I rearranged the schedule to create a day for instruction. Amy described her perception of Stencyl at the mid-point of the 8-week run and what drew her to the tool:

> At the very beginning I tried to use the Twine but after I saw your example, it looks like Stencyl is more fun in terms of gamer's perspective, not mine. Twine obviously looks easier to make but I think Stencyl, in terms of perspective of gamer, they can like, navigate my narrative and explore. And in Stencyl there is more opportunity to make something I can use like puzzles or any kind of game, that is why I'm choosing Stencyl.

Despite this, Amy ultimately decided to use Twine to create her game. The allure of Stencyl as an expansively enabled, no-code needed platform is nicely summed up in the quote, and its disappointingly steep learning curve is nicely represented in Amy abandoning the tool. It has the ability to make what we think of as "real games," but with that comes a frustratingly high requirement for time commitment, patience, and tolerance for failure.

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[11] Greater detail about this group can be found in chapter 2 Methods and Chapter 4 Outside Game Design: Crafting Feminist Care Beyond Industry Norms.

To teach Stencyl, I followed and explained a written beginner tutorial from the website and projected it onto the screens in the room and asked participants to follow along with me. They also had access to the tutorial from their own computers. In my past experiences teaching game design tools, there is usually a moment where participants first see their sprite move and their excitement becomes visible. I expected to see that same "a-ha!" moment at the Women's Game Design Group. However, on that day I noted that only two of the five present participants seemed excited about their progress. One explanation for this might have been that the tool was more intimidating than expected. When asked during the mid-point interview what their experience with Stencyl had been like so far, Donna said:

> I haven't completely learned it yet, but I'm learning how to use it to make games. It's really, it's a cool tool. It's pretty easy. Complicated in some respects, but lots ... like you've laid out for us, lots of documentation on what to do, so that's pretty cool… it is kinda complex. There are lots of things to take into account that could make your game not work. There's the menus, the options are extensive, so it's like you've kinda got this little main desktop work area. But then it's like, for each character, or for each actor, then there's a submenu for that. But then you have to go into this completely other menu to change the properties of this and add this...

This response wavers between feelings of competency with the tool and pointing out its difficulty. Still fresh in her experience with the tool, Donna begins by saying she's still learning and it's "pretty easy" but spends a lot of time explaining its complexities. Ultimately, Donna left the group early and did not end up finishing her game, although upon leaving she stated that she intended to follow along with the group from a distance. When asked in her post interview what contributed to her not finishing her game, she explained that being at a distance from the group

was a major factor but also she also was not having success with her work in Stencyl: "I was also

having some trouble with Stencyl, I couldn't get some of the behaviors to work properly when I

started making some minor changes, so that was a little frustrating." Donna points out that

making even minor changes to the starter build we did in the tutorial posed frustrating

challenges. This exemplifies just one possible stumbling block that can make Stencyl a time

intensive, failure-heavy tool.

Another participant, Kelsey, who ultimately used RPG Boss to make her game (a

freeware knockoff of RPG Maker) noted the time investment required to learn to use and then

implement the affordances of Stencyl as a hindrance to her ability to use it. She said: "For

Stencyl, I thought I liked it. But the sprite thing, I was having such a hard time. And then you

had to upload and make each one of them, and I was so tired— after doing one of them. So, I

was like, I need to make a lot of characters. I can't do it like this for hours." Here, the time

commitment was too much for Kelsey. Kim put it more succinctly: "Stencyl just felt a bit too

much for what I was trying to do." Through these responses it can be understood that while

Stencyl is appealing to early game designers, its complexity requires too much time to learn and

implement.

Discussion

The features of each tool are summarized in Figure 8. Through looking at each programs'

features and analyzing them in action, it becomes clear that despite the appeal of Stencyl's

features, the program's time-intensive learning curve and complex interface makes the tool

inaccessible to the beginner users in this study. By giving the tool a range of modes of expression

and allowing a diversity of game types to be made, the interface and options become unnavigable

and overwhelming to beginners unfamiliar with the underlying mechanisms of the program and

without the time or attention to be able to devote to learning it. Stencyl is a tool much better suited to someone with prior computer programming knowledge and/or an excess of free time.

Time becomes an important factor in these contexts from a feminist perspective because a lack of spare time in participants' lives. Busy lives, from being enrolled in classes full-time to having graduate student responsibilities, to job or family commitments, can become a barrier specific to this context. As outside time commitments increase, participants' ability to become fluent in, or even progress at all with some of the tools was drastically reduced.[12] In respect to time constraints, Twine is the most appealing tool among the three here analyzed.

Table 1 Game Design Tool Comparison.			
	Twine	**RPG Maker VX Ace**	**Stencyl**
Cost to use	Free	$69.99	Free
Free Online Resources	Many	Many	Many
Real-time Collaboration	No	No	No
Operating System Support	Windows, Mac	Windows	Windows, Mac
CPU needs	Basic	Intermediate	Intermediate-Extensive
Onboarding	Simple	Intermediate	Difficult
Mobile accessible product	Yes	No	Yes
Mobile accessible process	No	No	No
External Asset Support	Minimal	Intermediate	Extensive
Genre	Text-based	RPG	Multiple
Prior Programming Knowledge Needed	None	None- Intermediate	Intermediate-Extensive

It is important to note that Twine is a tool that was not originally created *for* game making. As a result, it lacks some of the baggage that tools created specifically for game design often carry such as RPG Maker's default white male sprite. Using Twine for game design was a shift led by online queer communities, particularly game designer Anna Anthropy. Through her online presence and book, *Rise of the Video Game Zinesters* (2012), Twine's potential as a game

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[12] Time in these efforts will also be explored in other chapters as a theme.

development tool grew to attract wide attention. The importance of Twine as a cultural artifact that catalyzed a movement of experimental game designers making personal games is well covered in popular culture outlets (Ellison, 2013; Hudson, 2014) and particularly Alison Harvey's (2014) article on Twine's democratization of game design and the book *Video Games for Humans* (Kopas, 2015).

What is worth interrogating about these tools is not necessarily always, or ever, the product produced by these tools, but rather the processes and ways of being these tools afford. Many of the games made with RPG Maker by student participants featured a white man protagonist, which I initially understood as a failure of my pedagogy. However, such an impulse toward self-blame precludes contention with the possibility that it is entirely possible for a game experience to incorporate feminist ideals and also feature a white man protagonist. In the hands of a first-time game designer, RPG Maker subtly encourages users to default their main character to a white man, but the effects of this can be made less insidious given certain, well-structured contexts. The demarcation of a turban-clad character under a subheading named "Evil" is unequivocally problematic. The racist and sexist issues of representation in RPG Maker are problematic, yet can be used by instructors/facilitators as a discussion point and/or to structure assignments to counter the tool's effects. Despite reflecting troubling cultural norms through its interfaces and menus, RPG Maker can still be used in feminist efforts.

It might seem logical, if misguided, to conclude that the high bar for use in more demanding programs like Stencyl preclude making more nuanced –and feminist-driven— characters, stories or modes of play. The threshold for using more sophisticated programming may mean that novice designers fall back on game builders that limit their choices, for example, when only male/female avatars are offered, however, a user dedicated to feminism would find

ways around or to subvert these limitations. Working within extant systems to disrupt them can be just as, if not more effective, as working outside them.

Ideally, tools would not contain such biases as sexism, racism, or heteronormativity. The tools available in the status quo afford some level of reflexive subversion, but we can look forward to technologies that embed feminism more deeply in their processes. Tools can be made such that they more closely reflect the work they are being used in service of. Some work is already being done toward this effort, as Schlesinger (2014) argues:

> By combining the disciplines of feminism and computing, there is an opportunity to construct technology that perpetuates a non-normative philosophy. This means that technology can be built that intentionally does not reify patriarchal, neoliberal structures or monolithic, normative Western cultural values. (p.2)

As established at the start of this chapter, feminist technologies cannot exist (in isolation) since their use cases must always be considered and any artifact can be used nefariously. However, feminism and gaming are ready for an accessible tool that allows women to enjoy game design experiences that don't reproduce the harms of capitalist patriarchy.

Conclusion

The process of designing a game results from a network of actants that vary from context to context. Almost every context will include some variation of a person or group of people who aim to design a game and a tool (or a few tools) to aid the endeavor. Identifying the full assemblage of actants in a particular context, as well as considering what the ideological intention of the game design process is, gives us a viable entre for judging a tool's efficacy as an agentic part of that network. Thus, the biases, affordances, and constraints inherent to game design programs are also actants in game design (especially for novices), as they influence how

and what gets made and further provide insight into the political ramifications associated with such processes and products.

Moreover, we can purposefully situate tools within particular networks in order to increase their usefulness as means to feminist ends. It is true that some game design platforms may have the potential to overdetermine outcomes "in the wild," but when combined with appropriate structures such as expertly led discussion and reflection, can still be put toward feminist efforts. In this instance, I was assessing how these tools can be used for the feminist work of diversifying the pool of people who can reasonably access digital game design. Thus, these tools, by and large, *are* doing feminist work by lowering the bar to entry, though expanding access via 'lowering the bar' will not qualify as a feminist goal unto itself in every context. Nevertheless, we should not look past the dangers embedded in these tools that may reproduce racist, sexist, and other discriminations, nor such systemic barriers as the confluence between Stencyl's learning curve and a lack of time for women in college.

Noah Wardrip-Fruin (2012), while discussing technology that eases the technological burden of storytelling, stated that "the crafting of special purpose authoring environments—from game engines to interactive animation software…can make some tasks much easier and others impossible" (p.233). It is programs that achieve this, the streamlining of various computer programming processes, that make game design easier for beginners but also constrains these early designers in potentially harmful ways. Building context around the sites and procedures of using these tools can mitigate some of their entrenched issues. By bringing attention to the problems inherent to a software program, such as its time needs or discriminatory content, these shortcomings can be used as discussion points while still allowing users to benefit from the advantages the tools offer. For example, RPG Maker, when used in a classroom or structured

group, could be introduced during a class or unit on social justice and gaming. Finding or creating opportunities to do this scaffolding work, particularly in a post-secondary context, is what will allow these tools to do feminist work best.

Therefore, it *is* possible to use programs like RPG Maker, Twine, and even Stencyl, subversively. While the technology does contain biases and constraints that have the potential to do harm, this chapter explored the limits and opportunities associated with employing specific software objects for use toward disrupting entrenched hierarchies in game design. Therefore, one way forward for feminist efforts is to acknowledge that technological complexity does not produce better, or more compelling games. In fact, in many cases it's the opposite, in so far as indie game makers are the incubator for good game ideas and the bloated and risk-averse AAA game industry more often relies on reduction in richness of choice compared to less technologically advanced games. This and other issues with indie and AAA gaming industries are explored in the next chapter, in which I also describe my response to these issues in the form of interventionist research with a feminist game design community that I organized, facilitated, and documented.

CHAPTER 4- Outside Game Design: Crafting Feminist Care Beyond Industry Norms

The games industry "pipeline," a metaphor used to describe the educational path from early education to a career in the gaming industry, is wrought with pitfalls for women and other people whose identities do not fit the cisgender, straight, white, male paradigm of the majority of this industry. Beginning in primary school education, this pipeline works to subjectivize people into the ideal worker to thrive under the demanding, masculinist conditions of the AAA and, as will be discussed, much of the indie games industries. Those who do not (or cannot) reshape themselves to fit the norms fall to the wayside, resulting in much higher barriers of (re)entry into the games industry. As a response to these conditions, this chapter presents the processes and results of what might be considered a feminist interventionist experiment in constructing and facilitating an inclusive game design community situated within the university campus that shifts away from patriarchal norms of the games industry and game design education. This is not an attempt to find an alternative way 'in' to the pipeline, but rather an endeavor to operate outside of it altogether. [13]

This is an experiment in what happens when we more fully attend to problems of toxicity and overwork in the games industry, and to the ways these conditions can easily permeate into other game design contexts, however well-intentioned. It is an iteration, a next step in shifting game design away from market-driven logic that supports and perpetuates a patriarchal, heteronormative, and otherwise oppressive set of industry norms. To accomplish this, I draw inspiration, tools, frameworks, and methods from extant feminist gaming communities, feminist

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[13] As noted in previous chapters, this endeavor is inspired and informed by those who have been doing this work already. A particularly noteworthy source of inspiration is the work of game designer Anna Anthropy.

theory, and earlier instances of feminist media-making communities. Additionally, my work was informed by my own experiences teaching game design in a college classroom setting and serving as a co-lead of the informal learning subdivision of a large grant dedicated to "diversity and equity in the game industry and culture and effecting real change in a space that has been exclusionary to so many" (http://www.refig.ca/).

This chapter unfolds in three sections. I begin with a literature review of the histories of toxicity in the games industry pipeline from game design education to AAA and indie studios. This literature review is pertinent to both this and the following chapter (chapters 4 and 5). Next, the data and analysis section of the chapter delves into the specific actions I took and decisions I made in designing and executing this "outside the pipeline" initiative. In this section, I name and analyze four themes that informed my decision-making when structuring and facilitating the group: (1) *a creative failure exercise*, (2) *prioritizing care*, (3) *asking participants to construct individual projects in a group setting*, and (4) *choosing an on-campus location for the weekly meetings*. Each of these themes reflects elements of the broader, contextualized experience of doing game design; theme 1 deals with a specific activity, themes 2 and 3 concern ongoing and multi-faceted efforts within the game design process, and theme 4 regards the fundamental importance of physical context. The goal of analyzing these four particular themes in my decision-making process is to thoroughly account for how the larger context of the group's design contributed to the key opportunities and barriers experienced in that space. For example, between myself and the participants, there were potentially notable increases in self-efficacy, altered conceptions of game labor, a novel understanding of feminist failure, and I identify the ambivalent role of the university institution. These effects arose from the situated context, which

I designed with great intention and care; thus, they can best be understood via the proposed contextualization within the four themes named above.

Literature Review: Understanding and Countering the Pipeline To-Date

The game industry pipeline is a systemic and structural set of conditions that ultimately rewards would-be game-industry workers who occupy already privileged identity positions: white, masculine men who are straight (or straight-passing) and cisgender (or cis-passing). As the pipeline metaphor suggests, there is a streamlined path to successfully entering and remaining within the game industry. The metaphor also points our attention to the fact that pipelines are quite impenetrable; a person either enters at the beginning and is carried along with the current, or is left behind with no (or few) other means of gaining access. The following literature review covers the research and thinking to-date on this phenomenon, beginning with the game industry pipeline predecessor: the STEM pipeline. Then, I review each major element of the pipeline: game culture, education, industry, and indie games. Finally, I consider some sites of intervention and resistance to this phenomenon that informed my own endeavor to create an "outside the pipeline" game design experience.[14]

Part One: The Pipeline and Its Problems

The pipeline metaphor as applied to the video game industry is rooted in understandings of the STEM pipeline more broadly. Coined in the late 1980s, this metaphor was based on a prediction by the National Science Foundation regarding an imminent shortage of Ph.D. scientists and engineers, which was and continues to be a myth as many scientists with

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[14] As mentioned earlier, this literature review pertains to both this chapter (4) and the following (5).

doctorates cannot find work (Garbee, 2017). Broadly speaking, the metaphor suggests a step-by-step, sequential process by which a person becomes a scientist, assuming a direct and intentional path. This understanding of how people train for and succeed in STEM careers has been contested both colloquially and in scholarship (Carlone & Johnson, 2007; Cannady et al., 2014; Garbee, 2017). Cannady et al. (2007) traced the career pathways and progress of college students majoring in STEM fields into the workforce, and found four composite paths to a STEM career rather than a singular norm. Though the particulars of the beginning and end of the pipeline and its specific path are contested (Garbee, 2017), this metaphor has persisted and proliferated, particularly in discussions on how to both recruit and retain more women and racial or ethnic minorities in STEM careers. In reference to this, these losses are referred to as "leaks" in the pipeline (Institute for Higher Education Policy. "Diversifying the STEM pipeline: the Model Replication Institutions Program"). Research consistently shows the lamentable (though largely unsurprising) trend that women of color in particular face drastically higher barriers on the path to gaining and sustaining a STEM career (Espinosa, 2011; Ong et al., 2011). Many of the most difficult barriers for marginalized people in the STEM pipeline occur during higher education pursuits (Espinosa, 2011).

Like the greater problems in the STEM pipeline, the problems with the video game pipeline start in education. By conducting interviews with students, instructors, and administrators from game design programs in higher education in the UK, Harvey (2017) found that barriers to diverse participation in these programs include lack all of the following: recruitment of diverse students, structural support and retention plans for these diverse students, diverse teachers, and value for what diverse teachers bring to table. Moreover, cultural norms in the game education also obstruct efforts for more equitable representation. Gouglas and Gordon

(2018) found that in Canadian higher education game programs, "a highly masculinized labour bravado, technological fetishism related to games skills, and tolerance for imposed precarious entrepreneurialism" were prevalent, all of which contribute to a (passively or actively) hostile environment for marginalized people. Beyond just education programs, these three cultural aspects continually arise in literature as deeply entrenched and normalized conditions which impede women's success in the industry.

Higher educational programs with clear career end-points, such as game studies programs and the game industry, usually endeavor to enculturate the students into the norms of their intended careers. Game studies programs especially fall into this trend, since they must justify themselves to students looking at other possible entry points to the game industry (art, graphic design, mathematics, computer science, etc.). Thus, the "edge" of a game studies program comes from its ability to socialize students into the system of "gaming capital" (Consalvo, 2009), which is highly desirable among industry recruiters (Harvey, 2017).

Gaming capital becomes a core component of what it means to be a games industry worker, and this becomes yet another way women are left out. For example, it is understood that identifying as a "gamer" is an unstated job requirement in the industry; gamer identity is part of the gaming capital. Yet "the label 'gamer' is a media consumption identity [and] an emphasis on gamer identity discourages more diverse interest in the profession" (O'Donnell, 2012, p. 110). Relatedly, being conversant in the vernacular of gaming becomes an important aspect of the industry worker (O'Donnell, 2009). These trends, among others, often result in leaving women behind, since boys are more likely to have been socialized into the identity and jargon of the 'gamer' from a young age. Thus, higher education game programs subject their students to these

trends as normal during their education, which results in a much steeper (and unfriendly) learning curve for women and other marginalized people.

The contemporary games industry is notorious for its extreme working conditions and poor labor practices. Conditions that cause concern include long working hours, 80 hour work weeks during crunch periods with no overtime pay, projects being canceled with little notice, frequent lay-offs, temporary contracts and career-limiting NDAs/non-completes alongside other controversial hiring and firing practices, and extremely quick burnout (Dyer-Witheford & de Peuter, 2006; Kerr, 2006; Deuze & Martin, 2007; O'Donnell, 2014; Kerr & Kelleher, 2015). As in many tech fields, secrecy and gate-keeping have become normal in the game industry, perpetuating a masculinist tendency that makes it difficult for co-workers to build meaningful and innovative learning communities. Succinctly, there is a "norm of overwork" (Dyer-Witheford & de Peuter, 2006, p. 610) in the games industry. This fact is bolstered by results of the 2017 satisfaction survey by IGDA 68% of respondents did not plan to remain in the industry more than ten years (IGDA survey, 2018).

One explanation for the persistence of these conditions is that "this industry has been able to recruit such a large number of voluntary workers [due to] the fact that the industry has been careful to project an image of itself that highlights its dedication to high-quality games and deemphasises its dedication to profit" (Kucklich, 2005). Put differently, this industry preys on the passion of workers to both recruit and retain them (Consalvo, 2008; Dyer-Witheford & de Peuter, 2006; Williams, 2015). Moreover, game development work is commonly misidentified as closer to play than work (O'Donnell, 2014). These qualities ensure there is never a lack of willing job applicants. Together, these conceptions about what working for a game development company entails helps to perpetuate the poor conditions.

Through both education and industry norms, the pipeline is a process that not only provides extreme advantage to those who already have the most privilege in education and workplace settings, but also facilitates a feedback loop in which the harmful practices of the game industry become ever more deeply entrenched. Women in the games industry face these same conditions but with added gendered discrimination such as harassment, hostile work environments, and being overlooked or ignored for positions in favor of their male counterparts (Consalvo, 2008). Because of this added burden, women are more likely to stop climbing the corporate ladder or quit altogether, resulting in a "largely male-dominated workforce [that is] subjected and sustained by a largely female-conducted sphere of invisible, unpaid caring labor" (Dyer-Witheford & de Peuter, 2006, 601). Even when women do work in the industry, it is commonly through taking on "feminine" jobs such as administrative and human resources work (Kerr, & Kelleher, 2015).

The indie games scene is often cited as a less troubling alternative to the game industry pipeline. "Indie" has many meanings—some quite vague, as Lipkin (2013) calls it anything that "is not mainstream" (p. 10). Despite its nebulous definition, indie work is often segregated into two forms: amateur work that does not pose much of an economic threat to the big development companies, and work that may as well be AAA since it reproduces and reifies many of the practices of that segment of the industry. Because of the risk-averse nature of contemporary AAA development (O'Donnell, 2014), publishers have increasingly relied on players, modders and indie developers to lead innovation in the industry. However, indie game developers often struggle to break into the game market in a profitable way since "the growth of licenses, combined with consolidation in the digital games industry, is making it increasingly difficult for new entrants and independent developers to operate" (Kerr, 2006, p. 72). Because the barrier to

entry for producing indie games is so high, self-sufficient, independently wealthy indie producers are the ones driving innovation (Parker, Whitson & Simon, 2017), which does little to diversify the group of people producing successful games.

The path for successful indie games diverges: either indie creators have the independent means to produce their own games regardless of the high monetary and physical cost to do so, and can therefore take creative risks; or they must bow to market demands and create more derivative, safer games to hope to make a profit. Either way, indie work often ends up reproducing the same problems as the AAA, albeit with smaller numbers of workers, smaller budgets, and greater economic precarity. Moreover, indie work is often incorporated into the mainstream game industry when it does innovate and push boundaries (De Peuter, & Dyer-Witheford, 2009; Lipkin, 2013), thereby eventually contributing to the same structural problems for women and other gender minorities (Fisher & Harvey, 2013). This should not be surprising as Stabile (1994) reminds us that oppositions to hegemonic forces often get reabsorbed and become part of the hegemonic force.

Part Two: Extant Work to Resist and Disrupt the Pipeline

To date, there have been three main approaches to attempting to disrupt, resist, or otherwise circumvent the pipeline in the game industry. The first has already been discussed: the notion that the indie games scene will work to change industry norms. Since this does not work, there are two remaining models for diversification efforts to consider: grassroots initiatives that train and support women and minorities specifically in order to get them into game design jobs, and non-capitalistic design endeavors that are so non-threatening to the industry's structures and markets that they can push forward with more radically inclusive projects. I discuss each of these branches briefly below.

Grassroots community groups, such as Pixelles and Dames Making Games (DMG), have operated since the early 2010's, with the express purpose of helping women and minorities break into the game design industry. Their efforts include offering training and access to industry-related skills development, networks, and career opportunities. Without doubt, these groups have been invaluable in paving the way for beneficial changes in diversifying the games industry and fostering the safer spaces needed for lowering the bar to entry. However, Consalvo (2008) notes that finding better ways to recruit more women into careers in gaming is a bandaid fix; these efforts fail to have long-term effects because the industry remains unchanged and therefore does not retain these women. As more recent trade articles indicate, this is largely still the case due to issues like lower pay, poorer chances at promotion, and sexual harassment (D'Anastasio, 2016; Taylor, 2018; MacDonald, 2018). In other words, if we judge the success of initiatives and communities like Pixelles and DMG on whether or not women are getting into the industry, we miss the larger picture of what women experience, what the larger issues might be—and consequently, how to solve the problems for women in the industry.

Beyond indie games and women-focused recruitment and training efforts, the remaining efforts so far share one major characteristic: they are primarily non-commercial game design efforts that exist so far outside of the structures of the mainstream (and indie) game industry that they pose no threat to the economic dominance of AAA studios. It is not surprising that game design projects like this are often led by women and/or gender minorities and queer folks; other alternative media production like this has historically been the purview of the marginalized. For instance, online fandoms are so obviously non-masculine spaces that they are rejected as meaningful spaces for fan participation, despite being massive archives of artwork, writing, and speculation on future directions for narratives and character arcs. McGregor (2018) points out

that these massive networks of gender and sexuality minorities include people who "are video editors, graphic designers, community managers. They're absolutely immersed in technology, every day, and we aren't paying attention, because they're doing it in service of something we don't care about." The work of fandom is either not paid or funded by other community members for commissioned work as a supplement to a primary job. It does not look like or adhere to the rules of media produced by mainstream companies, so those companies and their preferred market of "good" fans (read: men who obsess over canon and buy every edition of the action figures) dismiss it as childish, meaningless, and undesirable.

This model for counter-hegemonic media production extends into the game design world, as well. There is a niche of amateur developers who use accessible game design tools to make small games that are widely accessible to both play and make. Using tools like Twine, individuals are making games that "operate beyond hegemonic spheres of production and reproduction" (Harvey, 2014, p.104). Twine, as described in depth in chapter three, is a free to use tool that, at its core, makes branching narratives.[15] Much like fandom art and writing, the majority of single-author games are made using free software, and are very short, relatively simple, and shared online for free. This means the games are working outside the primary games industry and offer some challenge to the idea of what games are, what game work looks like, and who can make games. It is in this image that I strove to cultivate the inclusive game design group in this chapter's study.

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[15] Recall the work of Anna Anthropy (2012), in which she argues that the more people creating mediocre, personal games, the better. Notably, Anthropy herself "leaked out" of the pipeline, a case in point of the way women and gender minorities with great skill and innovative thinking are not cared for or prioritized within the typical path to entering the game industry.

However, this paradigm is not without complications. Harvey (2014) reminds us that this mode of game production "entails a number of real risks, and we should be careful not to equate emancipatory promise with poorly paid, insecure work and life below, on, or near the poverty line, dependent on the vicissitudes of crowdfunding" (p.104). While games made with beginner tools like Twine exemplify game work that is counterhegemonic, it is not without its own set of dangers. It is in cases such as these that the communities that surround a tool or practice are invaluable. Further, this is one reason why I chose to construct this game design group on a college campus with college students in an attempt to allay some of these issues of lacking support and longevity. However, as will be indicated in the following data section, longevity was not achieved for varying institutional and structural reasons.

Data and Analysis

As described previously in Chapter 2: Methods, I recruited for, organized, and facilitated an informal game design group for eight graduate and undergraduate women. The group met weekly for two to three hours in an on-campus media lab. Meetings were semi-structured with conceptual content and skill-based knowledge being offered to participants in an interactive, semi-formal style followed by free work and social interaction time. Listening to participant needs and shaping the group to fit their needs and interests lead me to restructure some of the meetings to cover different topics and offer different social, creative, and gamic experiences than originally planned. Ultimately, topics covered included: creative ideation and facing fear of failure, game narratives, game characters, game art and sound, how to use beginner game design tools (Twine, RPG Maker, and Stencyl), playtesting, and future plans. To collect data I used observations, my own self-reflections, and semi-structured interviews at the halfway point and again after the group stopped formally meeting.

I report on the data from this study via a format that foregrounds my agency within this context. Using feminist interventionist methods, I constructed conditions with no particular outcomes attached in hopes of allowing participants to focus on the process and less on the product during their time with the group. Participants of this study were responding to and interacting with structures and activities that I designed and organized. Therefore, I report on this data by describing four of the most impactful choices of the design group's format and day-to-day workings, and my reasoning for implementing them. After I describe the details of each respective choice, I state the resulting consequences of them, both good and bad, fruitful and stagnant. By offering details and rationales on the specific material structures and choices I made and supplementing this vision with my own observations and reflections from participants, I convey the narrative of my interventionist work and agency as it was also experienced by myself and participants.

Make it Ugly

In attempting to work outside the pipeline, I deliberately situated game design along other, more approachable and potentially familiar forms of making such as craft. Westecott (2013) asserts: "By blending discussions of DIY game practices within older traditions of feminist theory and recent work on craft, it is possible to create a genealogy for DIY games that takes into account previous activism and presents possible strategies for ongoing action" (p. 89). Following Bratich (2010) and Westecott (2013), to make this connection clearer to participants, I emphasized game design as akin to craftwork through building overt and covert crafting practices into the weekly skill work and activities. As will be discussed more fully in the conclusion of this chapter, I implemented structures and activities that may initially seem

peripheral—or even unrelated entirely— to the games industry and pipeline but in service of truly inventing new strategies of engagement with game design.

During the first meeting, participants and myself played the folk game Exquisite Corpse[16] as a way to break the ice, socialize, and start thinking about making and playing as approachable. In an effort to draw attention to the connection between game design and craft, I would often ask participants to reflect after activities on what they found easy or difficult about the exercise and what it reminded them of, since reflection is a key way to learning with games (Nicholson, 2014). This drawing game was meant to pave the way for the activity we would pursue during our next meeting, the "Make it Ugly" exercise.

Figure 8 Participants' "Make it Ugly" creatures.

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[16] A folk drawing game where players take turns drawing individual body parts, folding the paper over to hide it, and then passing it to the next player to draw a new piece of the image. Final products are often surreal and/or humorous.

During the second group meeting, I facilitated an activity invented by Kim Piper Werker (2014) called "Make it Ugly", where participants fill out a worksheet describing what kinds of fears they have around making, followed by an activity where participants use found objects and craft supplies to construct an intentionally ugly creature. Figure 1 shows six of the eight ugly creatures made by myself and the seven participants in attendance that day. This activity was immediately followed by an informal showcase and discussion of the experience among participants.

This activity's inclusion may seem tangential to game design but my implementation of it was in service of several interrelated goals: 1) help participants overcome a fear of failure or perfectionism by showing them that even when they are actively trying to make something ugly, it is not ugly 2) further connect making games with material making like craft 3) emphasizing technology as practice (Franklin, 1999) and 4) exploring the value of process as, if not more, important than the product to again allay some anxieties participants may have had around designing a game for the first time. These were goals of mine due to my own personal experiences and background knowledge of issues that may prevent women from trying new things or encourage women to push through doubts.

To give context for why these issues matter, particularly for beginner women, I refer to research that reveals beginners, particularly women, can lack confidence (Lenny, 1977; Hill, Corbett, & St Rose, 2010) and enact stereotype threat (Steele & Aronson, 1995; Richards, 2015) as a result. In reference to *playing* games, Richards (2015) and Ratan et al. (2015) describes how women and ethnic minority game players were "significantly more vulnerable to stereotype threat" (p. 3). In other words, because they are aware of stereotypes related to an identifier such as woman or Black, they fear fulfilling them and therefore prefer not to risk making themselves,

or others like them look bad. Since playing video games is virtually a mandatory prerequisite for joining the industry (Dyer-Witheford & de Peuter, 2006), it was my assumption this may play a role in why some of my participants avoided pursuing game design on their own and I preemptively wanted to provide structures to alleviate that potential.

As it resulted, multiple participants stated the "Make it Ugly" exercise was the most memorable experience from the group in their interviews, explaining it helped them see the practice of making differently. Undergraduate participant with no prior game design experience Sierra said: "It's a good reminder that it's better to just make something and not worry about it being perfect...Just seeing that it had, all of [the creatures], had value in this one room, and we could all enjoy each other's and learn something about each other from them was cool." In this reflection, Sierra expresses how her tendency to strive for perfection impacts her ability to enjoy making in any capacity and the exercise allowed her to see the value in imperfect products. This was also echoed in another's response. A graduate participant with some prior game design experience, Rose said: "One of the biggest things that I have is, if it doesn't fulfill my vision, not only do I stop doing it, but sometimes I'll take it a step further, and I'll just completely ruin it. Like purposely. It's kind of a weird self-sabotage thing."

Both of these responses smack of perfectionist tendencies. Perfectionism is more common among women than men (Flett & Hewitt, 2002), making it a particular concern for this population, and something I personally struggle with. If the game industry recruits labor through un/officially requiring a litany of masculine-coded, knowledges and competencies, women could be even less inclined to even *try* to gain these credentials when they may already feel so far behind. Therefore, it is logical why women with such tendencies would be reluctant to approach

game work as a career option or hobby. This quality of being willing to try is self-efficacy and may play a role in my context.

Self-efficacy "is the belief in one's ability to influence events that effect one's life and control over the way these events are experienced" (Bandura, 1982, p. 2). Since varying technological uses and skills are highly gendered (Wajcman, 1991), users' perceptions of their own technological competencies matters. Neil Selwyn's (2007) study on undergraduate perceptions of information and computing technologies found that participants' perceptions about who excelled in using particular technologies such as video games or internet chat rooms "were often rooted in wider stereotyping about the activities in which men and women were assumed to engage and excel" (p. 531). These stereotypes have persisted since at least the 1980s (de Castell & Bryson, 1999) and have disadvantaged women materially in multiple contexts, especially affecting who does and does not approach the growing and lucrative field of technology-based careers (Wajcman, 1991; Cockburn, 1992). These influence self-efficacy, which in turn is important for women getting and succeeding in STEM or other male-dominated career fields (Zeldin & Pajares, 2000). I identified three ways in which self-efficacy may have mattered to my participants: Knowing more, thinking differently, and actually doing. The level of base knowledge for some people was lacking. Greater knowledge about gaming and game design in general was an outcome for Sierra:

> "I wanted a way to be able to talk about [games] and then know what kind of games are out there...I didn't even know that there were all these different ways of building the narrative...Just the vocabulary I think is something that I wanted to get out of it...I think [knowing more about game design] gives me another way to analyze media."

Gaining insight into the norms of a culture that seems foreign is valuable to marginalized people because it can help make them feel centered, and therefore capable of meaningfully participating in such a culture. Three participants described their greatest success in the group as being able to even go through the process of making a game and come out with an actual thing that other people could interact with. One of these participants, Naomi, a self-identified "non-maker," stated the experience "changed [her] thoughts about what a game maker is." This assertion is more important than it may seem since it expands her understanding of who can make games – as crucial a condition in democratizing game development as, say, creating more accessible tools or more humane working conditions.

At the end of the study, each participant indicated that they either wanted to use some of the tools we used in the group in the future or that they intended to create another game. This may reveal a stronger belief in perceived likelihood of success in this endeavor, a strong indicator of self-efficacy (cite). Kelsey, who graduated the prior semester and took the game studies class taught by another instructor, expressed how their perceptions of their own interest in computer science changed after participating in the group:

> "I learned that I actually really like, it's so stupid, I actually do like computer science, and I actually do like coding. I can't believe I figured it out this late in the year, because it just leads me to a whole nother path where I'm like, 'I could also do this in my life/I need money to do this in my life.' So at the moment, I'm just kind of like... what do I do now?'"

Currently on the job market and not quite sure of what her next steps were, Kelsey felt she gained some clarity in terms of her interests as a result of the group. Her saying "it's so stupid" is telling of how the thought had apparently never occurred to her before. Although putting people

into the industry was not an explicit outcome, sparking an interest in a new career potential

shows promise that this or similar initiatives might spark new professional trajectories.

Increased feelings of self-efficacy may also be at work in how participants' learned more

about themselves and were able to express themselves through the process of making a game.

When asked if they gained anything from the experience or not, participants reported greater

self-knowledge about their awareness or skills in organization (Amy), attention-span (Naomi),

and following directions (Alexa).

Many participants reported that the opportunity for self-expression was a rewarding

aspect of the experience. Donna, a graduate student with limited prior game design experience,

said: "I really wanted to try to do something different with this experience, which I thought

would also help me deal with some of the anxieties that I'm feeling right now." This participant

latched onto the emphasis on process that was embodied in the Make it Ugly exercise, and

looked forward to the process of making a game as a way of helping her better understand

herself through working to make her feelings concrete via game design. These perceived changes

stand in contrast to some of participants' reported past experiences that prevented them from

learning more about game design or pursuing such knowledge or experience.

Prioritizing Care

As a feminist researcher, treating my participants ethically not just within the standards

prescribed by my university's Institutional Review Board (IRB), but rather attempting to *care for*

them throughout the research process, was an important choice I made from the start of the

project. First, paying my participants for their time was vital to my design. Each participant

received $10 per meeting they attended for any amount of time (up to $80) as compensation for

their labor and time. During our first and last meeting I provided a small amount of food for

participants. Since each person was asked to keep a journal of their design process, I gave each participant a new notebook that I told them they could keep as a keepsake or use for their journal. By providing multiple material gifts and compensation to participants I hoped to make them feel comfortable and appreciated, while also minimizing any costs they might have incurred.

Beyond implementing an informal, discussion-based pedagogy, I made it clear to participants that their thoughts and needs were important to the group's success. I chose the weekly meeting time based on the results of a survey I sent all participants in the month before we were to commence meeting, rather than making them fit it into their schedule; I tailored the meeting time to fit participants' availability. This would not be possible with a larger group but for a small group of eight it worked well. Further, during our second meeting, the group collectively came up with rules for the themselves. These included:

1. Equal authority (suggested by Rose because she did not want undergraduate participants to feel less important or useful since they differ in educational level);

2. Swearing is cool (suggested by Donna because she did not want to offend people);

3. Food is good (suggested by Alexa because she did not want people to be offended by her food smells);

4. Be a nice person/cyborg (I brought this up and then Rose elaborated adding cyborg).

By giving all participants a say in the rules surrounding this experience, I hoped they would feel that their comfort and feelings of safety were cared about.

Self-care has become something of a buzzword, if not an important feminist practice in the last few years (Harris, 2017). Care was prioritized by my design, with having participants

complete a self-care worksheet (Figure 9) during the first meeting and discussing the importance

Figure 9 This self-care plan breaks care into three areas.

of taking care of oneself mentally, physically, and spiritually particularly when we

are trying new, potentially challenging things. This was the last activity we did during the first

meeting and Sierra had left by that point, so the only remaining members were of grad student

status and knew each other relatively well before this experience. I hand out the printed out

sheets and explain the purpose and its organization into mind/body/spirit. Because of this

demarcation, I did feel obligated to point out how when filling the sheet out, it is useful to look at

what things fit for many categories giving the example of yoga helping my mind, body, and

spirit. Participants worked quietly, as we all filled out the form. After it seemed everyone

stopped writing I suggested anyone who wants to can share some of their work. Most people felt

comfortable to share the contents of their sheets and it was encouraging that people would write

down the ideas from the other women about effective ways to take care of themselves. This

activity resulted in a useful talk about the resources that help them get through tough times.

These tough times would come sooner for some participants than others. Over the course of the group's existence, four members (half) needed to drop out for various personal and professional reasons. One participant never made it to a single meeting since their job required more time and work than they expected. Another participant had a paid, career-oriented opportunity overlap with the group's meeting time by the midway point. Two other participants needed to leave for family-related reasons. I initially understood these drop-outs as an indicator of my own failure to create an important enough draw to keep participants. However, upon reflection paired with the results of the post interviews with the participants who dropped out, I reframe their leaving the group in terms of caring for themselves. These women prioritized the more important things in their lives long-term, careers and family, over the game design group that would only last 8 weeks and had no potential return in those same areas.

Individual Projects in a Group Setting

After the model established by prior game design incubators, I formulated the group in such a way that each participant worked on games individually in a group setting in contrast to groups of people working on one game together. This was decided to better allow for a holistic experience with new technologies and technological processes. Franklin (1990) tells us: "Using holistic technologies does not mean that people do not work together, but the way in which they work together leaves the individual worker in control of a particular process of creating or doing something" (p.11). This ethic stands in contrast to the Fordist ethic present in most technology industries where labor is broken apart into granular specializations (Kerr, 2006). Game labor is typically broken into requisite parts and performed separately by individuals who specialize in areas such as programming, art, sound, etc. Like the Fordist factory, this model of labor alienates laborers from the products of their labor (Weeks, 2007). This is one way that roles are relegated

into gendered hierarchies where elite technology work is coded masculine and care work like human resources and community management is coded feminine.

Although the final product and activities of the first group meeting were individualized, I put more effort along the way into structuring activities to get people collaborating and talking to each other more often. After the first group meeting I noticed extant divisions between graduate and undergraduate students persisted and I wanted everyone to interact more, so I paired people up for small experiential learning activities such as playing a game and then discussing some of the game design techniques present. Despite observations from myself and other graduate student participants that a rift existed between the undergraduate and graduate participants, many indicated the social aspects of the game group experience were among their most cherished.

On-campus meeting location

I chose to hold the weekly group meetings in an on-campus media lab for several reasons related to accessibility. First, it was a free space with tables, chairs, computers, and projectors, and since it was on campus and all participants were current or recently graduated students, I determined traveling to the media lab would be convenient even if participants didn't drive. However, my personal style of knowledge dissemination paired with this location made each meeting feel more formal than I intended or liked. Several participants accidentally referred to the meetings as "classes" in interviews but they did not indicate they disliked this format. Indeed, Alexa specifically said she preferred the group's style in comparison to the official game design club at the university which was much more loosely structured.

Complications related to this formality and its semblance to the norms of the college classroom arose as the space is located in the same area as a PhD students' office space and therefore the graduate students had more familiarity with it. It can be said that in looking to

understand the agency of the space, the on-campus media lab activated extant hierarchies related to institutional norms. Hill, Corbett & St Rose (2010) found that skills and expertise were less important to females' performance in STEM fields than their environments. Rose reflected in her exit interview about Alexa, an experienced, undergraduate participant: "It seemed like she has a lot of…game design experience…And I thought…'How can I present myself in this moment, so that this undergrad doesn't look at me like I'm a grad student, or a teacher? But like a student, because I don't know what I'm doing, and they do." Despite having far more expertise in game design, Alexa struck Rose as someone who should have more power in the space due to her expertise but didn't. Because of the power difference in their academic standing, it is possible Alexa cued into that as the standard of comparison, possibly as enhanced by being in the graduate space on campus, rather than looking toward the way her own advantage in the context gave her ethos.

Conclusion

As a final point to be made about this experience, since half of the participants needed to quit and none of the remaining participants produced finished products (among other reasons), my initial judgment of the experience was as a failure. After interviewing participants about their experiences with the group and allowing myself distance to reflect, I envision this experiment as a process of transformation, as a deliberate resistance to the binaristic and teleological conceptions of success or failure. Because of the exploratory nature of this work, many of the connections I draw across and between my observations and participant interview responses are preliminary. Further research that uses standardized scales of measurement would be needed to evaluate the true presence and/or impact of concepts like perfectionism and self-efficacy among

beginner game designers. However, I would resist such an interpretation of the value and contributions of the work presented in this chapter.

One complication of my alternative approach to working outside the pipeline is that there are not extant standards for success and failure. When I attempt to make claims about values and outcomes as they intersect with the various decisions and thought processes that went into the creation and facilitation of the small group, there is nothing to judge it by comparison. So many intentional decisions went into the design of the group but it is still difficult to judge whether or not the specific decisions I made lead to particular outcomes, particularly when we frame it using lenses designed to measure success and failure by a standard that is not applicable to this particular experience – that is, by the standards of either post-secondary education (with its emphasis on demonstrable 'learning outcomes') or the games industry (with its emphasis on the profitability of a more-or-less-finished product).

Instead, this chapter's major contribution is to point us towards thinking about how we evaluate the success and failure of feminist initiatives that operate outside the norms, and what other alternative approaches might work for similar goals. When we refuse the established template of success (getting women into industry), there are going to be elements that seem out of place or need intense contextualization to make sense. Given that the old template is gone, the results cannot be similarly judged.

Further work on reassessing what a lens for success and failure could be means more extended attempts into this kind of exploratory work and developing more inclusive measures that, as practiced in this chapter, ask participants what they feel they've learned or gained through the experience. Therefore, as reported by participants, some of my efforts worked such as using creative crafting to allay fears of failure and structuring care into the core values of the

group. Others didn't such as using an institutional space to host meetings. Perhaps some made no sense in or out of context and that is inevitable while pursuing strategies that push at boundaries. Such work could perhaps translate the "squishy" feminist work that resists standard measures and outcomes into that language.

However, if we continue, as stated previously, to resist binarized thinking, we must look at the tension between feminism and failure. In compounding the tension between post-secondary and industry's notions of failure is feminism's historical obsession with the horizons of its own capabilities, with its own "impossibility" (Weigman, 1999). Through navigating around all these pitfalls— post-secondary measurements of success, industry measurements of success, the feminist focus on failure— and instead placing value in opening a space and time for technological production rooted in care and reflection, the ability to do that, in itself, is a success.

The following chapter's site of intervention more closely aligns with norms of the pipeline as it is directly sponsored by and looking to feed the industry. It succeeds and fails.

CHAPTER 5— Hackathon or Snackathon? Binaristic Logics & the Failures of Support

Following my experience planning, facilitating, and collecting data with the women's game design group, I had an opportunity in fall 2017 to study a campus-based game design event with seemingly similar goals to my game design group, but with fundamentally different institutional and discursive alignments. Therefore, this chapter provides exploratory data on another instance of inclusive game design on the college campus as it exists within the larger ecology of a) software design writ large, and b) a different disciplinary area within the institution: Computer Science.

Video games are just one media genre among an expansive and thriving software industry. Despite the massive amounts of money coming into gaming along with a series of emergent industries including gamification, e-sports, and VR, game technology for entertainment alone is less valued than other, more ostensibly practical software technologies like apps, health technologies, or gamified learning technologies. However, video games have been shown to be beneficial in teaching and training (Clegg et al., 2014), critical thinking skills (Romero, Usart, & Ott, 2015), and maintaining social and romantic relationships (Evans, Craig & Taylor, 2018). To put this in perspective, while games are used for various prosocial and altruistic pursuits, they are often understood as a part of the entertainment industry.

This chapter recounts my experience researching a campus-group sponsored hackathon (pseudonym FUNHACK) using methods informed by feminist ethnography (reflexive participant observation). A hackathon is "an event in which computer programmers and others involved in software development collaborate intensively over a short period of time on software projects. These hackathons are encouraging of experimentation and creativity, and can be challenge orientated" (Briscoe & Mulligan, 2014, p. 1). While hackathon structures may range

from a dozen people working in a single, small room to hundreds of people working throughout

an entire convention center, typically, larger or more institution-based hackathons are organized

and/or sponsored by major technology companies. The non-profit Major League Hacking

(MLH), is "the official student hackathon league" (https://mlh.io/) and partners with hundreds of

institutions yearly to provide guidance, resources, and prizes to hackathon participants.

Co-sponsored by MLH and organized by Women in Computer Science (WiCS),

FUNHACK was advertised as inclusive and aimed at supporting underrepresented genders in

technology; however, it notably did not exclude men. The event's website states: "As part of our

mission to increase women, non-binary, gender fluid and other underrepresented groups in tech,

we welcome anyone who currently self-identifies, or has ever self-identified, as female, non-

binary, or gender nonconforming" (https://www.ncsudiamondhacks.com/). Historically,

inclusive spaces have been typified women-only which is problematic because trans and

nonbinary folks were often left out and therefore FUNHACK's structure is literally inclusive by

not being exclusive to any identity. This model poses challenges, however. Most notably, as has

been established in chapter 1, the presence of even one man in a space can change people's

behaviors and comfort levels (Taylor, 2006).

This chapter will proceed in a brief overview of how I employed feminist ethnographic

methods and the way I positioned myself in relation to the site and participants in this context.

Next follows a literature review that describes the ways hackathons and other similar events

contribute to the conditions of women in the games industry. Finally, I identify key themes in my

observations and interviews.

Methods Overview

As with my other sites of study, I selected the methodology for studying FUNHACK based on what was most conducive to the constraints of the site's context. Thus, whereas chapter 4 was framed around my deliberate pedagogical decisions, this chapter proceeds by describing what I saw, heard, and experienced at the event. To this end, I used my sense impressions and embodied experiences as data collection instruments as I participated in the spaces, events, and flows of the hackathon. This was supplemented by my observations and interviews with FUNHACK participants. I present my observations and affective experiences as vignettes supported by interview data provided by hackathon participants who produced gamic projects. Throughout these accounts, I pull out notable points of tension occurring via/within the FUNHACK experience.

I recorded observation notes throughout the event, at different times of day, particularly during notable occurrences such as the beginning when excitement was high or during some of the lulls when energy dropped. Observation notes were recorded on the "Notes" app on my phone and in a word processing document on my laptop. I took detailed notes during the presentation portions of the event as these offered some of the most explicit invocations (and problematizations) of the event's inclusive aims, as well as visible interactions between organizers, sponsors, and participants. I also participated as part of a group of racially and ethnically diverse women (I was the only white woman in the group and visibly older than them), one of whom was Alexa, a participant in the game design group I facilitated. The group I worked with did not ultimately create a game but used gamification as a design choice in a self-care app.

Interview participants were offered a digital code for a $10 Amazon gift card as compensation for their involvement in my study. I identified hackathon participants who were potentially working on game projects by walking around the workspace and casually listening to what teams seemed to be working on. If a group seemed like they might be working on a game, I verbally inquired about their project. This led participants to assume that I was an organizer or mentor several times, which made me feel like I was noticeably dissimilar from the rest of the participants and therefore contributed to me feeling out of place at the event, as I discuss in detail below. Through these efforts, I recruited two participants working in the same group for interviews. I recruited the other six interviewees by watching the final presentations and approaching participants who made a game or games-related hack between the presentations and the prize ceremony.

I pursued a line of semi-formal questioning with interviewees about their preferred pronouns, college major, year in college, prior experience with coding and game design, motivations for participating in FUNHACK, and questions about their experiences with the event itself. I recorded these interviews with my phone and had them professionally transcribed. To identify themes and tensions within the data, I drew from my observation notes and the interview transcripts, noting what themes recurred and identifying outliers as well. As suggested by Visweswaran (1994), I paid close attention to the silences and gaps in the data as much as possible. This approach is important to employ when researching marginalized populations since people's voices who are not welcome or not the norm might still be heard as their participation may occur through different modalities, including silence. The aim of these multiple methods of

data collection and analysis was to allow me to generate "thick descriptions" (Geertz, 1973)[17], of

my interactions, experiences, and observations of the event. Through these means, I provide

contextualized and nuanced accounts of participant experiences in an inclusive hackathon as a

beginner.

Literature Review

As an extension of the previous chapter's literature review, the following section

describes some key moments and transformations in the history of hackathons as they pertain to

the video game development industry. A full account of this history is beyond the bounds of this

dissertation, but this targeted history illuminates how the power dynamics, norms, and conditions

of the software industry (from which hackathons arose) inform the practices and assumptions of

the contemporary game industry. We need this contextualization to better understand what gets

replicated in the context of game design and software hackathons like the one I attended. This

knowledge enabled better understanding of the kinds of culture and material conditions for

which an event like FUNHACK is meant to prime participants. After all, hackathons, game jams,

and other events like these are very much part of the pipeline described in the prior chapter.

Patriarchal norms are entrenched in the software industry's history since access to the

materials and skills necessary for digital game design have been segregated to only the most elite

participants of society who had access to early computing equipment that was often only found

on university campuses and elite research facilities. Consequently, white men were often the first

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[17] Thick descriptions are those that give detailed accounts of a research scene or site in order to account for the complex, overlapping, messy forces at play. Through thick description, the researcher attends to as much of the site as possible to help avoid hasty conclusions based on an outsider perspective.

and primary people who had access to these tools and spaces. These same men were also the ones who attended college and majored in areas that would give them the technical skills that could be used to make games which further bolsters the association between certain technological skills and masculinity (Hacker, 1990; Wajcman, 1991). Therefore, women are mostly ignored in early computing history.

Ignored or not, women have nevertheless always been part of the development of science and technology, in the workforce and on college campuses. Yet, the number of women in computer programming—a field that leads to a great number game industry careers—reached its peak in the 1980s and their numbers declined steadily, particularly as home computers became more widespread and were advertised almost exclusively to men and boys (Henn, 2014), and further as computer science began to be coopted by engineering departments which were historically male dominated (Hacker, 1990; Plant, 1998; Ensmenger, 2012). Hacker's (1981) embedded research in an elite engineering degree uncovered the ways systemic norms of overwork and the prioritization of mind over body are not only expected but absolutely required to succeed in such fields. In interviews with MIT student hackers, Turkle (1984) found that pushing their bodies to the limit is part of the masochistic pleasure of computer hacking. In a description by male MIT senior in Turkle's study, he called one extreme form of the practice "sport death", saying:

> You see how far you can push your mind and body…hackers are somewhat self-destructive. They don't take care of their bodies and are in general flunking out. Burnout is common…The essence of sport death is to see how far you can push things, to see how much you can get away with. I generally wait until I have to put in my maximum effort and then generally burnout. (p, 194)

This student's comments are at the logical extreme of the early practices of mind over body in software fields and hacking practices. Such a mentality directly shaped and informed the way the software industry subtly (and not so subtly) promotes the temporary ignorance of the body in pursuit of pushing the limits of the mind.

Hackathons grew in popularity at the same time as the rise of home computing and have their origins in the computer clubs of the late 1970s. In these groups, hackers (mostly upper class white men) gathered together to innovate on computer problems (Gottfried, 2014). Standardized platforms like Mac iOS or Windows had yet to emerge, so computer systems were built from the ground up, making the barrier to use extremely high. Thus, these at-home gatherings served as a community of support for the (mostly) men building operating systems. Later, two separate organizations first used the word "hackathon" around the same time in 1999; these were Open BSD[18] and Sun Microsystems.[19] These companies used "hackathon" to describe the practice of gathering their employees for a purposefully limited time with everyone working toward a shared goal of innovation for their product—and in the case of Sun Microsystems, offering prizes for best new app (Gottfried, 2014).

Now, hackathons are generally offered by four types of entities: open source software communities, technology companies, sponsored competitions, and community institutions like schools or libraries (Davis, 2016). Their goals vary, but generally speaking hackathons ask participants to spend an extended time period brainstorming, designing, and executing (if possible) innovative solutions to some kind of problem. Among the larger and more formally

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[18] A free, open-source computer operating system developer.
[19] A developer and manufacturer of palm pilots

structured hackathons, prizes are often offered for creativity, innovation, or best integration of a particular technology or theme.

Over time, hackathons garnered a reputation for being a form of resistance to the growing corporatization and start-up mentality of Silicon Valley (Gottfried, 2014). The irony of this statement is that some of the primary proponents and sponsors of hackathons are technology companies, not unlike the way IGDA is composed of stakeholders in the games industry who benefit from the overwork of its labor force (Williams, 2018). For example, Facebook boasts about their employee-focused hackathons (they hosted more than 50 in 2017) as an invaluable tradition to the innovation and community-building of their company (Weinberger, 2017). Of course, Facebook has plenty to gain from these supposedly altruistic events. Despite the discourse of hackathon proponents as community-building, hacker-centric events, the hackathon hosts and sponsors benefit from the massive amounts of free labor produced over the short duration of a hackathon: "Some organizers view them as recruiting opportunities, others as opportunities to evangelize their company's technology platforms, and others simply want to be associated with something cool and techie" (Lurie, 2018). Institutions leverage promises of sponsorship, expensive prizes, free food, and the promise of career development or advancement as lures to harness participants' free labor (Zukin & Papadantonakis, 2017).

Hackathons encourage an autodidactic ethic by providing structures, spaces, and motivations via prizes and promises of collaborative skill acquisition and networking; truly the onus is on participants to learn and innovate at the expense of their own time, effort, and bodies. Zukin and Papadantonakis (2017) performed ethnographic research at seven New York hackathons over the span of a year and found that although a large majority of hackathon participants viewed the experience positively, the corporate sponsors benefit disproportionately.

The practice of harnessing passionate labor was thoroughly discussed in the prior chapter as it plays out in the game industry, and this practice is very much present within the software industry more broadly. This kind of labor capture can be understood as predatory, despite hackathon participants (across the seven hackathons studied) almost universally comprehending the experience as not only enjoyable but personally beneficial, with 86% of those surveyed stating that they learn skills they would not learn in the classroom (Zukin & Papadantonakis, 2017).

There are measurable material side effects of this mode of labor. In an informal experiment, several hackathon participants measured their heart-rate variability over the course of a 72-hour hackathon. The authors found drastic spikes in heart rate during moments of crunch and noted extreme fatigue as a result of the long, intense working hours, lack of sleep, and poor quality food (https://www.firstbeat.com/en/success-stories/firstbeat-at-global-game-jam/). The authors concluded:

> You couldn't live like this very long without consequences. But when you take care of three basic pillars of health in your daily life: have a healthy diet, exercise enough, and get the right amount of recovering sleep, you can handle even this kind of unique intense event without much impact on your overall health. Anyhow, this week you need to rest more to gain back the energy debt.

In other words, one's body takes a toll for being under duress due to lack of sleep, extended periods of forced hyper-focus, and lack of healthy food or movement for long periods of time throughout the duration of the hackathon. The authors hedge, saying these deleterious effects can be negated by either taking the time to rest more in the week after the event or by essentially training for the event much in the same way one would train for a marathon or other intense

competition. What this achieves is the soft sanctioning of a certain sociotechnical form and its associated affects (aka 'crunch') that historically serve as technology development 'booster shots' for research and development.

Although I threaded them throughout the prior paragraphs, I want to draw attention to the parallels between the labor model in software hackathons/industry and that of game jams and the games industry. Game jams, such as those promoted and supported by Global Game Jam (now a multinational game jam organization), are the game industry equivalent of the hackathon. They share the same toxic industry norms and penchant for crunch while being sponsored by the industry itself. Gallagher, Jong & Sinervo (2016) highlight the similarities between developing for game development company Bethesda and modding Bethesda games by essentially holding internal, employee game jams for "fun," much in the same way as Facebook does. From such events, Bethesda ends up with the same kind of research and development boost that they otherwise pay dedicated employees for during normal business hours, but under the guise of community-building and/or leisure instead. The format of game jam is also pursued by feminist and alternative game communities as a way to help marginalized people quickly create games. However, unless structures are inbuilt to the event to prevent the replication of crunch, these efforts reproduce the same toxic norms as the rest of the industry.

Hacking the Hackathon

The affective experience of a hackathon is one of extremes, moving repeatedly and intensely between two poles of energy for 48 hours. The pendulous swing from high energy to low and back via various mental and bodily stimulants including personal mood, social contagion, caffeine, fatigue, and crowd-management techniques is strenuous and exhausting. To also function in this environment in a research capacity is doubly draining. This differs

drastically from my experience facilitating the small group by myself; whereas I had a great deal of executive authority in crafting the affective atmosphere of the small group, the chaotic and unpredictable was the work of the organizers of the hackathon. Importantly, though, the atmospheres of both sites were the result of choices made by their organizers. A rollercoaster experience is not inherent to the goals of a hackathon, though the two are so often articulated together that it may initially seem so.

The hackathon's theme was centered on superheroes, particularly the concept of being one's own hero. Therefore, prize categories for hacks included best newcomer, best overall, best social good hack, most creative, best use of Amazon web services, best use of a Qualcomm[20] device, best domain name registered from Domain.com, best financial hack, best use of cloud, best open source hack, and best security hack. The latter four prizes were offered by sponsors Capital One, Juniper Networks, Cisco, and Oracle. These extrinsic motivators factored into the projects participants undertook. Out of more than a dozen projects presented at the end of the hackathon, four were related to gaming or game design.

The major thing I noticed about the hackathon was a feeling of tension: tension related to a looming time limit for the competition, tension between new group members learning to work with one another on new and unfamiliar projects. More subtly, I noted tensions between inclusivity and exclusivity, gender binaries and gender fluidity, beginners and experts, and a host of other conceptual and material frameworks. In the following section, I offer several vignettes that qualitatively describe my experience and observations at the hackathon, which are

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[20] A particular brand of computer processor

supplemented with interview data. The analysis walks through four themes of observation: the concept of "beginner," bodies, gender, and binaries. I then draw connections between this hackathon event and the larger goal of finding venues for feminist intervention in game design spaces.

Becoming Beginner

Upon entering the FUNHACK workspace—a massive ballroom with high ceilings filled with tables and chairs—I immediately notice the corporate branding from industry sponsors lining the walls and decorating the space. People seem to have largely come with preformed groups, but I arrive alone. This is the first time of many that I feel like I do not fit in at this hackathon. I am visibly older than most participants by about 5-10 years, although I attempted to blend in better by wearing an Overwatch[21] T-shirt and jeans. Even so I am somehow still dressed more formally than most participants, who look more like they just rolled out of bed.

Although the hackathon is meant to be inclusive of all identities and skill-levels, my lack of real coding skills[22] feels like a handicap, both within my group and in terms of the language being used around me by sponsors, organizers, volunteers, signage, and even discursive matter like prizes for categories like "best open-source hack" and "best financial hack." Simple sounding in concept, but how would I ever possibly be able to compete in these categories if I barely understood what they entailed? I cannot possibly be competitive in any of the prize areas

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[21] *Overwatch* is a competitive first-person-shooter video game.

[22] My use of the word "real" here is already denotative of a tension surrounding what "counts" as real coding. I have expertise in several game design programs (as described in chapter 3): Twine, RPG Maker, and Stencyl. I also know the basics of HTML and CSS. However because I don't know any complex scripting languages, I feel I cannot accurately say I have coding skills.

based on my own skillset, and I feel ever more estranged from an already foreign area of

knowledge and practice.

During my first interview near the beginning of the hackathon's start, I inquired after

Computer Science major Cheyenne's prior experience with coding, she stated that although she

knew the language Java well, she preferred Python, which she was just starting to learn. I asked

why, and she responded:

> Because it's so much easier, it's such a **high level like language** like have you ever heard
>
> where people talk about like **different language like C** you have to if you want to make
>
> coffee, then you can reach out here and like pick up a cup and pour in water like stuff like
>
> that. **But with Python, it's literally like just make coffee, and it's really easy.**

I highlighted the particular strings of phrasing that confounded me in situ. Inferencing through

context clues, I understood she was saying that Python offers simplified steps compared to the

more complex language that requires more input from the coder; beyond that, I knew nothing

about the specifics without research. That kind of casual use of jargon was happening all around

me and despite researching video games and software for years, I was momentarily taken back. I

felt overwhelmed with Imposter Syndrome, feeling like I did not belong in this space, and that I

would not be able to meaningfully contribute to my group's project or even the broader goals of

my dissertation. These kinds of moments happened repeatedly as I spent time at the hackathon.

The group I found myself in included Cheyenne, Alexa (from the women's game design group I

facilitated), and Maci, a Biological Oceanography major and aspiring computer science minor

who took coding classes in high school. As I interviewed these and other participants and they

described their prior experience with coding, I did not always immediately understand some of

the jargon they used about their competencies and the types of jobs they were interested in.

As it turned out, half of the people in attendance that I interviewed majored in Computer Science. The remaining four majored in Psychology, Art and Design, Engineering (hoping to transfer into Computer Science), and Biological Oceanography with a Computer Science minor. The only two people interviewed who did not have prior coding skills were two artists who used that skill to contribute to their group's project and FUNHACK was neither of these participants first hackathon experience.

In this way, it becomes clear that the conception of beginner at the hackathon is quite different from its meaning in the women's game design group. When comparing hackathon participants' responses to my questions about their prior experience and level of expertise, "Beginner" in this context refers to someone who is already quasi-immersed in cultures or practices of coding. Every participant reported attending to advance their career in some way whether to get practice, learn new skills, practice working with a group, or network. In this way, we can situate this alongside lots of other sociotechnical practices in which one is never truly allowed to be a total beginner. This renders invisible the cultural conditions by which people *do* start—conditions which are favorable to (white) men since they historically are more likely to be granted access to technology hardware and time to develop skills with it (Wajcman, 1991). Consider how boys more often get consoles (McNamee, 1999; Tobin, 2013) or computers (Pew Research, 2007) in their rooms compared to girls. DiSalvo's (2009) research on African American boys' beliefs concerning what kinds of game industry careers were viable for them reveals another way that beginner in the games industry rarely means someone with zero prior knowledge. When we associate beginner with what for *real* beginners might seem like a wide depth and breadth of coding knowledge, we are *actively creating more barriers*.

Support Means…?

It is around 12:00pm on the first day of FUNHACK and, caffeinated to an upsetting degree, I am observing Alexa's group as they discuss how they want to move forward with a fully collaborative project. They have been debating the ins and outs of collaboration for hours, now—the event started early in the morning, even before I arrived around 9:00am. Despite it being relatively early in the full course of FUNHACK's timeline, the pressure to create something prize-worthy makes every hour that passes without producing something "deliverable" feel wasted. Stress is already running high, though the women in this group are doing the best they can to look out for one another. It is in the spirit of having each other's backs that one of the other group members first pauses and gives Alexa a scrutinizing look. "Have you eaten anything today?" she demands.

Collaboration talk ceases as all eyes train on Alexa. She admits she has not eaten. "Go eat," her team insists. Reasons are given—she is told to take care of herself, to sustain herself; she is reminded that she has to eat to fuel the imminent prolonged period of wakefulness and work. Alexa deflects for a while, and talk turns back to the project, but her peers periodically notice over the next hour that she still hasn't eaten. They admonish her to go get food. It's free, after all. Talk cycles back to the project, back to Alexa's continued fast, work, care, work, care. Finally, Alexa gets up and walks to the food table, where she piles some granola on a napkin and returns, nibbling at it. The group is satisfied, and the project's first iteration commences.

At an event like FUNHACK, it is easy to let the abnormal body practices slip from notice. All participants including myself knew going in the door that the event was not going to be *comfortable*. People were running on caffeine and protein drink. I found that watching the

food table reminded me about bodies differently than observing groups at work; at their work

tables, the postures and clothing choices of the participants was hardly a concern, when there

was exciting discussion happening or innovative code being debugged. But at the food table, one

can hardly help but remember that the abstract creative work of the mind is not separate at all

from the pit of hunger in the stomach or the bags under the eyes that bely exhaustion. People

were tired. Their bodies were sore, hunched for hours over their laptops to hyper-focus on their

project. Crunching out code in time to earn a prize, it seemed, left no time for food, movement,

and rest. As such, they were dressed for the occasion: lots of sweatpants, sweatshirts, baggy T-

shirts, and jeans. Veteran hackathon attendees had clearly come to the event knowing that

dressing for comfort was one way to attend to their bodily needs during this marathon event.

Certainly, the organizers provided material things to support the participants. There was

plenty of food. Soylent and veggie straws (dehydrated and processed vegetables like potatoes,

carrots, and spinach, which are baked into crunchy sticks and taste like potato chips) stood out

among the chips, candy bars, sugary treats, and cheesy popcorn options (as seen in Figure 8), if

Figure 10 This image shows one of the tables in the snack room that was open to participants 24/7 throughout the duration of the event. A steady supply of Soylent (an edgy new protein drink), chips, Cheez-its, Pirate's Booty Popcorn, pretzels, veggie straws, Rice Krispie Treats, and full size candy bars were available for free.

only as nods to the fact that bodies need real nutrition to function. Non-food goodies were also provided: though the swag bag given to each attendee held caffeinated chocolate, other items included a cape, stickers, and a T-shirt.

Free but bad food and fun but useless swag: these material items of the hackathon symbolically capture the very problem of the hackathon practice. Support, but no care. Feeding a body with veggie straws and caffeinated candy, paying laborers with stickers and superhero capes (the vast majority of which are doubtless now in landfills waiting to decompose sometime in the next two to ten centuries). Even the corporate and MLG mentors who worked with the various groups throughout the hackathon event fit this bill. Great idea on paper as a response to the need for supporting beginners but realistically impractical since the mentors needed a lot of context before they could help, and the beginners did not know how to ask the right questions to get what they needed: Support offered carelessly.

Although a "lack of support" is cited as a barrier to women entering or staying in the industry, the tension between support and care at the hackathon told a different story. These women had plenty of support—the whole point of FUNHACK was to make an event that supported marginalized genders trying to break into software development, and in one sense, it was very successful at this. Yet by the second morning of the event, participants were visibly exhausted and fatigued. They moved slowly, fell asleep at their computers, and relied on caffeine and energy drinks to sustain their productivity. Every interviewee I spoke with on day two took the time to describe to me how tired they were, how much the lack of sleep impacted their mood, acumen, and rate of work.

One participant reported producing more code in 24 hours during the hackathon than they had ever produced previously in their life. This person found something desirable about the

intense period of stress on the mind and body that came from the hackathon's encouragement for participants to push their body's limits in the service of pushing code's limits. Constant access to coffee and program scheduling (midnight dance party, 6:00 AM yoga) that lasted into the early hours of the morning implicitly suggested that it was normal and expected for participants to remain at the event overnight. If we measure the hackathon's success by how much code participants churned out, then perhaps we judge it favorably. Yet this measure obstructs our view of the many harms done by thinking that support without care is sufficient. Yes, at least one participant was pleased with their progress in producing code. How many other participants with less knowledge of code in the first place were left out because of the anxiety of having to learn a new skill in a tense, pressure-cooker environment? How many people with bodies that cannot sustain prolonged sleepless periods due to chronic illness or disability were left behind?

Even the less extreme version of this critique highlights troubling impacts of the support infrastructures provided by FUNHACK organizers. All bodies need food and rest; some bodies need specific food and regular rest more than others. The hackathon structures imposed upon the participants the same industry norms as those discussed in the previous chapter on the pipeline. Participants were being groomed into a "crunch" model of work, subjected to exploitative labor practices and the concomitant insistence that it is enjoyable—free candy, isn't this fun? The event is structured as a competition, replete with reminders to work hard and through the night for the potential, dubious pleasure of getting a free Go-Pro and having a bank representative commend your work. The software industry's biases and pitfalls structured the event, and participants were eager to be subjectivized therein out of their desire to fit in and be hirable one day.

Gender Tension

The keynote speaker is Angela, a woman of color PhD student from the university. Even as I listen to her address, I am noting my approval that the organizers of the event had the foresight to invite her instead of another white man to tell the women in attendance about their role in technology. Gender becomes relevant from the introduction: she starts by talking about how she felt completely unqualified to give the address when the organizers first approached her. This leads her to her central idea, which is not unlike my own ideas of care work: acknowledging one's successes and rewarding oneself for achieving goals. She points out that women are unlikely to do this, just like she did not immediately think of herself as good enough to give the address, then reminds the audience how important it is to celebrate accomplishments in a field that is unlikely to celebrate them for you. I'm struck by the fact that she recommends material rewards, like buying yourself a present. It can be anything, she says, then gives her personal example: "I like to get myself lipsticks and shoes!"

At this point she noticeably stops, looks a bit sheepish and apologetic. Looking out at her potentially feminist audience, Angela apologizes for "making girly references" as though her penchant for makeup and footwear is something shameful. She explains, "I'm really girly, but also for tech." I am viscerally reminded of how much women in technology fields must walk the tightrope of being feminine enough, yet also not too girly for fear of seeming as though they are not competent. Before I even finish the thought, though, a white woman in the audience (who I later confirmed is a sponsor for the event) yells out, "That's not weird at all!" The moment is such a strange tension between explicitly affirming the presence femininity in technology spaces and yet being so normative in its gendered assumptions about what is "good" feminism and femininity for that space, that I'm too taken aback to capture Angela's response. She moves on.

Despite FUNHACK intending to put forth an environment conducive to acknowledging intersectional differences among participants, this was often not the case as sponsors, organizers, and mentors repeatedly regressed back to binarized thinking about gender that places men at the top of the hierarchy. The vignette about the keynote and the woman in the audience demonstrates the ways that women in the hackathon space felt compelled to perform (but also mark as special) overt femininity, matching the larger trend wherein women have learned to exaggerate girliness in technology spaces in order to minimize potential punishments for being invested in the "masculine" field (Taylor, Jensen & de Castell, 2009). Despite the intentions of the organizers, non-binary thinking fell to the wayside more often than not, as the identity category "women" (but not non-binary folk or other gender minorities) became a sticking point for the celebratory and self-congratulatory language of the event.

This was not the only display of bizarrely binarized gender ideals. During the same opening ceremony as the keynote, each prize-awarding sponsor got a turn at the mic to describe their organization and prize category. A man spoke on behalf of a major bank, which was in charge of judging the "best financial hack" category. He used his time at the microphone to thank the audience for showing up and then directed the audience's attention to a group of the *only* four obviously male participants by singling them out, stating: "It's nice seeing the four guys, thanks for coming out!" Even as I started to roll my eyes at this, the entire audience clapped for the four men participants. Men are rewarded for showing up to events aimed explicitly at promoting inclusivity, even when they are based in the traditionally masculine software industry. The presence of women and other marginalized genders is not special; these are always the people doing the labor that is necessary for things like an inclusive hackathon to succeed (Harvey & Shepherd, 2017). Make no mistake—in an ideal world, I *want* men in these

spaces as much as any other gender, yet the appallingly low bar for men attendees (showing up) only works counter to larger feminist goals.

Despite the organizers' claim that the event was gender-inclusive beyond the man/woman binary, little structural evidence of this could be found. The sponsoring organization for the event was "Women in Computer Science," which by its name alone leaves out the most marginalized gender identities. The name also had rhetorical power in the space to influence judges and participants. The same woman from the audience who reassured Angela that it was not weird to like girly things and also technology, was a judge for one of the prize categories, and made a comment about the appropriateness of a particular entry as being particularly well-suited for a "women's hackathon." Justine, an organizer, corrected her by stating the event was not a women's hackathon but rather meant to be an inclusive space open to all underrepresented genders in technology spaces. Although Justine's words did constitute meaningful intervention, they also were sadly unsupported by the evidence to the contrary. Based on the structures in place and the countless "Women in Tech!" banners throughout the room, the hackathon was indeed a women's event. Justine's protest ultimately lacked much agency to transform the event, which was already set up to look like a women-centered event and populated by people who were eager to conflate marginalized gender identities into the binaristic category of women.

Bringing it all together: Holy Binaries Batperson!

After the initial excitement and energy following the keynote and group formation portions of FUNHACK, the chatter between and among participants quiets down as the sound of fingers clacking on keyboards grows. Amid this lullaby of technology-powered idea generation, I begin to notice music being played over the loudspeakers:

"I come home in the morning light

My mother says when you gonna live your life right

Oh mother dear we're not the fortunate ones

And girls they wanna have fun

Oh girls just want to have fun"

Was this playing the whole time and I hadn't noticed it until now? Highly amused by this blatant

act of "appealing to what girls like," at the hackathon for all genders, I began to listen more

closely for what songs were played. Next up: Beyoncé's "Run the World (Girls)" followed by

Destiny's Child "Independent Woman." This is happening. A girl power playlist…

       A girl power playlist stands in stark contrast to the patriarchal mode of labor that

hackathons promote. Binaries like these, odd moments of tension and contradiction repeatedly

arose during my time at the hackathon. The more I tried to determine what was bothering me, the

more drastically oppositional binaries I noticed. The prior sections describe key moments of

tension: The hackathon is "for everyone" and beginners are welcome, but in this context

beginners are not beginners but already immersed in the norms of code work; The event is free,

the food is free and freely available, swag is available to participants and yet the event has a cost

in that the food is not healthy, participants will not sleep, and the swag is basically useless;

Underrepresented genders in technology are the primary audience for FUNHACK and yet WICS

sponsors the event, there is a girl power playlist, and men are congratulated for just showing up.

In drawing attention to the tensions between these opposing ideals, concepts, circumstances, and

practices, I aim to reveal the entropic nature of activist work against the deeply entrenched

industry and institutional norms.

In an attempt to mirror the construction of Haraway's "informatics of domination[23]" (1985), I constructed a table (Figure 9) of the evident ideological and material binaries present within the scene of the hackathon. Like Haraway's list, this is incomplete and imperfect. The binaries I draw attention to are not necessarily opposites, more so there is a tension between these two poles that conjure interesting relational spectrums that manifest as a result of the entropic nature of activism against industrialized capitalist patriarchy. Unless we continually push outside the boundaries of these binaries, we are doomed to replicate their worst instantiations. Unless people maintain pressure against the toxicity and predatory norms of the games industry, there is little hope for change. However, this pressure cannot be born from a place of binarized thinking such as was exhibited at every turn during the hackathon.

Table 2 Observed Ideological and Material Binaries of Hackathon.	
Soylent	Veggie Straw
Mind	Body
Silicon Valley	Post-secondary education
Patriarchal structured event	Girl-power music
School Homework	Leisure Work
Rule-based systems	Creativity/Innovation
Hyper-production	Rest
Masculine	Feminine
Free swag	Freely-given labor
Excitement	Fatigue
Caffeine (coffee, chocolate, soda)	Catered hot dishes
Freedom of movement (dance party, yoga)	Confined to chairs and table
F2F communication	F2T communication
Individual work	Group work
Collaboration	Competition
Solidarity	Abandonment
Present	Future

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[23] The informatics of domination is Haraway's attempt to construct a table representing "the extent and importance of rearrangements in worldwide social relations tied to science and technology" (p. 79) in an effort to draw out the epistemological and political conditions each side of the binary presents.

Table 2 (continued).	
STEM	Art
Expert	Beginner
Support	Care
Work broken down by specialization	Holistic work

Throughout my time at the hackathon I repeatedly saw moments of pendulous swinging from one side of a binary to the next. When we swing so far in one direction in an attempt to correct the pitfalls of the harmful option, we risk instantiating different harms. Many of the concepts shown in the table were discussed in depth in the previous sections, although this table also includes some more implicit examples as well as ones that this dissertation chapter could not adequately cover while remaining tenable. My hope is that this table will reveal some of the more harmful values and practices present in hackathons and game jams structured in the traditional way. Through taking time to consider the harm that working from binaries can cause, we can aim to prevent their continued reproduction and operationalization.

Concluding the Binary

The chapter's data supports a narrative showing that despite the best intentions to help marginalized populations, if we put the same structures and norms into place but merely call them inclusive, no radical change occurs. One way to achieve this is through embedding more care into the planning, structures, and execution of events like hackathons. For example, The Feminist Mixtape Game Jam, sponsored by ReFIG, takes a different approach to what a game jam can be. They provide honoraria to participants for their labor and further, "strive to be a 'healthy' jam, providing nutritional catering to suit a variety of dietary requirements and give participants energy for the duration. Quiet/relaxation spaces are provided to give jammers a rest from their screens. Childcare will be available if requested." (http://www.refig.ca/feminist-mix-tape-game-jam/). Care needs to be taken to notice the harmful practices embedded and

normalized in industries like those of games and software and care needs to be taken to find ways to prevent the replication of their mistakes. However, if we only look to one side of the binary, only at care, we miss the larger picture. Support via funding, mentoring, and resources is also needed and therefore melding the two to meet somewhere in the middle will garner the best outcomes. Through this lens, we can observe the binaries present to dissect them, break them down, and rebuild new, more equitable structures. Further information on how this may be possible will proceed in the following chapter.

CHAPTER 6— Crafting Feminist Care in Game Design: Beginnings, Endings, and the In-between

Since concluding data collection some eight months ago, the institutional spaces and structures that enabled my various sites of study have changed. Apart from the hackathon with its institutional support and wide network of organizers and funders, the other two instances of inclusive game design largely faded without the determined support and machinations of one or more forces of change – which, in both cases, is primarily my own labor and involvement. Other people have taught the Games Studies class, and each unique instructor has brought their own agenda. The small group I organized has since dissipated, though some of the friendships it cultivated have endured.

Yet the effects of the hackathon, my iteration of the game studies class, and the small group cannot be so simply summed up by this transience. Students transformed themselves in my class—not radically, but small changes can nevertheless alter lives. Participants of the small group walk the world with additional competencies, friendships, and experiences. Feminist endeavors like this one are not measured only in a legacy of meetings, annual events, or a permanent syllabus. They move us toward deeper care, empathy, and activism, for ourselves and for the people and world around us. The feminist work of creating and sustaining opportunities for more inclusive game design continues in different forms and contexts.

From here, the conclusion takes up the more concrete work of bringing together some of the continuing, enduring elements that will be useful for others seeking out tangible ways to diversify the game industry. I offer a summary of the theoretical implications my work innovates on or responds to, the limitations of this project, and the directions for future research and activism that it opens up.

Findings: What do we know that we didn't before

There are three key themes under which the findings of this study can be organized: (1) *issues of care and support in feminist game design endeavors*, (2) *the nature of failure and success in feminist game design*, and (3) *methodological flexibility and feminist software analysis*. Each theme is represented to varying degrees throughout the three analysis chapters; below, I synthesize and distill the core conclusions of these key themes.

1. Issues of care and support in feminist game design endeavors

As emphasized throughout chapters 4 and 5, care and support are not synonymous; they differ both conceptually and in practice. Practices of *care* tend to the long-term and/or embodied well-being of the people participating in feminist (and other) endeavors. They are gentle ways of looking out for oneself and one's fellows, and often run counter to capitalistic goals. Practices of care are those that prioritize the healthiness of the whole person, not only their production value or career. Care cannot often be quantified or its outcomes measured. This is not necessarily a new insight as Federici (1975) argued women deserve wages for housework as a way of making visible the support that women's domestic labor provided to industrial society. Today's parallel can be found in Sharma's (2017) discussion of the ways women cannot at all easily exit from care—*the work of social reproduction*— as men can.

On the other hand, practices of *support* are often institutionalized and capitalist. Events like the hackathon are well supported; they are given money, space, staff, and promotion. Women in Pixelles and Dames Making Games are well-supported; they are given career training and skills development tutorials without charge, so that they might increase their chances of

being hired for a job in the game industry.[24] However, there is not necessarily care involved in these practices since often the façade of supporting diversity is fiscally beneficial, particularly to technology companies (Condis, 2015).

Care practices are counter-hegemonic in that they actively encourage non-capitalistic thinking. As seen in chapter four, sometimes care means abandoning a project partway through in order to be able to tend to personal matters. From an organizer's standpoint, this means making a space where one's participants (and, in another circumstance, employees or students, etc.) feel safe to ask for time off, or to leave. Under typical time/labor-for-wages work schemata, taking time away from or abandoning a project is often threatening to the very livelihood that a person may be seeking to nurture. Moreover, those who face the most marginalization often have the most to lose in these circumstances.

As discussed in chapter five, sometimes care means attending to the needs of bodies even when they are inconvenient or expensive. This means providing healthy food, allotting time for sleep and rest, and designing an event such that disabled bodies can comfortably and easily attend. None of these things are in the best interest of capitalist production. Healthy food is usually more expensive than chips and packaged cookies. The "time is money" mentality feeds directly into the impulse to power through nights and lunch breaks by consuming energy drinks and caffeine. Properly budgeting for accessibility and disability accommodations often means that organizers must compromise on other more crowd-pleasing elements at their events.

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[24] I am certainly not claiming that the organizers and teachers at Pixelles do not care for the women in their group; simply that "care" in this context means something bigger than one's personal affection for another person, or one's desire for that person to succeed in the workforce.

Building care into the structure of an event, program, or class is a necessary step to achieving feminist goals within the game design industry. Disciplined as we are into hegemonic ways of thinking (Foucault, 1978), we all too often experience both self- and other-care as a burden that detracts from our value as content-producers. This ultimately impacts women and other marginalized groups more negatively than those whose identities more closely match the hegemonic standard. Thus, one way to facilitate the hiring and retention of women and other marginalized people into an improved, more hospitable game industry is to make practices of care central to how people are taught, trained, and treated.

To push this further, structuring care practices into game design benefits people of all genders. Care work has long been considered supplemental rather than integral to labor, confined to non-actionable truisms like "happy workers are better workers." Moreover, care work is traditionally relegated to women and thus not valued as much as more "masculine" work that is often measure by output quantity with little regard to the laborers themselves.[25] Women shoulder workplace emotional labor whether they want to or not, and although that labor is demanding and time-consuming, it is neither paid nor recognized as labor.

What if we cared about innovative care as much as we cared about innovative products? This is a variation on the Second Wave feminist theme of revaluing the feminine and imbuing traditional feminine qualities into traditionally masculine arenas.[26] As discussed in chapters three

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[25] Consider the many Second Wave feminist groups and efforts that called attention to the wage gap between men and women, and how it is exacerbated by women's greater burden for housework (Hersch & Stratton, 2002).
[26] Chachra (2015), in an article about rejecting the moniker "maker" quotes Gloria Steinem, saying: "We've begun to raise daughters more like sons... but few have the courage to raise our sons more like our daughters." Maker culture, with its goal to get everyone access to the traditionally male domain of making, has focused on the first. But its success means that it further devalues the traditionally female domain of caregiving, by continuing to

and four, there are concrete and simple (though not easy) ways that people striving for feminist goals in the game industry can do this. Designing one's syllabus, event, or program around intersectional feminist principles can decenter production and monetary value while opening space for more critical self-engagement and meaningful relationships with one's self, peers, and work.

2. Failure and Feminism and Game Design.

It is tempting at this point to ask, were these endeavors successes or failures? Did I *do* it? Please check a box below: Y for success, N for failure.

Though light-hearted, this point is meant to highlight the binaristic thinking implicit in success–failure judgments. Thinking of these projects as success makes it a closed case, as if I could now point to these three cases and say, this is the model™. Thinking of them as failures suggests there was nothing gained, no morsels grasped that can provide firmer ground for future forays into finding feminist footings in the game industry.

Each of the three analysis chapters deals with the gray area between what might traditionally be called success or failure. In chapter three, I examined game design tools that have implicit and sometimes overt racial and gendered biases—yet they nevertheless enabled work and thinking that aligned with feminist goals through the games and discussions they spurred. In chapter four, I discussed the dwindling membership numbers in the small group as people left for personal reasons—yet these same women who had to leave still found the

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enforce the idea that only making things is valuable. Rather, I want to see us recognize the work of the educators, those that analyze and characterize and critique, everyone who fixes things, all the other people who do valuable work with and for others—above all, the caregivers—whose work isn't about something you can put in a box and sell."

experience meaningful and transformative (in a broad and non-dramatic sense of the word). In chapter five, I analyzed the hackathon in which there were many problems and troubling practices—yet at least the participants got to participate in the event and gain knowledge and experience. At least attempts are being made to host events that intentionally center marginalized people in technology and design spaces.

Here, another old temptation arises: to scoff at the "better than nothing" mentality that one might read into these dialectics. However, in rejecting a black-and-white/yes-or-no paradigm for judging success, a consequent rejection of "purity politics" (see Shotwell, 2016) is in order. This means that each instance of trying to achieve a feminist goal is part of a chain of iterations of other instances, remixes of efforts that came before and inspiration for those that might come next. "Better than nothing" cannot be the goal, and it cannot be the end, in intersectional endeavors. "Better than nothing" leaves many of the most marginalized behind, and we know better than to accept it as a standard or guiding principle. However, the case of the hackathon is a great example of how we might find value in problematic practices and also learn important lessons about future processes. This kind of iterative thinking reminds us that it is the process of learning and trying again that results in change, not the "eureka!" moment of a lone genius.

To resist hegemonic logics means resisting the desire to judge success as we have learned to do so. We must bring the personal and the messy into thinking about succeeding—the personal is political, the messy is where relationships grow and collide and fall apart. Bringing the personal into game design might look like the kind of care practices I discussed in the previous theme above. If we work toward radical care of self and other in a game design setting, instead of working toward making the most innovative game as quickly as possible, what happens to a game design program, classroom, and/or workplace?

3. Naming Feminism and Methodological flexibility.

In a panel presentation on integrating feminism into games education at Different Games 2016, top and emerging feminist scholars came together to describe the ways they have (un)successfully embedded feminism into their games classrooms. One point of contention arose as a panelist[27] described that she found success integrating feminism into her classroom by teaching individual values and practices that are in line with feminism but not naming it feminism, instead calling it "covert feminism" (Flynn-Jones, 2016). Panelists described the resistance they faced when they taught feminism by name. A discussion ensued on the benefits and drawbacks of this strategy, with one particular drawback being that when one employs covert feminism, feminism does not receive credit and thereby loses important opportunities to showcase its presence and efforts.

This discussion struck me as incredibly relevant and important to my dissertation work since, despite my ample usage of the term and its values throughout the descriptions of my intentions, procedures, and analyses, I purposefully did not recruit feminists as participants, I did not call out the feminism of the strategies I employed, when approaching participants for recruitment, I did not refer to my project as a feminist one. I did this methodologically to avoid bias and negative connotations associated with the term that could skew perceptions of the project or make participants feel like they should answer a certain way. As I wrote up my results I found the term barely came up in my intuitive evaluation of the scenes; in my own feminist project, I forgot to identify the work as feminism.

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[27] The panelist was Stephanie Fisher, but the bibliographic entry for the panel comes under Flynn-Jones's name since she was the first panelist credited.

Feminism needs to claim things. In a time when people claim we have truly reached gender equality and yet oppressive practices based on gender bias and discrimination still happen in countless contexts, calling feminism by its name is an important political move. Naming feminism enables us to connect the movement to what has long been its goal—the creation of tangible improvements in the lives of women and others who suffer under the hierarchical and oppressive gender order.

Following this, feminist software analysis can reveal the impacts of biases embedded in software as they play out in particular contexts. It needs to be called a *feminist* software analysis, not something else, because it pays homage to the history and vigor of the work that has persisted through so much. I intend the method to be an adaptable, flexible tool for others to use in order to accumulate knowledge about the use of software tools for carrying out feminist projects. It is one methodological option among many, and provides grounds for unique insights into how technology and users act through and on each other in networked, messy ways.

Limitations

My status as a student was a major limitation. Since the funding for my degree is only promised for four years and I performed this research individually, during the summer before my final year, I did not have enough time or resources to establish anything that would last beyond my time at the institution. Generous funding from the game design network ReFIG[28] relieved a great deal of financial and time burdens during this research, reprieving me from teaching responsibilities during some of the data collection process. Nevertheless, despite having the prior

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[28] As a funded 5-year grant, ReFIG is a multimillion dollar, wholly unique, and long-term but also very temporary source of funding for feminist projects in games culture.

spring semester funded, once the next school term began, I had teaching duties, professional responsibilities, academic job market obligations, and pressure to produce evidence of data from the dissertation study. Therefore, I did not have the time or position to build structures that would make the small group sustainable, and which would have enabled me to follow up with participants longitudinally or grow my initiative in a more robust way.

Even so, it is telling that my position was comparatively quite comfortable and safe when measured against other efforts to build inclusive game design communities. Researchers have identified many risks to the development of game design communities, especially those that try to disrupt industry norms: they are inherently precarious (Harvey, 2014), they often lack institutional support and/or funding (Fisher & Harvey, 2013), their organizers are likely to burn out (Harvey & Fisher, 2015), and they must be grown, maintained, and sustained often with no guarantee of support or success (Schoemann & Asad, 2017). As a result, these incredible initiatives often run through the un(der)paid, piecemeal work of marginalized people in precarious situations; under these conditions, they may even prosper for a time, but are often unsustainable despite the genuine and earnest intentions of their organizers. This becomes a severe limitation to the overall progression of this type of activist work since a critical mass cannot be achieved when these initiatives grow and wither as one-offs that are beneficial to the participants present, but cannot reach a broader audience due to the very real constraints and pressures placed on the (often unpaid) work of marginalized populations.

Although my work focused primarily on beginners and women, I nevertheless sought to find the connections between these two groups and the myriad other people involved in game design. Thus, my analysis included men, nonbinary folks, and experts hailing from across a variety of college majors, and I reported on race or ethnicity when it became overtly relevant to

the circumstance.[29] However, closer attention to the roles of these identities and others (such as age, ability, or social class) in these contexts is necessary to working toward more equitable conditions for the least privileged populations in game design. The intersections among and between aspects of identity have been addressed in game studies research more recently, but this work is only beginning. Analyses that take up this idea could offer important insights into both constraining and liberatory factors that contribute to the continued marginalization or advancement of cis and trans women, trans men and nonbinary folks in gaming.

Due to time and labor constraints, I was unable to access and observe a broader variety of circumstances or interview as many people as would have been ideal had I had assistance or a longer timeline. There are established game design contexts on college campuses that could have been sites of study, where a longitudinal project might provide insights into ways that extant groups are building relationships, embedding care work (or not) into their own practices, and/or how their participants perceive their own competency and growth with game design tools and concepts. Further, such a longitudinal study might provide the data that would allow both researchers and activists to better understand the role game design plays as part of a larger ecology of creative, intellectual, or social practice: What relationships develop (between involved humans and/or nonhumans), how projects transform as participants grow more skilled, how both the tangible (competencies) and less tangible (friendships, self- and other-care, self-efficacy) touch on other facets of their lives. With more work, we could gain a better understanding of what kinds of initiatives and, on a more granular level, activities, tactics, and

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[29] For example, when the only woman of color in my game studies class was also the only person to include a woman of color character in the final project.

approaches, not only catalyze substantive and lasting change in the game industry but transform people in ways unrelated to production.

Future Directions

The studies that comprise this dissertation are necessarily exploratory in nature. A more routinized assessment and analysis of the practices and conditions like those I constructed, participated in, and observed in other campus-based contexts would benefit scholarship on feminist gaming initiatives, game studies as a field, and communities of practice. In particular, a social scientific study using the self-efficacy scale (Sherer et al., 1982) to assess whether beginner participants of gaming initiatives gain measurable self-efficacy of game design and/or masculinized technologies more generally after their experiences designing games.

Moreover, sustainability is a major issue that was briefly referred to throughout the dissertation. While chapter 4 revealed that there is still value in localized, one-off projects, sustainable practices are what facilitate the kind of substantial change that is needed. By building the infrastructures needed to support community knowledge-sharing and care work, grassroots and industry initiatives alike would have the means to prevent stagnation, "pipeline" leaks, personnel flight, and consequent knowledge loss; in other words, all of the attributes that are anathema to resistance.

How to build such an infrastructure? It is true that institutions such as the university and corporatized games industry can provide the funding, buildings, equipment, and staffing necessary for events and programs. As events like the hackathon show, there are always people willing to do the work, even unpaid and to the detriment of their health. However, as emphasized in chapter 5, relying on corporations and universities means inviting their biases, because they are always already set up to advantage certain populations over others. Often, the funding for this

type of work is not easily replenishable, coming from government grants, institutional coffers, or donations from companies. On the one hand, these institutions may be motivated to fund this work as a token endeavor that "proves" their "commitment" to diversity. Surface level motivations like this seldom keep the attention of the funding party, resulting in short-term, unsustainable initiatives subject to the whim of the sponsor.

On the other hand, the institutions or companies often attach strings to the money they provide. They may have specific outcomes they want measured by standardized means (more money brought in, more people hired into the industry, etc.), or demand to see objective proof of progress to justify that the initiative is "worth the money." This not only constrains what the organizers can do, but also may result in funding cuts or program termination if the program "fails" by the dictated standard, regardless of what other gains it may be achieving. Thus, academics and activists alike are sorely in need of seeking out and studying how to get more funding and keep it free of such strings.

Using the knowledge gleaned from this dissertation study, I set out to cultivate an inclusive game studies and game design curriculum for the college environment. I have a tenure track position secured to teach liberal arts students game studies and development and I aim to build social justice-oriented courses that treat game design as an individual craft practice and communication medium. Because of this position, I can work on more long-term goals, and secure access to spaces and funding for resources and labor. Perhaps most importantly, I will have a stable location to work from on a more permanent basis and large populations of potential participants so I might continue to iterate on an inclusive game studies/game design curriculum over the long term, compared to only transitorily having access to 1-2 classes as a student. By teaching formal courses and facilitating informal, on-campus and community groups in the mold

presented via this dissertation, my goal is to enact a set of conditions that may allow for new participants to enjoy the pleasures and benefits of game design while making safer spaces for underrepresented folks in gaming.

In addition to my upcoming professorship, I also serve on the research management committee of a large, international network that works to make gaming more inclusive for marginalized populations called Refiguring Innovation in Games (ReFIG). [30] Scholars, industry representatives, and community organizers from across the globe come together through ReFIG to individually and collectively do scholarship (and) activism in the four major sectors of gaming: games and culture, games industry, informal learning environments, and formal education (http://www.refig.ca/). Networks such as these are necessary and important supplements to the kind of project this dissertation represents. After all, the goals I am aiming for cannot be realized individually, in a single location, or via a single act. Due to my role in ReFIG, I am better positioned to directly inform how people initiate, grow, and sustain inclusive gaming communities. This dissertation is just one piece of the larger puzzle that ReFIG is assembling.

Through my dissertation research and service work on behalf of ReFIG, I was able to access myriad examples, documents, and personal accounts of informal gaming initiatives across the globe. Through these, I gained a better understanding of the challenges and opportunities involved in building, running, and sustaining community-based programs, including game jams, public fora and game design workshops. These took place among diverse populations in various

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[30] This 5-year project is supported by the Social Sciences and Humanities Research Council of Canada (http://www.refig.ca/).

contexts falling outside the purview of formal education on the one hand, and mainstream/hegemonic games and gamer culture on the other (Evans & de Castell, 2018). One of the major contributions of the ReFIG grant is a practitioner's guide, a resource for creating informal learning opportunities (events, workshops, game jams, etc.) for underrepresented peoples interested in gaming and game design. This accessible, practical and intelligibly structured compilation of resources from various informal learning projects will be the culmination of several years' worth of work and my dissertation research is contributing toward that greater good as I also coalesce all these other examples to help the people who need it.

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