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Is Game Design for Everybody? Women and Innovation in Video Games

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Abstract

Video games are a relatively new form of entertainment allowing for unprecedented interactivity, which has vast, untapped potential. Although an increasing number of gamers are now women, they are underrepresented both within games, and in the industry workforce. Diverse workforces show measurably increased innovation and a better understanding of new markets. Drawing on 13 years of experience in the industry, the author gives examples of how gender diversity has beneficially influenced games she has worked on, and makes the case that the industry needs more women to reach its full potential. Finally, she outlines four barriers that may contribute to keeping women out of the industry, and suggests potential solutions for overcoming these.

Keywords: video game, game development, gender diversity, diverse workforce, innovation

Résumé en français à la fin du texte

Introduction

I have been making video games for over 13 years, and playing video games all my life. Many of the games I have worked on do not represent my own morals, values, or interests - so why have I spent so many of my waking hours on them? I have come to understand that I make and play games more for what I wish they were, rather than what they are. Since that realization, I have been thinking more about what games could be. Video games are, by far,¹ the most interactive form of entertainment ever produced. We are only beginning to discover what we can do with this interactivity.

About half of all gamers are now women (*Entertainment Software Association*, 2015). Women, however, are underrepresented both within games, and inside the industry workforce. In this article, I will demonstrate that diverse workforces show increased innovation and a better understanding of new markets. I will explain how the benefits of gender diversity have influenced games I have worked on, and I will make the case that the games industry needs more women to reach its full potential. Finally, I will discuss from an insider's perspective some hypotheses about what might be keeping women out of the games industry, and what we can do about it.

Why Make Video Games?

I asked a diverse group of my colleagues why they make games and discovered that, regardless of gender, they have similar passions and motivations. Some spoke of games as new ways to tell stories: “J’aime l’idée de créer un espace contrôlé dans lequel existe un nombre infini de scénarios, d’entrées, de sorties, de chemins de vie, d’expériences. Un espace libre qui invite, propose, métamorphose” (Salome Strappazon, Big Bad Wolf). Others mentioned interactivity as something that offers new ways to play with identity, and described games as a medium that can “represent a profound innovation in human culture” and “allow the audience to discover for themselves who they truly are, or perhaps who they would like to be” (Jason VandenBerghe, Ubisoft). The action of games extends one's sense of identity: “Games have vast potential [...] They have the potential of transforming the way people view themselves and others” (Marc-Olivier Bouchard, Ubisoft). Some of my colleagues spoke specifically about new forms of

¹ Film is often considered to be the closest medium to games, but in terms of interactivity, perhaps theatre bears a better resemblance.

communication and collaboration, about games “hav[ing] the ability to bring strangers together in a collaborative experience” and “inspir[ing] others to make their own creations based on what they experienced” (May Ling Tan, WB Games; Liam Wong, Ubisoft). For example, *Far Cry 4* (Ubisoft, 2012) inspired one woman to post instructions for a manicure she designed based on the game to *YouTube* (Frag Dolls, 2014). Some mentioned the process of making games as providing new ways of viewing the world, and a platform for sharing that understanding: “I make games to understand the underlying systems of the human condition”, and to give players “new ways to interpret and enjoy life” (Jill Murray, Discoglobe Interactive). Others referred to the untapped potential of the medium that has yet to be fully actualized: “I want to push what entertainment means... Art, science, psychology, math, and any person’s background and interests will influence the games of tomorrow” (Aleissia Laidacker, Ubisoft). “Making games is like creating magic. We confront unique problems that require each ounce of our creativity and technical knowledge in order to surround the player in a beautiful illusion.” (Chris Goossen, indie developer). Some of my colleagues invoked immersive game worlds as having the potential to dramatically influence culture: “It is easy to change the world. Just create a new one and show it to children. If they fall in love with it, that is the world they are going to build” (Marie Jasmin, Ubisoft).

Game developers, regardless of their gender, refer to the same themes - innovation, new ways of storytelling, identity exploration, communication, collaboration, potential, and even new worlds. In her book, *Gaming at the Edge*, Adrienne Shaw (2014) explains that changing games and diversifying representations should not fall only on the shoulders of underrepresented game developers; rather it should be a responsibility shared by all stakeholders in the video game industry. I would add that creating innovative games with the potential to change the world is not only a shared responsibility, it is also a shared motivation. It is my motivation as well.

Diverse Teams and Innovation

The *Catalyst* organization publishes a report entitled *Why Diversity Matters* that looks at the links between diversity and corporate performance. This report is updated as new studies are released, and at the time of my retrieval, it was 15 pages in length and summarized 71 studies that, taken together, make a strong case for diversity in business. A few key points from that report are

relevant to the video game industry: 1) Collective intelligence in groups is greater than the sum of individual intelligence. 2) Highly diverse teams perform better on highly complex tasks than homogeneous teams, possibly due to a wider range of thinking processes and increased creativity. 3) Diversity in cultural backgrounds, education, and demographic characteristics is a proven and important source of innovation (Catalyst, 2013).

Basically, diversity is essential for innovation. The evidence for this ranges from mathematical models to lab experiments, analyses between teams within a single organization, and analyses between different organizations. For example, Hong and Page (2004) ran a mathematical simulation to investigate whether diverse problem solvers outperform groups of high-ability problem solvers; in their simulation, the diverse groups became stuck less often. They also found a group's performance in making predictions depended as much on the group's diversity as on the ability of its members to predict. Higgs, Plewnia, and Ploch (2005) looked at how team composition and task complexity influence team performance in a German company. Diversity was found to be positively correlated to performance for complex tasks, and negatively correlated for straightforward tasks. Miller and Triana (2009) looked at how racial and gender diversity relates to firm performance in a sample of 500 boards. Racial diversity was positively correlated with firm reputation and innovation, while gender diversity was associated with innovation (2009). In short, and to emphasise the importance of these findings for the games industry, there is a phenomenon called "group intelligence"; when tasks are complex and innovation is the goal, such as it is in the games industry, a diverse team can ensure a better outcome.

When I joined Ubisoft to work on the *Assassin's Creed* brand (about five years into my career), it was the first time I had the opportunity to work with other women programmers. Our team was comprised of people from around the world, and more women were represented here than in any previous situation I had encountered in the industry. Diverse perspectives created a dynamic that led to many new developments, including the way crowds came to life in *Assassin's Creed: Brotherhood* (Ubisoft, 2010), which carried over to other games produced since that time. Thanks to the efforts of one woman on the team, we had women assassins in *Assassin's Creed: Brotherhood*, which came out a few years ahead of the conversation around the lack of women characters in mainstream video games. While that team included more women than I had

previously worked with, and manifested a different dynamic because of this composition, women were still greatly outnumbered in terms of the group; we represented only 12% of the gameplay/AI/presentation programming team (Moby Games, 2011).

Child of Light (Ubisoft, 2014) was another game created by an international team of designers, this time 25% of whom were women - the greatest proportion I have ever worked with at a major studio. A different atmosphere accompanied working on this team, which I attribute to the gender balance; this atmosphere encompassed the whole team, not just the women. It is interesting to note that much of the technical innovation on that project revolved around bringing the main character, Aurora, to life, and was associated with conveying mood and emotion rather than the creation of detailed locations or any kind of realism. We focused on movements for her animation and her hair, coming up with a mixed 2D/3D solution that would make her appear to be moving in a liquid, surreal environment, almost as if she were underwater. We also created the character of Rubella, a jester, whose inclusion ensured that half of the partner characters were female, and who does not resemble typical feminine stereotypes. I see Rubella mentioned on *Twitter* perhaps more than any other character besides Aurora.

If game developers of all genders share similar passions and motivations, and if game developers of all genders want to change the world and create better representations of women, then why do we need more women on development teams? Women and men are not so different from each other; there may be some differences in average traits which could be attributed to biology or society, or both. But for traits that exhibit difference, the bell curves often overlap (Ferro, 2013; Carothers and Reis, 2013). So why more women? Over my career in the industry, I have observed that each game developer tends to have their own vision of the world they want to build, based on individual experience and personal ideologies. When a team is staffed primarily by white male gamers who resemble each other in tastes and values, and who have gravitated to working in the industry because they like the way it is, they go on producing more of what they like.

Diverse teams can also alter group dynamics; in diverse teams, it is not only the atypical members of the group who suggest/import new ideas. In a homogeneous team, there is a natural

pressure on team members to conform with the stereotype of the most typical group member. In a diverse team, this pressure is broken, and people are freed to be themselves and share weird talents or unique ideas they may have previously hidden (HBS Press, 2009). When I have been on teams where women were grossly outnumbered, women have often been the ones pushing for change; in this situation, men may feel more pressure to conform, whereas the women in these groups already stand out and therefore may be driven to seek out and express new ideas. On the *Child of Light* team there was a more even ratio of women to men, and both were more likely to push for new ideas. Having more representative and diverse teams may take the pressure off members from underrepresented groups to always be the ones pushing for change; this is what we should strive for.

Four Barriers to Entry Facing Women in the Video Game Industry

If diversity leads to innovation, why are diverse teams not taking over the tech and games industries? Why is this problem, in fact, getting worse (Henn, 2014a)? In the following sections, I will identify barriers that women specifically may face when trying to enter the games industry, and suggest potential solutions for overcoming them.

Barrier 1: Computer Science Was Marketed to Boys

In 1984, the percentage of women majoring in computer science in America started to fall dramatically. This was around the same time that home computers began to gain popularity, and these were marketed almost entirely to boys and men. A series of 1980s movies also linked computers with geeks who were predominantly boys. Once these messages began to appear in the media, boys were more likely to access computers in the home than girls, even in families where the girls were more interested in computers (Henn, 2014a; Margolis and Fisher, 2002). In addition to negative stereotypes that became attached to women majoring in computer science, this media bias also led to the simple fact that many men in introductory computer science courses had significant experience with computers, while most women did not. Women were expected to already know things they had not yet learned (Margolis and Fisher, 2002).

In the 1990s, Carnegie Mellon University increased its enrollment of women from 7% to 42% over 5 years. They did this through creating multiple points of entry for students with various

levels of prior experience, breaking the geek stereotype, and showing women concrete, real-world applications for computer science (Margolis and Fisher, 2002). More recently, Harvey Mudd College took a similar path, splitting their introductory course into two streams; one is a true introductory class, and the other is for self-taught experts. They also send promising women in computer science to the Grace Hopper Conference, exposing them to potential role models. In addition, the College offers a summer research institute where women can work on concrete projects and see real-world results of what computer science can do. Within 4 years, they have increased the number of women enrolled in computer science majors from 10% to more than 40%. This is a dramatic result; the program is now being rolled out in 15 other universities (Henn, 2014b; Zomorodi, 2014; Klawe, 2009).

The solution may be as simple as offering a welcoming environment, providing visible role models, and showing concrete applications for coding. This suggests that groups who reach out to girls and women to introduce them to coding and to women who code, such as *Pixelles*, *Dames Making Games*, *The Code Liberation Foundation*, *Ladies Learning Code*, *Black Girls Code*, and *Girls Who Code*, are extremely important. In my own experience, and from a rough survey of the women programmers at Ubisoft Montreal, I found that most of us were lucky to have had someone close to us who knew programming; my father was a programmer and we always had computers around. I think that there would be more women working in the tech and games industries today if a larger number of women had grown up with programming demystified.

Barrier 2: Rarity of Women Avatars

As demonstrated by Anita Sarkeesian (2015) on her website *Feminist Frequency*, most games feature male protagonists, and women non-player characters tend to be cast in stereotypical roles such as damsels in distress, rewards, a background decoration, or sexy sidekicks. My favourite game growing up was *The Colonel's Bequest* (Sierra Entertainment, 1989), designed by Roberta Williams and Jacqueline Austin, which starred a young woman sleuth named Laura Bow. Without that game to inspire me and provide me with a female role model, it is conceivable that I would not be working in game design today.

When asked, the majority of high school girls want to play as women or girls in games. In response to which gender they preferred for their avatar, 60% stated female, 34% stated no preference, and 6% stated male. However, high school boys do not seem to care either way: 46% stated no preference, 39% stated male, and 15% stated female. Moreover, this trend of boys not having a stated preference while girls clearly do seems to increase with age (Burch and Wiseman, 2015). Without women protagonists, these girls may lose interest in gaming.

These results contradict those of Adrienne Shaw (2014), who found that marginalized audiences (women, gay, lesbian, bisexual, transgender, ethnic minorities) are not that concerned with being represented in games.² According to Shaw, identification is a complex process, relying on game mechanics and narrative elements, rather than solely one's resemblance to the game character. Even if this is the case, the video game industry still needs to diversify its representations; if not to address marginalized audiences' desire to identify with video game characters, then because depicting marginalized groups validates these identities and make people more tolerant towards diversity. The results of Burch and Wiseman, however, confirm another idea brought up by Adrienne Shaw: the video game industry should diversify representations because most players – including their target (male) audience – say they would gladly play as a woman character.

This seems to be a chicken-and-egg problem: if we had more women in the games industry, we would be telling more women's stories, and if we had more women's stories in games, we would likely see more women in the industry. Since the Electronic Entertainment Expo *E3* put more emphasis on women protagonists in 2015 than in previous years, there is reason to believe that this trend may be changing.

Barrier 3: Gender Bias in Recruitment

There are barriers in the video game industry for women who do not fit the computer geek and/or gamer stereotype. In the game and tech industries, we often see job ads boasting phrases such as “We work hard but we play hard!”; studies have demonstrated that women are less likely to

² The results of these studies may differ due to participants' ages, or the sampling methods used. Adrienne Shaw (2015) acknowledges in her book *Gaming at the Edge* that marginalized people's lack of concern with representation could be a coping mechanism; having never been adequately represented, they may have learned to not care (or to say that they don't) as a way of dealing with the problem.

respond to job ads with this masculine tone (Gannes, 2015; Peck, 2015). In addition, women tend not to apply for jobs unless they meet 100% of the required criteria, whereas men tend to apply when they meet at least 60% of the criteria (Mohr, 2014). Job interviewers also have biases; they tend to hire based on similarities between themselves and the candidate, even though this is not a predictor of future performance. The questions asked in interviews may not accurately reflect the requirements of the job (Miller, 2015). Especially in games and tech, people may tend to look for the “gamer” or “geek” identity as much as they look for ability to perform the day-to-day job.

During the past year at Ubisoft Montreal, I helped design an initiative to increase diversity in our workforce. We built a team of 8 people called the Ubiversity Team/L'équipe Ubiversity to run this initiative, comprised of qualified applicants that represented as many dimensions of demographic diversity as possible (ethnicity, language, gender identity, sexual orientation, age, level of experience, field of work). Taking part in this exercise helped me to realize some of my own biases; the applicants I would have chosen based on gut instinct were not the same applicants that we chose in the end, yet I am fully convinced that we chose the best applicants. This experience made me more aware of factors I was not considering, aspects of candidates I did not account for, and people whom I overlooked; as an example, I tended to choose English-speaking applicants while my francophone colleague chose francophones. In brief, we all have unconscious biases and should find ways to overcome them.

There are tools that have been developed to help counter biases during recruitment. *Textio* is a tool that analyzes job ads and recommends changes to help attract more women (or more men depending on who is being targeted). Simply including a sentence about valuing diversity can go a long way; at *Nordic Game 2015*, *Paradox Interactive*'s chief operating officer Susana Meza Graham shared the job ad she replied to when she joined the company. It was three lines long and the third line said something like “More women applicants would be nice”. That piqued her interest. *Google* has, for its part, switched to structured interviews, where each applicant is asked the same series of questions. Structured interviews are proven to better predict future performance when compared with unstructured interviews (Bock, 2015; Schmidt and Hunter, 1998). Finally, it can be helpful during the hiring process to think in terms of hiring the best team,

rather than a collection of the best candidates, since it has been proven that diverse teams perform better. (Code, 2015).

Barrier 4: Gender Bias at Work

It is not enough to entice more women to work in the video game industry; we also need women to remain (St. Fleur, 2014). Minority groups face many obstacles in the workplace such as unconscious biases, favouritism, assimilation, differentiation, and sidelining (HBR Press, 2009). As I mentioned earlier, we all have unconscious biases. Much of our processing is unconscious, and our thinking suffers from incorrect assumptions that are a product of the culture in which we are raised. These assumptions, which often persist beneath the influence of conscious opinions, may be why both women and men in North America display the same level of bias against women, regardless of individual convictions (Welle, 2014).

As a manager, I have noticed that we often focus on, and identify with, our top performers – our “best candidates”, our “superstars”. We may even pick a favourite who reminds us of ourselves. Favouritism leaves out potentially talented individuals who may be different than the manager. Assimilation is also a frequent phenomenon, based on the idea that we as people are all the same, putting pressure on employees to downplay differences (HBR Press, 2009). When I was the only woman programmer in my company, for example, I would wear ratty t-shirts and no makeup, in order not to stand out. Differentiation, on the other hand, is the idea that diverse employees are different, and as such, they may be more suited to certain tasks (also known as pigeonholing) (HBR Press, 2009). As an example of this, someone brought up in a performance evaluation that women program differently, and stated that the guys on the team could learn something from me. On another occasion, I was asked in a job interview about whether I would make a better manager than a man would. As mentioned earlier, for all traits where we find generic differences between men and women, the bell curves predominantly overlap. For any given trait, an individual may be more masculine or feminine than average, regardless of their gender (Ferro, 2013; Carothers and Reis, 2013). Increasing diversity has team-level effects that are likely to improve performance, but this does not guarantee specific approaches from certain individuals.

When a team has a predominant group in terms of representation, team members in the minority are more likely to experience sidelining and stereotyping. There seems to be a threshold: if a group is composed of less than 30% women (or less than 30% of men), sidelining and stereotyping is likely to occur (Catalyst, 2013, Joecks et al., 2012). I witnessed this dynamic during the early days of the diversity initiative at Ubisoft Montreal. When there was only one man in the room, women spoke over him the same way I have seen men talking over women in meetings; I found that I, too, was guilty of this until I noticed I was doing it, and even then it was a struggle to stop.

There are many steps that can be taken to counter unconscious biases, favouritism, assimilation, differentiation, and sidelining. Harvard's *Project Implicit* provides *Implicit Association Tests* that help to expose unconscious biases (Greenwald et al., 1998), and Harvard Business Press ~~has~~ published a short comprehensive book on building inclusive workplaces and leveraging diversity called *Managing Diversity* (HBS Press, 2009). *Google* also provides excellent training on unconscious bias (Welle, 2014). Based on my experiences working in a field full of people who are different from myself, exposure to diversity has forced me to become a more inclusive and open person. Managers should periodically go to lunch with someone they may not spontaneously choose to spend time with, and should avoid focusing their attention solely on the superstars on their teams. The 80% who fall between the perceived top and bottom performers stay on teams longer, building expertise and improving performance through experience. The superstars tend to develop on their own, without attention, and they also tend to leave (Aleissia Laidacker, Ubisoft).

Pressures of assimilation on a team may be converted by valuing differences. Diverse backgrounds and perspectives are keys to success and should be celebrated. Countering assimilation without creating an atmosphere of differentiation involves thinking in terms of inclusion. An inclusive workplace is one free of assumptions, where ideas can come from anywhere, and open discussion is encouraged. It is walking a fine line of acknowledging differences, while not assuming them based on unfounded assumptions (HBS Press, 2009).

To counter sidelining and stereotyping, balance should always be maintained on a team. A team comprised of minority groups that amount to less than 30% of the whole is at risk of having problems (Catalyst, 2013). When problems occur, structural interventions, such as restructuring the team to break up bully groups, are more effective than managerial interventions (HBS Press, 2009). Leaders of balanced and diverse teams may need to adjust their management style. Cultural differences in communication and norms can be challenging, and everyone involved should strive to be open and flexible (HBS Press, 2009).

It should also be considered that conventional team building activities may not suit everyone. While I enjoyed going to a hockey game once or twice to learn about why my colleagues enjoy it, it is still not my preferred activity. Managers should ensure that team building activities truly foster understanding between groups. To build connections between people who do not have much in common, team members can agree on a few important character traits that would help the team achieve its objectives, and in small, safe groups discuss their own strengths and weaknesses in relation to these traits and give each other feedback. This gives the team experience engaging in difficult and open conversations that help to build relationships (Bregman, 2015).

Finally, managers should offer to sponsor employees who are not in the dominant group. Sponsorship is a more effective form of mentorship; sponsors go beyond giving feedback and advice, using their influence to advocate for the mentee. High-potential women are over-mentored and under-sponsored in comparison with men. Without sponsorship, women are less likely than men to be given top roles, and also more reluctant to take them (Ibarra et al., 2010). People who are not part of the dominant group should seek sponsorship and mentors that are not necessarily part of the same minority group(s), in addition to being aware of issues surrounding bias. Following these steps can help create a more inclusive environment that encourages members of underrepresented or marginalized groups to remain.

Conclusion

Despite having spent the past year engaging with research that generalizes personal experiences and challenges I have faced during my career in games, I still cannot imagine working in any

other industry. I love video games; I am obsessed with them, and I want to find out what video games can become if they are made by a more diverse workforce with a wider range of backgrounds and interests. Making video games is culturally important work. Video games are the future of entertainment, and entertainment contributes to the unconscious biases we all hold. Diverse voices in our entertainment industries could help diminish unconscious biases in our culture.

The barriers and disadvantages faced by women and other minorities in the tech and games industries are worth dismantling. Video game developers do work that is creative, challenging, and for the most part, well-paid. The video game industry is stable, and jobs are relatively easy to find. For these reasons, I encourage women to join the industry despite the challenges involved. To make the most of their experience, I encourage them to choose both the organization and team wisely, and to actively seek out sponsors who can support and promote them in this field.

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Résumé

Les jeux vidéo sont une nouvelle forme de divertissement qui permet une interactivité sans précédent et qui détient un vaste potentiel inexploité. La majorité des joueurs sont désormais des femmes, mais ces dernières demeurent sous-représentées à l'intérieur des jeux et dans les équipes de conception de l'industrie. Or, il fut démontré que les équipes diversifiées font preuve davantage d'innovation et comprennent mieux les nouveaux marchés. En se basant sur ses 13 ans d'expérience au sein de l'industrie du jeu, l'auteure se sert de divers exemples personnels pour montrer les bénéfices d'une équipe diversifiée en termes de ratio hommes/femmes. Elle défend également l'idée que l'industrie du jeu a besoin de plus de femmes pour atteindre son plein potentiel. L'auteure met enfin en évidence quatre barrières qui empêchent les femmes de percer dans l'industrie du jeu et suggère des solutions pour les surmonter.

Mots-clés : jeu vidéo, conception de jeu, genre, diversité, équipe de travail, innovation