# E is for Everyone: The Role of Stakeholders in Participatory Design and Game Studies

**Victoria McArthur**
York University
Toronto, Canada, M3J 1P3
vickymc@yorku.ca

***Abstract-*** *In this paper, we investigate whether or not the Participatory Design (PD) paradigm might be used to address issues of social exclusion in game design. Here, social exclusion is used to describe games where design choices limit self-representation (in terms of gender and/or ethnicity) or access. Three areas where PD approaches have been used to address social exclusion are discussed and critiqued. In particular, the importance of including diverse and representative stakeholders is discussed.*

***Keywords*:** *participatory design, game design, gender, social exclusion.*

## 1. Introduction

Participatory design is an approach to software design that emerged as a counter-movement to the traditional, top-down design paradigm. Suchman et al. argue that "participatory forms of design emphasize the value of crossing professional boundaries and reworking relations of technology production" [23]. Participatory design encompasses a variety of methodologies designed to engage stakeholders in the design process of software and other systems [17]. Its practices are motivated by the desire to create a product that is both contextually suitable and usable [2]. Participatory design methodologies allow designers to bypass the interference of a digitally-mediated exploratory project by employing low-fidelity, analog prototyping techniques [2]. Such techniques include, but are not limited to the use of paper, cue cards, and clay [20], interviews, focus groups, and ethnography (e.g. see [18, 23], scenario building, and role playing (e.g. see [24], [22]. A combination of the aforementioned methods are generally employed in order to ensure that a.) designers are truly familiar with the stakeholders' needs, b.) that stakeholders are actively included in the design process, and c.) that stakeholders' needs have been met in the design and deployment of the finished product.

A participatory design approach not only modifies the position users take in relation to software design and development, it has also allowed for interventions where the traditional software development model would otherwise not have. For example, research-based PD projects have been successfully deployed in non-profit organizations, making the approach accessible to organizations that generally do not have the financial resources to fund an in-house design solution (e.g., see [15], [16]).

Within the field of game studies, a number of groups are said to be marginalized or alienated by the industry, including women and girls [7], ethnic minorities [11], and persons whose socioeconomic

status limits their access to digital games [14]. These groups are often cast as 'other' in relation to gamer culture. The term 'social exclusion' is used in this context to describe games where design choices limit self-representation (in terms of gender and/or ethnicity), present problematic representation (racist/sexist), or whose design and or distribution limits access by players of a lower socio-economic status.

Here, we ask whether or not the Participatory Design (PD) paradigm can be used to address issues of social exclusion in game design? We identify three areas where PD approaches have been used to address social exclusion are discussed and critiqued. Using these examples as case studies, we can make recommendations for productive work using PD in addressing alternative markets while being mindful of the ways in which socially exclusive values are (intentionally or not) present in the design of computer and video games. A small number of projects have already been undertaken within the field of game studies that are informed by the practices of participatory design, either explicitly or implicitly. Looking to these projects as examples of PD interventions will highlight the ways in which PD may be mobilized to address other issues in game design, as well as to highlight whether or not PD approaches are capable of reshaping the political and often hegemonic nature of game design.

## 2. Related Work

A popular position in the literature on the representation of gender and ethnicity in game design looks to game design and production itself as a hegemonic practice, enforced almost entirely by a largely male-dominated game industry [6]. Research in this area has looked to a number of contributing factors, more broadly focusing on the problematic representation of women and ethnic minorities in computer and video games and the demographics of the industry itself. In 2005, the International Game Developers Association published a report on the demographic makeup of the games industry [8]. Not

surprisingly, results of the survey revealed that 88.5% of participants in the survey were male, 83.3% of participants were Caucasian, and 92% of participants identified as heterosexual [8]. The demographic makeup of the game industry has been highlighted in the literature as a primary force reinforcing the industry's "technological, commercial, and cultural investments in a particular definition of games and play, creating a cyclical system of supply and demand in which alternate products of play are marginalized and devalued" [6, page 1].

When data like this is presented, the typical reaction from within the gamer community is 'so what'? Our primary concern here is that an early interest in computer and gaming technologies leads to an interest in science, technology, engineering, and math (STEM) careers. A number of researchers have looked to intervention research methods as a means to combat the hegemonic production practices that continually exclude populations that are often relegated to the status of 'other' in relation to video games. Here, we provide an overview of three areas where PD and PD-like projects have been mobilized in order to address issues of gender, race, and access in game design.

### 2.1. A PD Approach to Avatar Design

Computer and video games have been critiqued for the ways in which their content is representative of dominant ideologies that reify hegemonic discourses of the offline world [6]. More specifically, researchers have commented on the problematic representation of racial minorities (e.g., see [13], [11], and females (e.g., see [9]).

If these issues are the result of socially exclusive design, a PD approach to avatar design may be able to offer intervention. One such example, published by Bailey and Moar [1] involved a study of primary school students and their use of a virtual world called *Active Worlds*. In this study, the authors noted that the children were enthusiastic about their use of the virtual world, but found its avatar choices to be limiting. As such, the authors invited the students to make paper puppets of their ideal avatars which were later scanned and converted into 3D avatars by members of the

research team. They found that the students wanted to be able to represent themselves, and so used photos of their own faces on an otherwise cartoonish paper body. Paper prototyping was later used by the authors in order to help the children design their virtual world without having to learn any 3D modeling.

Recent studies by Neustaedter and Fedorovskaya [19], Ducheneaut et al. [5], and Kafai et al. [12] focus on the kinds of bodies and identities users craft in MMOGs and Social Virtual Worlds. In each of these papers, the authors focus on the choices users make and how their identity fidelity, or lack thereof, contributes to our understanding of the kinds of conceptual frameworks that guide observable trends. For example, Ducheneaut et al. [5] studied these trends in 3 popular virtual worlds and identified three trends which they believed to be conceptual factors influencing how we choose to appear online: *idealized self*, *standing out*, and *following a trend*. Four similar conceptual factors had been previously identified by Neustaedter and Fedorovskaya [19], who chose to study users of *Second Life*: *realistics*, *ideals*, *fantasies*, and *roleplayers*. Lastly, Kafai et al. [12] studied avatar customization trends of tweens in the Social Virtual World *Whyville.* Participants in their study identified four conceptual factors that contributed to how they chose to customize their avatar. In each of these studies, the user, and to a lesser extent, the affordances of the avatar creation system, were studied.

Returning to the work of by Bailey and Moar [1], the fact that all students chose to represent themselves accurately, at least facially, is contradictory to the findings presented in papers by Neustaedter and Fedorovskaya [19], Ducheneaut et al. [5], and Kafai et al., [12] which suggest that accurate self-representation is not always desired by all users of the same virtual environment. As such, there may have been some social factors that resulted in all of the students in Bailey and Moar's study creating avatars that appear to have all followed the same conceptual factor. The students may have been influenced by the designs of their peers, or they may have been influenced by the researchers themselves. Cassell and Jenkins describe a phenomenon in which participants feel compelled to produce what we, the researchers, want them to produce [4]. The phenomenon described by Cassell and Jenkins applies specifically to interview responses by female gamers, but highlights the power position researchers occupy in relation to their participants. These results highlight the potential for PD projects to provide contextual designs that are not truly representative of all members of the targeted user group.

## 2.2. A PD Approach to Gender and Gaming

Women and girls have been traditionally alienated from the computer and video games market. Researchers have attributed this to a number of issues including, but not limited to, the fact that games are traditionally seen as being designed for men (e.g., see [6] and issues of access related to gender policing (e.g., see [3], [25]. A number of research interventions have taken place in order to attempt to address these issues. One such project by Heeter et al. [7], while not explicitly promoted as being a PD project, does utilize PD methods and does directly engage the stakeholders, groups of young girls, in a low-fidelity cooperative design project.

The authors report on a 3 year long, mixed-methods, between subjects study designed to investigate whether or not girls would prefer games designed by girls. The first phase of the study engaged groups of gender-segregated boys and girls (n = 42) in a game design project. In the second phase, participants (n = 521) a were then shown the resultant designs and asked to rank the designs based on gender-appropriateness and how fun they would be to play.

Heeter et al. [7] went to great lengths in their investigation of gendered preferences in game design in an attempt to avoid potential confounds in their study. They segregated the teams (having the girls teams in at different times than the boys teams), they ensured production of the game promos was carried out by mixed-gender teams, and they surveyed the games for gender-appropriateness using an entirely different group of participants. Unfortunately, many of the conclusions they reached with regard to gendered

preferences were in line with much of that literature on gendered game play which reinforces the narrative of a gender binary. Those findings which *were* surprising are primarily linked to the enforced theme of the project (NASA theme resulted in games that contradicted "gendered" preferences for fantasy vs. reality).

The results of this project reveal those political aspects of game design that a PD approach were not able to overcome. Firstly, even the most cooperative participatory design projects eventually result in a power shift from participants to developers - once prototyping moves from analogue to digital, the developers take over the build. Secondly, many of the girls' game designs confirmed rather than challenged the normative discourses of gender preference. Other longitudinal studies on girls and game play reveal that these gendered preferences are actually gendered performances that reflect previous access (e.g., see [3], [25], [10]. Until girls are given the opportunity to become *actual* users of games, their position as stakeholders in a PD project will continue to be problematized, and produce problematic results.

## 2.3. A PD Approach to the Digital Divide

Lochrie et al. [14] report on a PD game design project designed to engage young people whose socio-economic status has excluded them from digital technologies. The study began with the project's artist spending months at a local community centre interacting with the participants in order to build a relationship with them and to gain their trust. Participants in the study were invited to design a location-based game (LBG) about their community. The goal of the project was to engage both boys and girls in the design of the game. The authors report originally engaging six females and 4 males at the community centre, but found it difficult to engage the girls in the project. They attributed the girls' lack of interest in the project to the differences in the ways the boys and girls engaged with/were interested in technology. The girls used the computers at the community centre to access social networking sites, whereas the boys expressed interest in playing console games. Unfortunately, the boys alone went on to form the design group in the project.

The authors report that the study was successful in engaging participants whose access to technology was otherwise limited by their socio-economic status. They report that it was apparent that, "the users that took part in the PD process showed a great sense of ownership to the game and willingness to interact and engage with members from different communities" [14]. Unfortunately, since the girls were excluded entirely from the study, the study really did not bridge the digital divide as intended, since gender is also a factor which exacerbates the digital divide [26]. While this is mostly a weakness in their experiment, rather than PD itself, it does highlight the importance of finding ways to engage all stakeholders, even those who are not as easily engaged.

## 3. Discussion and Conclusions

In 1999, Ben Shneiderman, prominent researcher in the field of Human-Computer Interaction (HCI), challenged members of the community to consider how their work can better serve human needs [21]. His suggested domains included ways to provide accessible education, improve communication, and promote world peace. Shneiderman posed 10 challenges for designers, intended to guide practice towards his desired reshaping. For designers, he proposed, "usability testing, user interface management software, guidelines documents, and participatory design revolving typical users" [21, page 7]. Unfortunately, the "typical users" in his call for participatory design reinforces the same political and hegemonic aspects of HCI he is attempting to critique. This mistake is highlighted by the troubling outcomes, reported as "success", by Lochrie et al. [14] when they failed to engage females as stakeholders in their PD game design project.

1. *Design interventions must allow for differences within the user population to emerge.*

This lesson is not a new one to Participatory Design, but needs to be stated in the context of

participatory design and game-based research. When it comes go gamer culture, participants may feel compelled to offer gendered performances in situations where they feel as though it is socially appropriate to do so. For example, ethnographic studies involving gaming technologies and women have shown that even skilled girl gamers may perform less skillfully when playing with, or in the presence, of males [25]. Researchers must carefully negotiate these relationships when reporting on observations in studies involving gaming and marginalized groups. Experimental design should take these relationships into account in order to allow for authentic differences within the user population to emerge.

*2. Researchers must ensure that stakeholders have the opportunity to actually become stakeholders before engaging with any group in a design project.*

This point is particularly important when considering the position marginalized groups hold in relation to information and communication technologies, including gaming culture. Researchers who wish to engage girls or other groups in game-based studies need to take the time to "level up" their participants before any true results can be seen. Failure to do so results in poor research; falsely attributing observed difference to gender when we are really observing differences attributed to a lack of gaming experience. To put it another way, researchers who might be interested in designing an optimal cockpit test their designs on pilots, not non-pilots. It is possible (with years of training) to turn a non-pilot into a pilot, but examining interactions between a non-pilot and a cockpit tells us very little about how a pilot would interact with said cockpit. To bring it back to marginalized groups and their interactions with gaming technology, failure to provide these participants with gaming context and experience tells us very little about how they play and what kinds of games they enjoy.

*3. It is important to find ways to engage representative members of the target*

*community, not just those who are eager to participate.*

When engaging participants who have little to no experience with gaming technologies, it may be difficult to elicit the same level of participation from marginalized groups as it is to engage those who are familiar with gaming technologies. When this occurs, it is important to seek alternative approaches so that all stakeholders feel as though they are able to contribute to the project and that their contributions are considered meaningful.

Many of the problems highlighted in the aforementioned game design projects, are addressed later in Shneiderman's paper [21] when he suggests the following four questions as a useful guide: "Have I considered individual differences among users in the design of my system? Have I considered the social context of users? Have I arranged for adequate participation of users in the design process? Have I considered how my design empowers users?" [21, page 8]. These questions were posed more than a decade ago, yet these same concerns did not inform the designs of the PD game experiments outlined in this paper. In order for participatory design to be able to be harnessed as a tool for intervention with groups who are marginalized and excluded from gaming technologies, these questions must inform our experimental design.

Methodologically, participatory design appears to afford us the opportunity for "reworking relations of technology production" [23], yet the practice itself is still highly political in nature. Winner [27] suggests that there are two ways of looking at the political properties of technologies, both of which reveal the political nature of participatory design:

1.) The "ways in which specific features in the design or arrangement of a device or system could provide a convenient means of establishing patterns of power and authority in a given setting..." [27]

2.) The "ways in which the intractable properties of certain kinds of technology are strongly, perhaps unavoidably, linked

to particular institutionalized patterns of power and authority." [27]. Winner goes on to suggest that the initial choice is only whether or not to adopt a given technology. After that, "[t]here are no alternative physical designs or arrangements that would make a significant difference; there are, furthermore, no genuine possibilities for creative intervention by different social systems–capitalist or socialist–that could change the intractability of the entity or significantly alter the quality of its political effects." [27]

Winner [27] argues that both interpretations are important in exploring the political nature of artifacts. In order for the second position to be true, there would be no room left for intervention or innovation. While participatory design itself may have "intractable properties" that make it political - or rather, prevent it from not being political - computer and video games themselves, as well as the socio-technical systems in which they are embedded, are not so intractable. While a PD approach is not free from politics, it does still have much to offer game designers - especially those who are motivated to address issues of socially exclusive design and accessibility. However, while PD methods do empower users in the early stages of design, it is important that researchers be aware of the true balance of power between participants, researchers, and developers. Such an understanding challenges us to actively seek out new methods and practices that can help us to actively engage *all* stakeholders, as well as to help them make changes in areas of game design that so desperately require them.

## Acknowledgements

## References

[1] F. Bailey and M. Moar "The Vertex Project: children creating and populating 3D virtual worlds" International Journal of Art and Design Education, 20, 2001, 19-30.

[2] J. Blomberg, L. Suchman, and R. H. Trigg "Reflections on a work-oriented design project", Human-Computer Interaction, 11, 1996, 237-261.

[3] D. Carr "Contexts, gaming pleasures and gendered preferences", Simulation & Gaming, 36, 2005, 464-482.

[4] J. Cassell and H. Jenkins "From Barbie to Mortal Kombat: Gender and computer games", MIT Press, 1998.

[5] N. Ducheneaut, M.-H. Wen, N. Yee, and G. Wadley "Body and mind: a study of avatar personalization in three virtual worlds", in Proceedings of the 27th International Conference on Human Factors in Computing Systems (CHI '09). Boston, Mass.: ACM, 2009, 1151-1160.

[6] J. Fron, T. Fullerton, J. Ford Mori, and C. Pearce "The hegemony of play", in DiGRA 2007, 2007.

[7] C. Heeter, R. Egidio, P. Mishra, B. Winn, and J. Winn "Alien games: Do girls prefer games designed by girls?", Games and Culture, 4, 2009, 74-100.

[8] IGDA "Game developer demographic: An exploration of workforce diversity", in Special report commissioned by the International Game Developers Association, 2005.

[9] J. Jenson and S. de Castell "Gender, simulation and gameplay: Review of research", Simulation & Gaming, 41, 2010, 898-920.

[10] J. Jenson and S. de Castell "Girls@Play: An ethnographic study of gender and digital gameplay", Feminist Media Studies, 11, 2011, 167-179.

[11] Y. B. Kafai, D. A. Fields, and M.S. Cook "'Blacks deserve bodies too!': Design and discussion about diversity and race in a tween virtual world", Games and Culture, 5, 2010, 43-63.

[12] Y. B. Kafai, D. A. Fields, and M. S. Cook "Your second selves: Player-designed avatars", Games and Culture, 5, 2010, 23-42.

[13] D.J. Leonard "Not a hater, just keepin' It real: The importance of race- and gender-based game studies", Games and Culture, 1, 2006, 83-88.

[14] M. I. Lochrie, P. Coulton, and A. Wilson "Participatory game design to engage a digitally excluded community", in 5th DiGRA: Think Design Play, 2011.

[15] B. McPhail, T. Constantino, D. Brockmann, R. Barclay, and A. Clement "CAVEAT Exemplar: Participatory Design in a non-profit volunteer organisation", Computer Supported Cooperative Work (CSCW), 7, 1998, 223-241.

[16] C.B. Merkel, L. Xiao, U. Farooq, C.H. Ganoe, R. Lee, J.M. Carroll, and M.B. Rosson "Participatory design in community computing contexts: tales from the field", in Proceedings of the eighth conference on Participatory design, 2004, 1-10.

[17] M.J. Muller and S. Kuhn "Participatory design", Communications of the ACM, 36, 1993, 24-28.

[18] B. Nardi "The use of ethnographic methods in design and evaluation", in Handbook of Human-Computer Interaction II, (M. G. Helander, T. Landauer, and P. Prabhu, Eds.). Elsevier Science, 1997, 361-366.

[19] C. Neustaedter and E. Fedorovskaya "Establishing and maintaining relationships in a social virtual world", 2008.

[20] E.B.N. Sanders, E. Brandt, and T. Binder "A framework for organizing the tools and techniques of participatory design", in 11th Biennial Participatory Design Conference (PCC '10): ACM, 2010, 195-298.

[21] B. Shneiderman "Human values and the future of technology: a declaration of responsibility", ACM SIGCAS Computers and Society, 29, 1999, 5-9.

[22] K.T. Simsarian "Take it to the next stage: the roles of role playing in the design process", in CHI '03 extended abstracts on Human factors in computing systems (CHI EA '03): ACM, 2003, 1012-1013.

[23] L. Suchman, R.H. Trigg, and J. Blomberg "Working artefacts: Ethnomethods of the prototype", British Journal of Sociology, 53, 2002, 163-179.

[24] D. Svanaes and G. Seland "Putting the users center stage: role playing and low-fi prototyping enable end users to design mobile systems", in Proceedings of the SIGCHI conference on Human Factors in Computing Systems (CHI '04): ACM, 2004, 479-486.

[25] H. Thornham "It's a boy thing: Gaming, gender, and geeks", Feminist Media Studies, 8, 2008, 127-142.

[26] L. van Zoonen "Feminist Internet studies", Feminist Media Studies, 1, 2001, 67-72.

[27] L. Winner "Do artifacts have politics?" in The whale and the reactor: a search for limits in an age of high technology). University of Chicago Press, 1986, 19-39.