Muse-Based Game Design

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ABSTRACT

Game design and user experience (UX) design both centre on the design of experiences. But whereas it is par for the course for end-user perspectives to be included during early design stages in UX, there is little methodological support or research into how to incorporate player perspectives into early stages of game design. In this paper, we introduce *muse-based game design*, an experimental empathic design approach foregrounding a dialogic artist – muse relationship between a game designer and player. Following a user research stage focused on learning about the player, the designer forms idiosyncratic design constraints inspired by and relating to the player, which are then used to inspire ideation. To understand the consequences, advantages, and disadvantages of this approach, we discuss findings from two years of application of this style of game design in a Master's-level class of game design students at the IT University of Copenhagen.

Author Keywords

game design, empathic design, player-centric design, player-centred design, reflective design, design processes

ACM Classification Keywords

H.5.2 Information Interfaces and Presentation: Miscellaneous

INTRODUCTION

Game design and user experience design (UX) share a basic fundamental objective: both concern the design of experiences. As the two fields have evolved, they have left their mark on one another. Since the 1980s, HCI researchers have been looking to games to inspire ways of designing more engaging, appealing, and enjoyable technologies. For example, Malone's research with games led to heuristics for designing enjoyable user interfaces for learning tools [33]. Echoing qualities commonplace in games, experience goals such as fun [7] and playfulness [17] have been incorporated into the UX paradigm. Likewise, digital game design has often borrowed from HCI and UX. For example, iterative development cycles demarcated by prototypes and testing, a standard model of development in UX, have become best practice for game development [15, 42]. Methods for game usability, such as the think-aloud protocol [23] and heuristic evaluation [52], have been borrowed and adapted for use in a game-focused context.

While UX as a field is younger than game design, the methods and approaches encompassed by UX, which for the purpose of this paper we interpret as also including interaction design, are significantly more diverse. UX has established itself through the borrowing and incorporation of methodologies and theory from other disciplines. It has heterogeneous origins, rooted in disciplines including cognitive psychology, anthropology, affective computing, and traditional usability [14, 21, 57]. Binding together the multitude of disciplinary influences is a strong emphasis on the importance of end user perspectives. In approaches such as participatory design and other co-creation methodologies, user involvement is a fundamental part and defining characteristic of the design strategy.

Within the gaming sphere, users, or more appropriately players, have made their voices heard in many ways. These include, for example, reviews and walkthroughs, mods and other forms of user generated content, machinima, exploitation of bugs, fan fiction, and discussion in online forums [25, 42, 53]. Game studies scholars have also pointed out how games are co-creative media, requiring participation from both designers and players; without players there would be no game [35, 53]. Much of this voice exists in response to existing games, however, it rarely acts as input for future games and often serves to reinforce existing decisions surrounding game design. Not incorporating player perspectives limits game innovation and expression to what the current set of practicing game designers find appealing, or to the suggestions of marketing departments. This has consequences in terms of the development of design skills and perspectives of designers, as well as obvious impacts on the kinds of games they design. More broadly, it impacts on how the medium of games is defined. Furthermore, not all game design is conducted in large studios, so the conservative practices of large studios should not limit the methodological repertoire of game design.

As a way to incorporate player perspectives in early stage game design, we propose *muse-based game design*, an experimental approach in which designers focus on players as muses from the early design phase to determine a set of constraints, providing a footing from which to traverse design possibility space. Muse-based game design cross-pollinates game design practice with UX perspectives, and creates a dialogic situation in which game designers are challenged to design beyond their own perspectives. It enables designers

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to develop deep connections with their players, which in turn fosters designerly self-awareness, and helps to break down existing assumptions surrounding the nature of game design. In the rest of this paper, we discuss why such an approach is important for game design as a practice and for game diversity, we position it alongside recent developments within HCI, and discuss findings from two years of trialling this method with Master's-level game design students.

BACKGROUND

Game design as an underexplored practice

Digital game design has existed as a practice for over thirty years. In contrast to the productivity-focused roots of HCI, digital games have traditionally been designed to entertain. But entertainment is not the only differentiator between games and productivity applications: game design as a practice is wedded to the defining qualities of games themselves. Designers are encouraged to conceptualise game design in terms of game aspects such as systems, rules, objectives, and mechanics [15, 41, 42, 44]. Game design has developed its own vocabulary and principles, which are separate from those of mainstream UX.

As the medium of games has matured, experiences that game designers are designing for have diversified. Fun, previously the (overly simplified) major experience goal designers were targeting has been joined by a plethora of other forms of aesthetic experience. These include frustration, engagement, suspense, fear, relief, pride, superiority, schadenfreude, boredom, and togetherness, to name but a few [30]. The nature of digital games has changed as well. Over the last decade, serious games [43], art games [5], notgames [20], masocore games such as *I Wanna Be the Guy* [38] and abusive game design [55] have emerged, broadening and challenging traditional perceptions.

Mainstream game design practice remains quite conservative however. The aforementioned counter movements may have broadened how we think about games, but remain peripheral in terms of their influences on practice, how game design is perceived as a process, and how it is taught to newcomers to the field. There is much scope for experimentation within game design praxis, as it will lend fresh perspectives to a design field that remains relatively underexplored, and to a medium still in evolution.

Player perspectives in game design

In mainstream game design tradition, players are much revered. In *Game Design Workshop*, a widely used game design course textbook, Fullerton recommends that the role of the game designer is, first and foremost, to be an advocate for the player [15]. In a recent study of the design practices of designers working for established game studios, Hagen noted that all of the designers emphasised player experience as an important focus of game design [18]. Some studios perform "Kleenex tests" or "blind tests" with target players to obtain first impressions of potential game designs, and almost all studios regularly involve players in the later stages of game development. In iterative game development processes, which are widely used, best practice advice is to conduct playtests with players during each iteration. Feedback from players is crucial in identifying whether a game concept is compelling and likely to be well-received [15, 44].

Despite the clear respect for players within existing game design tradition, the role of the player has mostly been scoped and limited. Players have most often been consulted in reactive rather than active contexts, and have usually had little direct influence on early ideation phases. Game designers have drawn on their own experiences in forming early stage concepts, and have advocated for players rather than had them participate in person [15, 18, 39]. A handful of game studies researchers have explored the use of player-centered approaches to game design. Sotamaa et al. looked at how cultural probes could be used as an effective tool for game designers to learn about players [49]. Ermi and Mayra used comic strip gameplay scenarios with players to inform the design of mobile games [12]. Lochrie, Coulton, and Wilson used a participatory design (PD) approach to engage digitally excluded youth in the creation of a location based game [32]. Within a serious game context, efforts have been made to incorporate the player in the design process. For example, in our previous work, we have used focus groups with target players to inform the design of culturally-relevant healh games [28]. Daniellson and Wiberg combined PD with educational game design through the use of participatory review sessions [10]. Despite the aforementioned research indicating that player-centred approaches to game design are a promising avenue of exploration, and calls from researchers for participatory approaches to game design [48, 53], literature and studies on the topic remain sparse. Practice reports of these approaches are few and far between, and there is little research on methods or methodology for the inclusion of player perspectives.

Obstacles to incorporating player perspectives

The presence of a player voice in driving game design faces several challenges. One of these is ideological, and relates to the nature of games as a medium. Historically, games have been, and still largely are, associated with entertainment. Like other forms of entertainment, game designers have enjoyed a great degree of control over the creative process. A tacit assumption has been that designers intuit and understand what players want. Voices within and beyond the games industry have criticised the lack of diversity amongst game designers and games, but to little end. As game designer Borut Pfeifer lamented, "As someone interested in pursuing the representation of characters and settings outside the norm in games, it turns out there is no actual place to meaningfully discuss the creative techniques one can apply to do so" [39]. Another assumption has been that players alone cannot initiate or instigate interesting game concepts. This ideological position helps explain the methodological challenge discussed previously, namely, that game design as a praxis lacks established means of incorporating the voice of players from early on. Related to the methodological challenge is a practical challenge. Game development can be risky business: large-scale projects often take years to complete, they

can involve development teams of hundreds of people, and it is often difficult to predict whether or not the resulting games will be commercial successes. In such high pressure situations, there is little impetus to explore novel methods of game design as they are associated with a degree of risk. Traditional practices do make sense in many contexts, but are less obviously the best way to proceed in others. As the status quo, they have a hidden limiting effect on how game design in general is conceptualised and practiced.

UX as a multi-faceted practice

The field of UX, which has emerged approximately over the last 15 years, overlaps with usability and HCI, but also stands alone as a distinct area of design practice. While it encompasses concerns such as utility, usability, and efficiency, it also covers broader issues, such as emotional responses [14, 26, 37] and aesthetics [21, 34]. Some researcher – practitioners have suggested designing for qualities that seem orthogonal to usability, and are not unlike game experience goals. For example, Sengers et al. have written specifically about reflective design, in which they suggest that design practices should be oriented to support both designers and users in critical reflection about technology and its relationship to human life [46]. In a related vein, Hallnäs and Redström have explored the idea of slow technology, where efficiency and speed are backgrounded in favour of systems that promote reflective use [19]. In such systems, intended functionality is not immediately apparent and is revealed over time through multiple interactions. Gaver has similarly pushed a non-efficiency agenda, and has suggested a need for a "ludic" design perspective in the design of computing products. He takes ludic to mean "self-motivated play", and argues that we should be investing more effort into technologies that allow us to pursue our lives, rather than just our work [17]. Gaver connects ludic design with the relinquishing of goals (of use), and views ludic designs as resources that are richly suggestive of use, while still facilitating people in discovering and appropriating these uses for themselves.

User perspectives in UX and HCI

The acknowledgement of different users' realities and user participation in design are a mainstay of holistic approaches to UX [3] and third wave HCI. Methods and tools aimed at obtaining insight into users' lives, such as ethnomethodology and personas [9] have been widely adopted by designers. Theories such as activity theory and distributed cognition, which have been incorporated into HCI, underscore that people cannot be decoupled from their contexts of use [22, 36]. The inclusion of user perspectives has also been driven by political motivations. PD emerged in response to concerns from Scandinavian workers and unions regarding dislocation and disempowerment as a result of the introduction of IT in the workplace. It was initially positioned as a democratising methodology, one that would not only give end users a voice in all stages of the design process, but also facilitate them in actively shaping their future working environments [4, 27]. User Centered Design (UCD), an American counterpart to PD, is similarly premised on foregrounding user concerns throughout all stages of the design process. PD, UCD, and other co-creative practices are characterised by a reliance on tools and techniques that serve to facilitate the incorporation of user perspectives. For example, Future Workshops are events in which designers and users both partake in a three stage ideation process, focused on identifying current problems, proposing future solutions, and then detailing interim steps [27]. Empathic design is another approach foregrounding the importance of user perspectives. Specifically, it is premised on the designer developing a sense of empathy for their users. Learning about people's goals, aspirations, rituals, and values is a typical part of developing such empathic understandings [29, 51].

UX design as a dialogic process

Accompanying the shift away from efficiency concerns, the deep incorporation of user perspectives in UX, and empathy for users is an awareness of products and applications as boundary objects [50]. Sengers and Gaver, for example, discuss the need to downplay the privileging of certain interpretations in favour of staying open to multiple, heterogenous perspectives [47]. In a PD context, Iversen et al. foreground the importance of addressing values in the design process. They point out that these values may well be different amongst various stakeholders, and that values can also change for an individual over the course of projects [24]. In keeping with this shift, HCI practitioners have begun adopting methods that leverage the differences of perspective between designers and users. Cultural probes, for example, are intended to elicit inspirational responses [16]. By design, they contain tasks for the user that are open-ended and ambiguous, and they intentionally complicate the notion that it is easy for the designer to analyse user research data, and by proxy, users.

By foregrounding the differences between designers and users, design is cast as a dialogic process between the designer and the user. Objects and designed artifacts can play an important role in materializing this dialogue. Schön's observation of design being a conversation with materials can be understood in this context in two ways. Objects and designed artifacts trigger certain designerly understandings, enabling conversation between a designer and her materials. In addition, objects and designed artifacts call for interpretation by users, and these interpretations in turn shed light for the designer about the nature of the materials [56]. Redström took this position in a more deeply dialectical direction, and suggested that interactions with designed artifacts can be understood as discursive exchanges between designer and user, where the designer proposes certain types of use, which the user can accept, refute, or modify [40].

MUSE-BASED GAME DESIGN

Game designers respect the ideal of the player, yet game design practice does not, as a general rule, accommodate early incorporation of player perspectives. As such, players can only critique and respond to concepts established by designers. In essence, this limits the design space of games to the perspectives, imaginings, and experiences of current, practicing game designers. On the other hand, if typical players

are involved in the game design process in the same capacity as designers, for many the learning curve will simply be too steep. In addition, it becomes difficult for designers to exercise a sense of control, or express designerly sensibilities over resulting game concepts. UX, in contrast, supports the notion of design as a dialogic process between designer and user, and proposes a number of different philosophies for how to incorporate user voices during ideation. UX is also sufficiently diverse in terms of its experience design goals that it is plausible to consider adapting some of its methods for a game design context.

Within classical fine arts, there is a longstanding tradition of designers looking to specific "end users" or muses for inspiration. The muse serves as a source of inspiration, but the resulting artifacts often have appeal reaching beyond the muse. The muse serves as a lens on creativity, or as a set of constraints, while not necessarily having creative control over the end products of the artistic process. We decided to adopt this type of dialogic artist – muse model to support the inclusion of player perspectives from early design stages, while retaining room for interpretation by designers. We were particularly interested in its co-creative possibilities. We envisaged a design process in which designers focused on individuals in their capacity as players and as people, and later used their reflections to form design constraints. These constraints would help deconstruct existing assumptions about game design, and would inspire emergent concepts in response to what designers had learned about their players, and what designers believed their players would find appealing. As our objective was for designers to develop deep connections with their players, a personal sense of dialogue, and also increased self-awareness of design tastes and habits, our belief was that designers could draw benefits even by narrowing their focus to one player at a time.

We name this approach *muse-based game design*, where a designer focuses on one player as a muse. The role of the muse is to inspire, and the role of the designer is to respond through attempts to create interesting experiences that relate to and appeal to the muse. The designer's objective is to amuse the muse. Below we discuss some qualities of our approach.

People over profiles

Focusing on a muse within the design process has parallels with the use of personas within UX. Personas are a tool for representing user segments [9]. They are used to propel ideation and design decisions forward from a typically utility-oriented perspective. Their use implicitly assumes the acceptance of a rational, positivist perspective, where it is possible to create "objective" portraits of users. Given the artistic bent of game design relative to UX, and its orientation towards subjectivity over objectivity, such a position is not necessarily desirable. Further, we note that personas are amalgamations and averages of real people, and that in creating a persona we necessarily lose some of each person's unique characteristics and idiosyncrasies, that is, the rich and multi-textured detail gained from incorporating real people into the design process. While personas have been appropriated for use in the context of games [54], and have been used by a number of small game studios, our interest is not in methodically reaching out to vast segments of untapped potential player audiences. Instead, it is in reflecting genuine, authentic connections to individuals. The goal is to make a game for one person, but if carried out well, the resulting game would potentially resonate with others too, as with other forms of muse-inspired art.

Empathy for the player

Within UX processes and particularly variants such as empathic design, early design stages often involve learning about the lives and experiences of users to maximise the likelihood that the products or services developed will meet their needs [29]. Ethnography has become a popular approach for learning about users; typically ethnographies are conducted by user researchers who then pass on insights to designers. While such a division of roles has the potential advantage of specialists playing more to their personal strengths, having the same individual conduct both roles strengthens the possibility of the designer–researcher developing an understanding of the target users founded on empathy. Further, having the designer serve as researcher strengthens dialogic aspects of the design process. That is, the designer gains first hand experience of working with the user during the research stage, and makes initial interpretations of user responses herself. These interpretations, in turn, form the basis for the design concepts, with the designer in a strong position to pursue or discard ideas based on the empathic understanding she has developed of the user. As such, the designer is able to traverse a possibility space of design ideas while not having to rely on external interpretations, thus staying true to her own contextual and experience-based interpretations of the player.

We posit that a similar phase can benefit the game design process. That is, having a first-hand understanding of players early in the design process prior to the development of early paper or digital prototypes will be insightful and generative for designers. Some of the facets of the player that designers may wish to explore during this research phase include players' previous experience of games, the role that games currently play within players' lives, subtle contextual factors impacting on play experiences, approaches to problem solving, and non-game activities players enjoy. Alternatively, designers may wish to explore themes and sensations players are drawn to, players' preferred aesthetics, and levels of emotional attachment to fictional characters and emotional investment when playing games. The scope of inspirations is completely open.

Idiosyncratic design constraints

The outcomes from a user research phase can be used to form idiosyncratic design constraints for a particular player. As the constraints are grounded in findings resulting from a dialogic design process, they embody the designer's understanding of the player as the player has presented himself to the designer. This empathic perspective puts the designer on a solid footing with regards to who he is designing for, and how to consider moving forward in establishing compelling and relevant game designs. In software development, the requirements gathering phase focuses on obtaining a clear, objective picture of user

expectations that will in turn guide the development process. Here, we are suggesting that designers similarly focus on creating "requirements" of a sort, but strive to make them subjective, personal, and felt. At this point, designers can fully shift to ideation, but in contrast to beginning from a blank slate with regards to understanding the player, they begin with a design possibility space that has been partially mapped, and which has been loaded with generative potential based on insights derived from and about real people. It is the designer's task to channel and transform these grounded constraints into compelling and innovative game designs.

CASE STUDY: A GAME FOR ONE PERSON

We set out to explore whether muse-based game design would in practice promote empathy, lead to deconstruction of game design assumptions and improved self-awareness for designers, and result in further game diversity. Thus, we adopted the approach with students from a semester long game design course that formed part of our university's game design Master's programme over two consecutive years. The project brief that everyone in the class was given at the start of each semester was simple: design a game for one person. This person was to serve as a muse throughout the design process and everyone was to individually design and develop a game inspired by and suited towards their particular players. As diversification of perspectives was one of the key motivations underlying this approach, the constraint that accompanied choice of muse was that the muse either had to be of the opposite gender, or at least 15 years younger or older than the designer. We had a certain agenda in selecting these constraints. The makeup of the cohort of students was almost entirely Danish males in their mid to late 20s, and otherwise from elsewhere in Europe. Further, many of the previous game design and development projects that these students had participated in had been group efforts. Our concern was that the lack of gender, age, and ethnic diversity, the collaborative nature of previous projects, and indeed Danish cultural expectations of approaching decision making through consensus had all had a strong influence on students' creative processes. That is, the students had potentially become highly adept at establishing concepts that were appealing to their classmates, but had not yet been faced with the challenge of designing for those who had not shared their classroom experiences.

In preparation for conducting the project, we taught the students a set of standard user research methods that we believed would collectively yield a well-rounded understanding of their players. These methods were: observation, the think-aloud protocol, interviewing, participatory design games (PDGs), and cultural probes. In addition, we taught the students grounded theory data analysis, as well as more flexible methods of chunking, coding, and interpreting data. The students were instructed to use all of the aforementioned methods during their user research, but the ordering of the methods was left up to the students to determine according to their purposes. In addition, the kinds of applications the methods could be in service of was also left to the students' discretion. They were given suggestions for applications, but were also encouraged to be experimental. In keeping with Dow et al.'s findings on how sharing prototypes leads to more successful design [11], and to balance out the effects of overly catering to player tastes, approximately every two weeks over the 14 week period, the students were given time in class to share and workshop their concepts with other students.

In the upcoming sections, we report on themes that emerged from two years of experience of conducting this project. These themes are the result of qualitative analysis performed on notes and photos taken by the author, course evaluation feedback, student work, games, and student-authored reflective practitioner blog entries.

Scope of insights

Because of the novelty of this approach, the kinds of information to take into consideration in conducting pre-design user research remains an open question. All of the students gravitated towards wanting to identify how literate their muses were as gamers. This included learning about their muse's current and previous gaming habits, their familiarity with particular genres and genre conventions, their degrees of comfort with different control schemes and degrees of difficulty, how they responded to familiar and unfamiliar games, and what games they were most fond of. Everyone also made extensive observations of their muse's changing emotional states during play sessions. For example, many commented on how their muses transitioned from pleasurable frustration to regular frustration. Most students also focused on contextual factors surrounding their muse's play habits, such as examining why their muses did or did not play games, how much time the muses would realistically spend playing a game, understanding the role and presence of games and playfulness in the lives of their muses, looking at how their players dealt with success, failure, control, and loss of control.

Several students looked further afield than digital and analogue games in terms of understanding how their muses related to entertainment and leisure, and broadened the scope to music, TV, film, and artistic taste. For some, the user research almost took the direction of life coaching. One student, for example, discovered that his muse used to play games in secret because her family viewed games as a waste of time, and that she placed great emphasis on rules. In response, he designed a game featuring authoritarian characters that could only be won by subverting the stated rules. Another student's muse firmly characterised herself as a non-gamer because she felt she was not good at playing games, whereas the student in fact observed her skills were on par with those of an average gamer. As such, he designed a game for her that would enable her to build confidence about her gaming skills.

The range of topics that students chose to explore with their muses included those that were obviously connected to games, to others that were more tangentially connected. Students who pitched their research at a surface level as a general rule did not come up with particularly innovative or interesting concepts. But it was not necessarily the case that the deeper the degree of focus and analysis, the better the resulting concept. The depth of focus reflected more on the degree of empathy the students developed for their muses.

Seeing through the eyes of others

During the first week of the semester, when the students were given the exercise of identifying what sort of games they tended to design, and who their target audiences were, almost all of the class gave answers along the lines "myself", "my classmates", or "myself when I was younger". Thus it was not necessarily the case that they would be open to designing games for different demographics. As mentioned earlier, however, game designers traditionally do view their players respectfully. The same pattern emerged throughout the course of the project; in fact the process of studying and working alongside real players seemed to intensify the effect. Many of the students ended up working with muses who were casual gamers, or had had little prior gaming experience. For example, one student chose to work with his girlfriend, despite the fact that she never played games, and occasionally seemed disdainful of gaming as an activity. The core constraint he derived was that he needed to make a game that did not feel like a traditional game, but that also left tangible, potentially helpful traces. He ended up designing a gamification-style smartphone application that centred around updating and sharing local knowledge with a community of other player-users. Several students in the class worked with children, which required even more flexibility in terms of perspective shifts. Some who worked with very young children were faced with the challenge of building interesting but very simple gameplay that required little in the way of reading, counting, or complex motor skills. Students who worked with older children tended to find that their muses perceived life differently (and often in a more sophisticated way) from their expectations, frequently involved their parents in their play experiences, and were generally highly game-literate. One female student who was working with a 12-year-old boy played a PDG with him to collaboratively generate potential game concepts. From the collection of generated concepts, the muse declared that his favourite was "player vs. player competitive dancing", which challenged the student's assumptions about gender, age, and play preferences.

Although many of the students had radically different relationships to games and play from their muses, and did not agree with their tastes, they treated the different perspectives seriously and as a design challenge. After several weeks of working with their players, most of the students in the class could readily articulate what kinds of game features they expected their muses would and would not appreciate. It seemed that they had managed to internalize the perspectives of their muses to the point of being able to "see" as them, and to use their muse's perspectives along with their own to explore suitable game designs.

Hiccups in role renegotiation

Involving players in the design process is a significant departure from standard game design practice. While most students understood the responsibilities and limitations associated with the muse and designer roles, it was difficult for some to adapt to the new model of collaboration while still retaining interpretive control. Generally, they seemed to assume that muse-based game design implies an almost complete handover of design responsibility to the player. For example, after one student learned that his muse was interested in forensics and fashion, he proposed a somewhat confused game concept premised around solving crimes in a forensics lab and shopping for clothes – with little stitching together of the two disparate activities. When asked why he had settled on this concept, he professed that he thought his objective was to give the muse whatever she wanted. Others who had also interpreted the approach as a handover of design responsibility to the player resented the approach, as they were philosophically opposed to involving players in the design process. During the course evaluation, which took place halfway through the semester, a student commented, "Asking players to design games is like asking Homer Simpson to design a car". Over the course of the project, the student changed his mind: a successful participatory session with his muse inspired a game concept featuring digging as its core mechanic. On the topic of the game, he said "I'm actually quite pleased at what I've come up with."

For other students, while they understood that the creative decision making responsibilities still lay in their hands, they experienced a tension between "wants" and "needs" for their muses – whether to prioritise the design requests of the player or to honour their own designerly instincts. For example, one student's muse was a "hardcore" *World of Warcraft (WoW)* [2] player, and spent upwards of 20 hours a week playing the game. The student wondered whether his muse would realistically spend her time playing anything other than *WoW*. He felt that his options were either to try to design a *WoW* clone, or to design a locative media game that, in contrast to the fantasy escapism of *WoW*, would decisively situate her in the material world. This "want vs. need" pattern emerged in particular for students working with muses who already had reasonably established gaming habits, and were therefore able to articulate what they wanted using game design vocabulary. Taylor points out that designing from existing play preferences rarely results in innovation, and that asking people what they want is limited by what they imagine they want, or feel comfortable admitting they want [53]. Part of the challenge of working with game-literate muses is to help them break down their existing assumptions about what they expect to find compelling in games, and for designers to look beyond current demands or interpret them in a new light. This results in a collaborative broadening of perspectives – both for players and designers.

Leveraging the toolkit

Using a combination of methods to form an understanding of the muse worked successfully as a means for generating a rounded perspective. Observation and think-aloud were generally used to establish levels of familiarity, skill, gaze patterns, comfort with different control schemes, problem solving patterns, emotional responses, identifying aesthetic preferences, contextual conditions, and preferences related to games. For example, after a session of playing *Plants vs. Zombies* [13], despite never having mastered its defensive strategies, one student's muse stated that she perceived it as a game for children due to its "naive" aesthetic. From this session

and others involving games such as *VVVVVV* [8] (which has retro graphics and deceptively difficult gameplay), the student concluded that his muse relied on graphical style rather than game play as a heuristic for assessing whether a game was to her skill level and liking. Interviewing and, to a lesser extent, retrospective think-aloud, were used to inquire about players' previous gaming experiences, favourite and least favourite games, play preferences in general, play contexts, aesthetic preferences, other life experiences more broadly connected to gaming, as well as simply getting to know the muse better as an individual. PDGs were mostly used for co-designing game elements such as mechanics, narratives, and characters. Many of the students in the class used a modified variant of the Exquisite Corpse game, also discussed by Brandt et al. [6], to rapidly establish potential game concepts. In the game, players take turns drawing from a stack of cards containing either words (such as "jump", "washing machine", etc.) or illustrations. Each card is then laid down in a specific place alongside other cards that have already been laid down, accompanied with an explanation for how the concept contained or depicted on the card adds to the overall concept represented by the other cards. PDGs were also used to create low-pressure situations in which the designer could try to better understand the muse's creative outlook, sense of humour, problem solving patterns, or simply to build empathy and shared experiences. Cultural probes were used in an attempt to obtain more ephemeral, surreal, and inspirational insights into muses' personalities and lives, which occasionally ended up feeding back into the design of game mechanics, characters, and narratives.

While all of the students seemed comfortable with the use of the more "traditional" UX methods of think-aloud, observation, and interviewing, the use of PDGs and cultural probes was met with some suspicion. PDGs and cultural probes have overlaps with games and playfulness [1, 6, 16, 17], and these connections were discussed extensively in class. Yet, the subjective, interpretive epistemological stance required by these methods made some students uneasy. With regards to PDGs, some students asked whether they were allowed to come up with PDGs that were like "real" games – indicating that PDGs did not mesh with their conceptualisations of games. With cultural probes, often students struggled to come up with probe tasks that would elicit returns that they felt could meaningfully feed into game design. In addition, students seemed to want a clear set of instructions for how to move from cultural probes to interpretation to game design. Suspicion of these methods remained present in both years this project was run. This suggests an inherent tension between the philosophical and epistemological positions that game designers naturally gravitate towards in which design is seen as a closed system governed by rules, and those which PDGs and cultural probes call for in which design is open, negotiable, and in flux.

Challenges related to designer experience

Muse-based game design creates new pressure points within the game design process. Notably, it creates several challenges related to designer experience. The first is the designer's ability to conduct user research. Quite a few of the students were novice user researchers, and had no prior experience using these methods, particularly in a design context. Preparing suitable materials, maintaining good rapport with research participants, and knowing how to handle deviations from the expected plan are all skills that improve with practice. Not everyone was successful in conducting these methods well, and as a result not everyone benefited from the advantages they offer.

A second challenge concerns data analysis abilities. Once again, data analysis was new for many in the class. Some approached it at a superficial level, thereby only drawing superficial connections. Others who put more effort into deep analysis unsurprisingly ended up with richer and more insightful portraits of their muses. An interesting pattern that emerged in the analyses of over half of the students was a tendency to divide data into "positive" and "negative" categories when applying grounded theory coding techniques. Aside from the fact that such dichotomous categorizations meant that nuance of detail was being sacrificed, it became clear from the students' written work that their inclination was to attempt to eliminate all game aspects that were negative. We suggest that in light of the empathic connection, the dialogic aspects of the approach, and the novelty of working so closely with players, students felt a certain responsibility towards creating a perfectly tailored and customized game for their muses, with as few negative experiences as possible. At the same time, by eliminating negative experience they were also at risk of doing away with challenge, the potential for pleasurable frustration, and also the possibility for expressing their own design perspectives. This tendency mirrors the reverence for the player discussed earlier, but also demonstrates the current trend of game designers effacing themselves for the sake of satisfying the desires of their players discussed by Wilson and Sicart [55]. As they point out, this leads to a narrowing of the possibility space of game design as a medium.

A third challenge resides in the move from data interpretation, to the development of idiosyncratic design constraints, to game concepts. Some students managed to realise the constraints in rich and insightful ways, and came up with concepts that were interesting and clearly echoed the idiosyncrasies of their muses. Other students were limited by their inability to transform muse-focused constraints into compelling concepts. Some of these students established concepts that were rather literal and prosaic interpretations of the constraints; other students did not venture beyond the bounds of conventional game design tropes, and proposed reasonable, if not imaginative concepts. This move – from design constraints to being able to imagine and realise an interesting solution – is common to many kinds of design problems, and is an acknowledged skill of expert designers [45].

Results and outcomes

Throughout the class, there was a clear pattern to students' reports of how their games were received by their muses. Generally, the muses were pleased with the overall concepts, mechanics, and aesthetics – that is, the components of game design typically perceived as fundamental. While most students

reported that there were still modifications and changes that needed to be made for aspects such as difficulty balancing, the GUI design, and the sound design, these remaining modifications tended to be less pivotal, and generally did not require a complete re-design. We note that it is quite likely that the muses developed reciprocal empathy for their designers, and consequently may have professed a deeper appreciation for their games than they would have had they not known the designers. Nonetheless, in almost all cases the muses did identify game aspects that required changing, so it was not the case that their feedback was entirely driven by wanting to maintain positive relationships.

The muse-based design approach is dialogic, with designer and muse in conversation. The user research phase can be conceptualised as the player speaking to the designer as part of the larger exchange of the design process itself. The development of idiosyncratic design constraints, in turn, can be viewed as the designer interpreting the player's response. The move from constraints to concept is the composition of a reply to the player, in the form of a question or hypothesis, asked via a designed artifact. Illustrating these dynamics, one student reported how he developed an initial paper prototype for a game concept from his design constraints quickly to meet a class deadline, but was dissatisfied because the concept was derivative of other games. That is, he decided his initial response, while sufficient, was not an interesting or genuinely reflective contribution to the conversation. After trying unsuccessfully to salvage the concept, he started afresh. Through reflecting on the constraints and revisiting his records about his muse's play experiences with other games, he recalled how she had become deeply engaged in *Cogs* [31], a very simple puzzle game, which involved manipulation of mechanical contraptions. Moving from the core mechanic of *Cogs* to the idea of tile sliding, he gradually developed a casual game concept about building pathways for clumsy, warring clans of cavemen through a prehistoric landscape via the manipulation of tiles. When he responded to his muse via a game prototype, she found the core mechanic to be engaging, she enjoyed the game overall, and demanded many more levels. Thus, his understanding and hypotheses about her as manifested in the game were acknowledged and confirmed.

Regardless of whether the resulting designs were compelling and innovative from an outsider's perspective, that the students were generally able to establish a game design that resonated with their muses indicates that the muse-based approach did invite a dialogic dynamic, which resulted in the development of empathy for the player. The development of empathy for the perspectives of other players seemed to throw into relief the students' awarenesses of their own tendencies, patterns, and tastes, as well as their assumptions about typical players, and the purpose of game design. This was a major theme in the students' end-of-semester reports on the project, e.g. "I realized how easily game designers stray off towards their personal preferences when developing a game", "This project and course has expanded my views upon game design and especially on user experience which teaches us the fundamental aspects of design; to involve the user early in the development in order to filter and accentuate the important aspects of the design and especially, in relation to games, to create a fun and engaging experience", "The process really provides new information and challenges your assumptions of player preferences. I found that making this game for my design muse was a very enjoyable experience and even though her preferences do not correspond with my own, I felt that I succeeded in making something she enjoyed."

CONCLUSIONS

In traditional game design processes, the perspectives of players are often downplayed in terms of contributions towards concept development. One reason Pfeifer identifies for why designers should bring outside perspectives into games is to "be part of a larger cultural shift that makes games and game developers more inclusive, more diverse" [39]. In this paper, we introduced muse-based game design, an experimental empathic approach to game design foregrounding a dialogic artist – muse relationship in which designers work with a player who serves as a muse from the early stages of the design process. This approach features a dedicated user research stage focused on developing empathy for the player, which may feature a mix of user research methods, including observation, interviews, think-aloud, cultural probes, and design games. From this user research, the designer forms a set of idiosyncratic design constraints inspired by and relating to the player. These constraints then propel and motivate the ideation phase, with the designer ultimately striving to design a game that will amuse the muse.

We discussed our experiences of conducting muse-based game design with Master's level game design students over the course of two years. While some were initially skeptical of co-creative approaches, all embraced the challenge of perceiving game design from someone else's perspective. The methods presented as part of the toolkit were adapted for use in game design for the most part without trouble, but some struggled to adjust to methods that required more interpretive stances. Some students gleaned only shallow insights into their players while others obtained deeper, more profound understandings, although depth of insight did not necessarily correlate with success of the concept. Challenges in the process were related to user research and design experience, and included user research abilities, data analysis skills, and the ability to move from design constraints to compelling game concepts. Throughout the class, the high-level features of the resulting game concepts tended to be met with enthusiasm.

A second reason Pfeifer points out for bringing in outside perspectives is to "commit to grow yourself as designer beyond your current limitations. To learn your flaws, to accept them, and to grow beyond them" [39]. Whether or not the students were ultimately successful in developing genuinely compelling concepts, this process created a disruption in their everyday ways of conceptualizing games and game design as a process. It stimulated them to adopt new ways of seeing, encouraged a departure from their own more comfortable and natural ways of conceptualising game design, and helped them to grow as game designers.

Muse-based game design emphasises the role of players within

the design process and reconceptualises game design as a dialogic and empathy-seeking process. The focus on players strengthens designers' abilities to see and to design for different target audiences, creates new opportunities and structures for innovation and creativity, foregrounds the importance of felt, human experience, and facilitates the diversification of perspectives represented within games.

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