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Identity Play in Gameful Learning: Avatars as Multiplayers in a Graduate Course

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Abstract: Considering how games engage players in goal-driven pursuits, educators and researchers are paying attention to the learning and design principles of games for their efforts to support meaningful learning experiences in classrooms. We argue that educators' experience in gameful learning is important in order for them to understand the gaming context of young people. We propose that as educators engage in identity play through gameful learning, they are able to discover their own potentials and work towards a constructionist ethos of creating both artifacts and selves. In this paper, we discuss how we designed a graduate course on digital game-based learning to engage participants who are educators in its concepts and practices. The design of the course was a progressive development for three years, which included gaining experience points (XP) mediated by a social media technology, Google+. The design was modified with subsequent iterations to implement the use of avatars and self-assessment of XP. The social media worked as a possibility space for the participants to explore, embody and implement new identities especially from the second iteration, which introduced the avatars. In this paper, we discuss the identity play across three iterations from three different perspectives: as a course facilitator, a student and researchers. Our findings, which are primarily based on learner-generated content on Google+, demonstrate the participants' emergent play with identities in their effort towards being gameful.

Keywords: Identity, avatar, gameful learning, social media, game-based learning

1. Introduction

> *Monster Den is an avatar with no indication of real name, age or gender. It provides anonymity in an online environment where gaming is undertaken with complete strangers. It is an exemplar name that I use with students to bring home the idea that when you log off your game, your gaming identity stays online, and your real life identity resumes. The two do not cross over one into the other; and your safety and integrity in real life is always preserved.*
>
> *Monster Den, Day 1, Your Alter Ego*

In recent years, using game-like elements in classrooms has gained attention to support meaningful learning experience in varying levels of education (e.g., Johnson, Adams-Becker, Estrada, & Freeman, 2014; Salen, 2011; Sheldon, 2011). Researchers and instructors found their game-like course assessments motivational for students in higher education (Fishman & Aguilar, 2012; Sheldon, 2011). In this paper, we discuss our effort to support meaningful learning experience in a graduate course using a game-like approach. We use the term 'gameful' that better captures the seriousness of gameplay than 'playful' for its goals-driven efforts (McGonigal, 2011). The term was adopted by McGonigal (2011) and further explored by other scholars (e.g., Holden et al., 2014; Walz & Deterding, 2015). *Monster Den* (avatar name of an educator in the graduate course discussed in this study) in the above quote also spoke of undisturbed effort of online gameplay, in which only the players' dexterity, decisions, and progress (i.e., seriousness) matter in developing the online gaming identity regardless of their gender and age. At the same time, *Monster Den* emphasized the separation between gaming and real life identities as a teacher and a parent who is concerned about safety of young people. In this paper, we discuss the educators' efforts to take on the challenge of being and becoming gameful and their intricately interwoven identity play in the graduate course. Being gameful requires a player (or learner)

to have an attitude of pursuing success by understanding and utilizing rules and constraints, an unceasing effort to be and become players of identities, and a constant endeavor to learn from the failure or success experience and from other players (Holden et al. 2014; Kim, Gupta & Clyde, 2015). We propose that educators, as graduate students described in this paper, should engage in identity play through the opportunities for gameful learning. Their experience to work toward a constructionist aspiration of creating something and becoming someone is invaluable in realizing the same ethos in their own classrooms. In the following, we conceptualize identity play in gameful learning, discuss the design of the graduate course on digital game-based learning to provide an opportunity for students to be gameful, and present the emergent identity play through gameful learning in three course iterations.

2. Identity Play in Gameful Learning

In conceptualizing gameful learning, we build on Holden and colleagues' (2014) proposed notion of gameful learning experience, which emphasizes learners' agency in response to social necessities for contributions in social games or game-like learning environments. Learners' responses are considered the dynamic influences of attitude, identity and ignorance, which Holden et al. (2014) call the elements of gamefulness. We pay special attention to the identity element in gaming, as players often take on virtual identities in addition to multiple identities they explore and express in their daily lives. As they weave through these multiple social "sites" "lifeworlds" or "layers" of existence or complexity, they are able to take on risks and discover their current and potential capabilities (Holden et al., 2014). Discovering and developing their own capabilities involve learning, becoming, and negotiating of identities as learners define who they are through experience (Kim, Tan, & Bielaczyc, 2015; Wenger, 2008). Drawing from Lee & Hammer's (2011) notion of identity play in the social context of games, we can re-emphasize how learners negotiate and experiment with various identities as they gain recognition or reward. Expanding the notion of persons in transition that focuses on identity development of adolescents who are supposedly in the period of uncertainty (Buckingham, 2008), we suggest that engaged learners are in identity play, negotiating and seeking social recognitions on who they are and are becoming. Such identity play in turn could motivate risk-taking and create opportunities for re-evaluating one's self, potential and social relations.

In game-like virtual learning environments, learners are seen to employ cooperative or competitive social mechanisms (Domínguez et al., 2013). Such social interactions help them realize new identities, as identity play becomes relevant to the game both inside and outside of the learning environment, within workplaces, homes and other environments (Holden et al., 2014). In general, virtual environments or platforms enable students to experience learning opportunities such as role playing or creating simulations of physical or procedural processes (Antonacci, DiBartolo, Edwards, Fritch, MacMullen & Murch-Shafer, 2008), and to be at the centre of the design process of their learning (de Freitas & Oliver, 2006). Thus virtual learning environments become the possibility spaces for learners to explore, create, and embody new identities (Holden et al, 2014) through the cognitive and social engagement of imagining oneself as a different person and acting in social context as one (Dominguez et al, 2013; Lee & Hammer, 2011).

Avatars are often used as representations of real life communication in virtual worlds. Avatars, as the communicator's representation of self, capture the interaction between the communicator and others (Schultz & Leahy, 2009). Avatars, if used by learners, would indicate their social presence through their collaborative, competitive and other social transactions that would define their play with existing and projected identity. Research has also shown how anonymity of interactions through avatars in a virtual world enabled individuals to communicate or express themselves in ways they might have been incapable of doing otherwise, thereby enhancing their level of unbiased social connection and feeling of confidence (e.g., Martino, 2007; van den Brekel, 2007). Connecting this to Holden et al. (2014)'s notion on identity in gameful learning, we suggest that students might be able to take risks and explore their identities, as there are low consequences.

3. The Study and Its Context

The graduate course in this study was titled Digital Game-Based Learning, which incorporated game elements to engage the participants in the concepts and practices of game-based learning. The first author initially designed and taught this course while the second author enrolled in it during the two-

week residential period for an online Master of Education program in the summer of 2013. In the two subsequent years, we modified the various course elements, in which the second author was a researcher. For all three years, the course used the game concepts, such as experience points (XP) and multiple battles for students' learning tasks (Johnson et al., 2014; Sheldon, 2011). This paper reports on the identity play from three iterations, which we believe were influenced by the design changes as well as the dynamics that was brought by the students themselves. The questions addressed in this study are:

(1) How do learners engage in identity play with game-like course activities?
(2) How do learners' identity play influence the gameful engagement in their learning?

For our data analysis, we took qualitatively different approaches to three iterations for a practical reason. For the first iteration, the two authors took a reflective account on the second author's work during the course, as we did not have a study approved and were unable to collect data. For the second and third iterations, observation notes were taken every day during the course. We collected the assignments and the electronic artifacts posted online from the 15 participants from 2014 and 7 from 2015. We looked for indicators of learners' expressions and explorations of their multiple identities as they engaged in various course activities. For the second and third iterations, we particularly focused on their online posts, as they were relevant to an important design change (i.e., using avatars).

3.1 Course Design Elements

Overall, the course took game-based and design-based approaches to learning. In addition to positioning the course as a game, the team assignment for designing an educational game was positioned as three battles (e.g., forming, introducing, and working as a design team). The participants were challenged to be gamers and game designers throughout the course. The course design changes that are important for this paper include social gaming, avatars in multiplayer game, experience points (XP) and leaderboard. Table 1 summarizes the design and contextual changes for these design elements that affected their gameful engagement and identity play.

Table 1: Change in design elements of three iterations.

	2013	2014	2015
Social Gaming	SuperGamer ranking	In-class gaming	In-class gaming
Multiplayer	15 (4 teams)	17 (4 teams)	7 (2 teams)
Avatars	Online profile	Online avatar	Online avatar
XP	Instructor-assessed	Self-assessed	Self-assessed
Leaderboard	Initially shared, Private	Details shared	Summary shared

Social Gaming. Assuming that gaming experience is essential for understanding the potentials and challenges of digital game-based learning, students were asked to play games every day, submit a short review and report on their engagement (i.e., level advancement and minutes of play) for the first iteration. "SuperGamer" was a short online survey for them to submit this report, with which the instructor provided a ranking of the level advancement and play time, with no consequence. From the second iteration, in-class gaming sessions were incorporated in collaboration with the university library, which had a diverse digital game collection. We made this change with the expectation that the shared experience of playing the topical games (e.g., educational games, violent games, games with gendered character portraits) would deepen their discussion. At the same time, social gaming would create interactions of coaching and observing each other's game play (Reed, Satwicz, & McCarthy, 2008). In the third iteration, we limited the number of games in each session, so that the educators with less gaming experience could learn to play complex games and experience some success.

Avatars in Multiplayer Game. For all iterations, we used social media, Google+, through which students could share, accumulate, and trace evolving ideas and digital resources. For the first iteration, students used their own names and created online profiles, usually with their own photos. From the second iteration, students used online avatars for anonymity. By using avatars, we wanted to create some level of privacy for students to more freely participate in an online community for exchanging ideas (Domínguez et al., 2013). We called the online posts microblogs with which the participants would start the initial reflection on the readings and continue their discussion in class. The dynamics

were not only influenced by the use of avatars, but also by the number of students: the posts accumulated much quickly with 17 participants compared to 7 participants in the class.

XP and Leaderboard. The instructor created the initial rules for gaining XP for each course activity. Using XP and leaderboard challenged existing rules and the structure of a graduate course. In the first iteration, the instructor kept track of the XP of each participant, and initially shared an instructor-filled leaderboard during the class. Students opposed to having the leaderboard with their names, as the XP was associated with their final grades (Kim, 2014). Incorporating avatars provided some level of privacy for the leaderboard from the second iteration. Students in 2014 had access to a shared online spreadsheet to self-assess and report on his/her own everyday activities to give themselves XP. This spreadsheet functioned as a leaderboard that showed how everyone was progressing in the course. For the third iteration, students self-assessed their XP in a survey format, and only the summary of the XP without the activity details were shared in the leaderboard. Leaderboards as indicators of evaluation, competition and cooperation (Dominguez et al. 2013) were meant to create dynamics that encourage learners' agency in performance (Deterding, Dixon, Khaled, & Nacke, 2011; Fishman & Aguilar, 2012; Li, Grossman, & Fitzmaurice, 2012).

4. Findings

How immersed the students were in the gaming of the course would influence their identity play and gameful engagement in their learning. The various design changes over the three iterations also influenced the students' gameful engagement in conjunction with the dynamics the students brought in as the players of the game. We discuss below the identity play and gameful engagement we observed in the three iterations. To demonstrate how the design changes as well as the dynamics of participants influence the participants' identity play, we examine three main points discussed from the literature above: (1) how avatars support self-representation/projection as well as risk-taking and unbiased interactions with other participants (Schultz & Leahy, 2009; Holden et al., 2014); (2) how participants employ social mechanisms as part of their identity play in social contexts (Domínguez et al., 2013; Holden et al., 2014); and (3) how participants discover and re-evaluate selves, their potentials, and social relations, and seek or receive social recognition as identity negotiation (Buckingham, 2008; Kim, Tan, & Bielaczyc, 2015; Lee & Hammer, 2011). Names mentioned are either pseudonyms or their actual or pseudo avatar screen names depending on participants' indicated preferences.

4.1 Identity Play Through Team Work (2013) – A Reflective Account

The second author participated in this course as a first year PhD student, joining a cohort of the Master of Education program. The author was part of the team named Fairies@play. They proposed a design for a single or multiplayer game called FairyTale Quest for Grades 4-6, based on popular fairy tales such as Jack and the Beanstalk, Hansel & Gretel, Red Riding Hood, and Flynn Rider (see Figure 1a). The players would assume a character as Jack or Red Riding Hood and proceed on quests to engage in mathematics problem-solving (see Figure 1a). The team members decided to incorporate this specific aspect to establish that the players would not always have to identify with the physical appearance and dress style of the fairy tale characters as they could come from different racial backgrounds.

Figure 1a. Avatar choice screen for FairyTale Quest

Figure 1b. Avatar of the author

As discussed earlier, the first iteration in 2013 did not employ avatars for online microblogging. This also meant that there were no opportunities to take risks in communicating their opinions with unbiased opinions and projecting themselves differently online through Google+. On the other hand, Fairies@Play team members decided to assume different identities of fairies through their avatars in introducing their team members (see Figure 1b). The rationale behind the avatars was that as they were designing a game with avatars, they would also engage in the design task as a role playing game. The use of avatars as characters playing out a narrative helped articulate a relative coherent identity (Schultz & Leahy, 2009). They identified the diverse expertise of each members and defined roles within the team. As the second author reflected on this experience, her multiple real world identities were morphed and merged within her avatar persona from a variety of perspectives to highlight a way of being, which Holden and colleagues (2014) define as gameful learning. It allowed the designers/teachers to assume new roles through their avatars, where identity play became a social activity to be embraced both within and beyond the virtual world of the game and the classroom walls (Holden et al. 2014). The members of Fairies@play projected themselves as non-player characters in the game, such as the Vocabulary Fairy, Math Fairy and Reward Fairy. As teachers and designers, Fairies@play cared about a structure where players receive feedback and assistance during gameplay, which they carefully considered in their game design and learning principles as well as their experience on what kind of feedback would help learners progress.

Employing social mechanisms as identity play during the first iteration was rather contained within each team, as the classroom discourse was focused solely on academic readings and individual gaming experience. There was no social gaming, the shared experience of playing and learning new games together. Fairies@Play, who identified as the most racially diverse team in this course, focused on the team collaboration that harnessed their strengths. The author had two-year experience of teaching elementary grades one, four and six at a charter school whereas two of the other group members were teachers with the local school board with experience teaching elementary curriculum in French immersion and regular schools in Canada. The fourth member was an ESL specialist and therefore careful considerations towards problems faced by new language learners or newly arrived immigrants were incorporated in the game. The identity play of the team members, especially of the three teachers including the author, is reflected in the planning and implementation of the curriculum aspects in the game. As a teacher, the author had experienced how grade 4 or 6 learners often faced problems decoding the story problems in mathematics. This was accentuated by the fact that schools in Canada often have new students who as new immigrants lack English language proficiency. Hence building in help or feedback elements in the game in the form of a vocabulary fairy was considered to assist the students to proceed with the problem solving involving current or new math concepts.

The avatars of Fairies@play were assumed as an object of reflection and as an object of play (Schultz & Leahy, 2009). As fairies, there was also an element of wishful identification (Hoffner & Buchanan, 2005), which allowed Fairies@play to learn about themselves and explore new approaches in teaching and game design. Their efforts created new participatory trajectories from the game world towards non-game life spaces like the classroom (Holden et al. 2014). The reflexive relationship between teacher and designer selves helped the team members realize their own potential or expertise (Schultz & Leahy, 2009), which encouraged experimentation with their own capabilities and identities that led to generating questions and cultivating curiosity (Holden et al. 2014). The identities of Fairies@play as gamers are also reflected through commonalities they incorporated from various games they had played or used in the classroom as teachers. At the same time their experience with other educational software added value to their design. For example, the game had a teacher login along with student login so that teachers could understand the game play if required. This feature is similar to many education versions of software where the teacher monitors the activities of the students. Besides two of the team members had backgrounds in graphic design and fine arts, whose expertise were recognized as important assets to create visuals for depicting screens, interface tools, and navigation in creating the blueprint of the game.

In concluding the discussion on the first iteration, the gamers and those more familiar with digital game designs stood out as people who shared useful resources for the classwork. For example, an avid gamer in the cohort found his own way to keep track of his XP with a spreadsheet and shared the file with the rest of the class on Google+. Others who were in administrative positions were instrumental in sharing their perspectives on how game-based learning approaches could be feasible or adopted within their school settings. At the same time, their report on the everyday gameplay showed

their current gaming levels and preferences (e.g., pastime gamers using their smartphones vs. avid gamers of complex games). In other words, students' identity play in the first course iteration focused more on expressing their existing gamer, educator and graduate student identity.

4.2 Avatars and Identities in a Multiplayer Game (2014)

In the second iteration, the participants used avatars for all communication and learning purposes using the social media of Google+. As a class their gamefulness was reflected through their interplay of multiple identities ranging from professional to personal or family identities in the realm of gaming (novices or experts) or assumed identities through avatars on the social network. Their identity play turned into a social activity that they embraced within and beyond the virtual walls or even the classroom (Holden et al., 2014; Kim, 2015). The names or visual representation of the avatars did not always reflect their own or projected identities but some made a connection with their hopes and preferences. We asked them to introduce their avatars, and some students used the chance to project their identities as protagonists embarking on a quest as gamers or designers of games (see Figure 2, Kin Hammer).

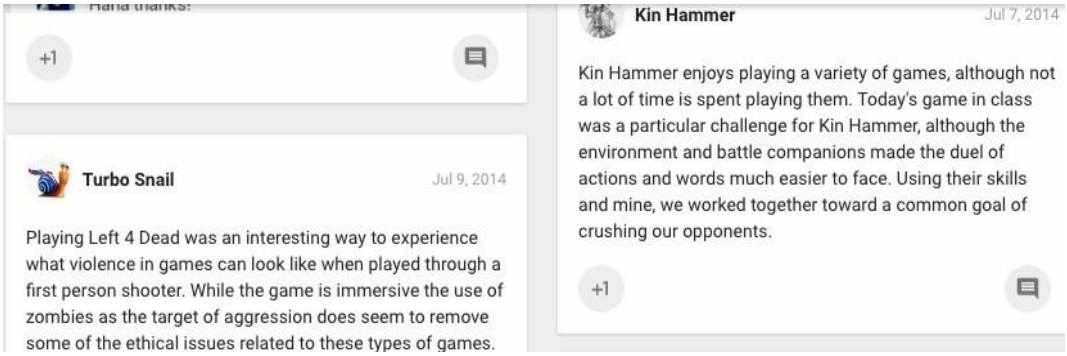

Figure 2. Google+ group page for microblogging as avatars during the second iteration

Using avatars, we observed that some participants took this opportunity to take risks in communicating their unbiased opinions and projecting themselves differently online. Birdee Bee, for example, introduced herself through her avatar in relation to games when she posted on the first day after the class:

> *Birdie Bee likes to flutter around and look at everything that goes on. Although I can't really call myself a "gamer" the idea of playing games is both fun but at times frustrating. Today's games from the good old games still provided some element of challenge. Bring it on!*

From this short post, the influence that the design changes in social gaming and online avatars had on identity play is quite apparent. We can see that Birdie Bee was also taking on the challenge of developing or exploring her gamer identity as students were engaged in social gaming every day. Others like Troy Floor expressed excitement, trepidation and curiosity towards what the course could offer while introducing himself as a gamer and an educator who had used many educational games in the classroom. Gin & Tonic, who was rather quiet in class possibly used his avatar as a tool for social expression (Schultz & Leahy, 2009). In his reflection, he expressed his appreciation of using avatars in this respect:

> *I think that the use of avatars was an innovated teaching strategy that encouraged me to construct understanding through a more candid and open communication and (reducing potential for bias).*'

Using avatars created diverse new social interactions as identity play. In the open-ended question to comment on using avatars, many students (10 out of 17) mentioned that they enjoyed figuring out who the person was. Doc Claw, for example, mentioned, '*I thought the avatar thing was a great idea! It is fun trying to figure out who everybody is just by their comments online.*' Interestingly,

using avatars as a protective measure for the XP leaderboard was not much of a concern once they became familiar with the routine practice. At the same time, students made different types of moves in their use of avatars. For example, some students mentioned that they tried not to say something similar in class so that they would not accidently reveal their identities to others. Other students found themselves focusing more on ideas rather than associating the opinions with particular classmates. Another example includes how each of the teams reported on their progress with their game-based learning design project, which Bumble Bee, the avatar of the instructor, posted on behalf of the teams in order to keep their identities private. The needs and value of sharing and receiving feedback were established as the days went by, embracing their own ignorance as one of the important element of gamefulness (Holden et al., 2014). The teams identified the aspects of their designs to seek feedback from their peers, and started posting their group work using their own avatars. This generated clues for others regarding their avatar identities while receiving feedback on their design projects. At this juncture, however, it became clear that it was more important to be game designers and students of the course as opposed to protecting avatar identities.

Student identities also played out during the microblogging activities, which revealed their gaming or non-gaming backgrounds or experience. Turbo Snail and Doc Claw rediscovered their own gaming expertise valuable in this course, clearly showed their identities as gamers throughout the course, and created new social relationships as they became recognized as gaming experts. Doc Claw stated in his reflection paper:

> *I have been a gamer for all of my life, so incorporating all these different types of games into the course was a welcome surprise. Even with my experience, at first, I still wasn't sure of the reasons for selecting the games that were chosen for the course. After a few classes I started to understand that by examining such a broad range of games, you get to figure out and develop a clear understanding of what would work in a classroom, which seems to me the most important thing to take away from this class.*

The avid gaming backgrounds of Doc Claw and Turbo Snail also came across through their postings on Google + which they used to critically reflect upon their daily readings and game play. Turbo Snail for example, reflected on his own identity as a gamer in relation to a day's reading assignment about violent games and in-class game play. Speaking to the general concern about violent video games affecting violent behaviour in individuals, he played out his multiple real identities – that of an educator and an avid/experienced video game player. He expressed that he would take risks of using first person shooter games in his classroom, which reinforced his gameful engagement in his learning about and experimenting with game-based learning. Doc Claw similarly provided gamer perspectives in response to Google+ posts. For instance, he explained the distinction between present generation and retro-games through the gaming process that encapsulates multiple pathways as opposed to a win through a definite pathway. Sometimes he responded to his own posts in order to critically analyze a game. After reviewing *Grand Theft Auto 5*, he voiced his concern that its sexual content often took away the gaming experience. Thus sharing findings in relation to both Doc Claw and Turbo Snail's gaming experience and teaching backgrounds were good examples of the interplay between identities. This interplay reinforced their gamefulness in supporting a positive way of being and becoming an innovative teacher.

4.3 Avatars and Identities with Smaller Number of Players (2015)

Similar to the second iteration, the third iteration of the course had the participants use avatars for communicating in Google+. However, in this iteration, we had only 7 students compared to 15 and 17 students in previous years. The gamefulness of this class was similarly reflected through the expressions and shifts in identities ranging from professional to personal or family identities in the realm of gaming.

Participants' multiple identities were often expressed in their assumed identities on Google+ through avatars (see Figure 3). While some actively made a connection with how they act in relation to games and gaming, others chose avatars that did not affect their real or projected identities. For example, one participant chose to have her avatar named as "Hiriti" and claimed:

> *Hiriti is Tibetan in origin meaning "Protector of Children". As a teacher, I feel a strong sense of responsibility to protect and nurture the students I have been trusted with. I am excited to*

learn and grow my knowledge of game based learning; in particular Minecraft :-)! Day 1 has been wonderful!! Excited to work with a great group of people!

This self-designed character could be a replica or a deviation of the player's real self, which could create opportunities for experimentation with multiple identities (Turkle, 1994; Squire, 2008; Schultz & Leahy, 2009). This was pronounced in Hiriti's reflection paper where she acknowledged that she taught at a school where the resistance to digital games was a norm. The computer lab and classrooms were often patrolled by the principle to ensure that the children were not playing games. Given her desire as a teacher to always help her students learn well, the course enabled her to play the role of a protagonist ushering in change towards acceptance of digital games at her school. Using the avatar of a possible self (Schultz & Leahy, 2009) as a protector of children, Hiriti serves as an example of reconstruction of identity with a constructionist ethos of building a new learning environment at her school. Her avatar has also become meaningful in the light of the environment she had been in, considering the "resistance" she had faced with using digital games in classrooms. In contrast, Monster Den, an avatar assumed by another participant, exemplifies how she as a teacher encouraged her students to become responsible digital citizens while playing digital games. Her concerns for safety of children in real life were so strong that it took priority in her projection of herself as an invisible avatar (Schultz & Leahy, 2009).

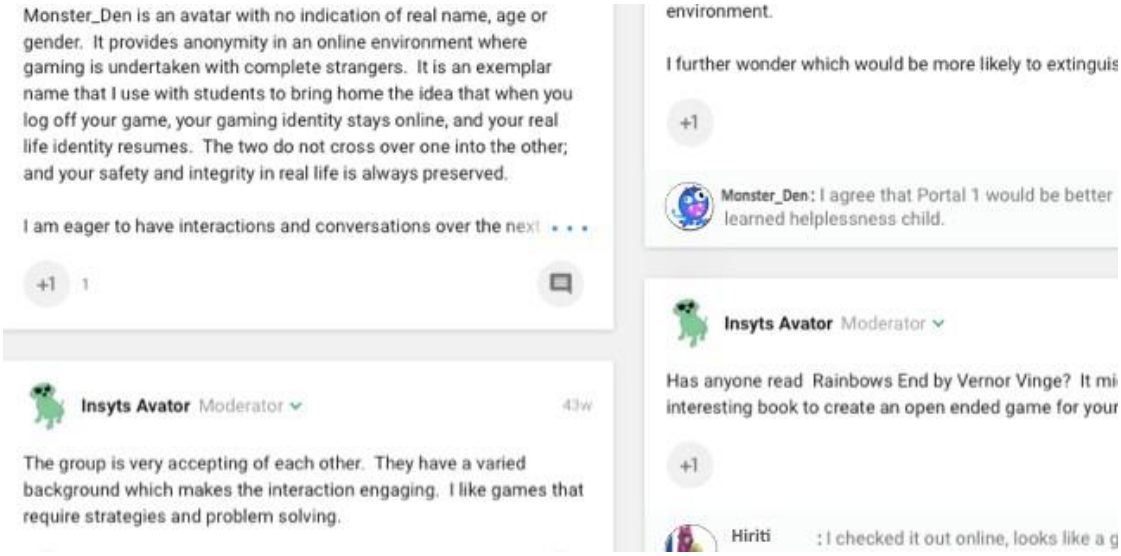

Figure 3. Google+ group page for microblogging as avatars during the third iteration

At the same time, Monster Den's quote implies the social mechanism employed by the members of this course. As a graduate student, she navigated and negotiated her identity likewise to create separate offline and online identities that did not merge or overlap because she felt that it was the only way to "preserve safety and integrity in real life." The next excerpt of Monster Den represents the struggle to maintain such separation within a small class of seven students. The dynamic social interactions, including seeking feedback and exchanging opinions that we observed in the second iteration were compromised by using avatars. Monster Den stated in the survey,

The anonymity for me was difficult, but I believe that the small class size was the biggest contributing factor in that. I tried to maintain some level of anonymity, but my classmates have acknowledged they know who I am, and I have every reason to believe they are correct.

Similar to the second iteration, the participants in the third iteration also discovered and re-evaluated their selves and potentials through social gaming. Hiriti expressed how her previous connections with gaming as a mother and a grandmother influenced her in observing herself in social gaming sessions. Her interest in *Minecraft* stemmed from seeing her granddaughter play it. In her reflection she mentioned how her granddaughter had learnt the sun setting in the west from *Minecraft.* She valued the opportunity to play and learn *Minecraft* as she previously experienced how understanding children's games was an important tool to relate to her students: as a parent she knew about Pokémon, which allowed her to connect better with a student who disliked coming to her class.

Monster Den, on the other hand, found her role as a *Minecraft* gamer and technology expert gaining visibility as she worked with other members of her team for their game design project. She chose to work on game aesthetics and contributed to the design conception of monsters and zombies attacking the players while learning language, as seen in *Minecraft* adventure or survival mode. In her reflection she has stated how she enjoyed the experience.

> *Beyond my experience playing games on all types of platforms, I also brought the computer skill to the guild. The task of creating our image prototypes fell to me as I am fairly proficient in Photoshop and other imaging software. The creation of the maze in Adobe Illustrator, a program I am much less familiar with, also was my task……. I just felt very fortunate to bring the experience with technology and gaming into this course that I did.*

Even for those participants who did not identify as gamers, they were able to connect with their childhood gaming experience or their observations of others who play games in their homes. By engaging in identity play relevant to games, inside and outside of school, at the university and at home, the participants contributed to the gamefulness of the class.

5. Discussion and Conclusion

The findings in this paper illustrate the potentials for our suggestion that experience in gameful activities is a valuable tool for teachers to connect to the gaming context of young people through their own exploration of identities. The participants were engaged in identity play and were able to discover their own potentials as they constructed both game design artifacts and selves. The design changes as well as the dynamics brought by the students themselves in three iterations influenced the ways in which the participants engaged in their identity play. Especially when there were novel opportunities to engage in game-like or gaming activities (e.g., social gaming, the use of avatars), learners were put to the test of exploring and developing new identities as particular kinds of gamers or designers. When there were fewer opportunities in the first iteration, the team, Fairies@Play, represented by the second author, chose to bring in the avatars themselves in conjunction with the game design they worked together.

In this research, social media (Google+) worked as a possibility space for both the students and the researchers, where identity play could be explored and witnessed, as new topics and new games were introduced and discussed. We paid special attention to identity as one of the dynamic elements of gameful learning (Holden et al., 2014), as we believe that being and becoming someone is the strong indicator of in-depth learning. Our findings also indicate that the learners gained recognitions for their expertise as artists, designers, and gamers, through which they found opportunities for re-evaluating their potentials and social contributions within their teams and the class. The practice and changes discussed as the three iterations in this paper provided an effort to create a stronger connection among the course pedagogy, its content, and the gaming practice of the youth. The exploration and development of identities are the results of experienced discourse and examined practices of gaming and game-based learning. For all three iterations, initial (or sustained for some students) tensions existed when faced with novel structures and rules of graduate course as a gaming experience (Kim, 2014; Kim, Gupta, & Clyde, 2015). However, gameful learning practices and creative engagement with avatars also emerged in all three iterations as students gradually accepted or co-modified the new rules of the course, and navigated their identities as gamers, teachers, designers, and students.

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References

Antonacci, D., DiBartolo, S., Edwards, N., Fritch, K., McMullen, B. & Murch-Shafer, R. (2008). T*he power of virtual worlds in education: a second life primer and resource for exploring the potential of virtual*

worlds to impact teaching and learning. Report from the Angel Learning Isle Steering Committee. Indianapolis, IN: Angel Learning.

Buckingham, D. (2008). Introducing identity. In D. Buckingham (Ed.). *Youth, identity, and digital Media* (pp. 1–24). The John D. and Catherine T. MacArthur Foundation Series on Digital Media and Learning. Cambridge, MA: The MIT Press. doi: 10.1162/dmal.9780262524834.001

de Freitas, S., & Oliver, M. (2006). How can exploratory learning with games and simulations within the curriculum be most effectively evaluated? *Computers & Education*, *46*(3), 249–264. http://doi.org/10.1016/j.compedu.2005.11.007

Deterding, S., Dixon, D., Khaled, R., & Nacke, L. (2011). From Game Design Elements to Gamefulness: Defining "Gamification." In *Proceedings of the 15th International Academic MindTrek Conference: Envisioning Future Media Environments* (pp. 9–15). New York, NY, USA: ACM. http://doi.org/10.1145/2181037.2181040

Domínguez, A., Saenz-de-Navarrete, J., de-Marcos, L., Fernández-Sanz, L., Pagés, C., & Martínez-Herráiz, J.-J. (2013). Gamifying learning experiences: Practical implications and outcomes. *Computers & Education*, *63*, 380–392. http://doi.org/10.1016/j.compedu.2012.12.020

Fishman, B., & Aguilar, S. (2012). *Gaming the class: Using a game-based grading system to get students to work harder... and like It.* Poster presented at the Games+Learing+Society Conference 9.0, University of Wisconsin- Madison. Madison, WI.

Holden, J. I., Kupperman, J., Dorfman, A., Saunders, T., Pratt, A., & MacKay, P. (2014). Gameful learning as a way of being. *International Journal of Learning Technology*, *9*(2), 181–201. http://doi.org/10.1504/IJLT.2014.064492

Johnson, L., Adams Becker, S., Estrada, V., & Freeman, A. (2014). *NMC Horizon Report: 2014 Higher Education Edition*. Austin, TX, USA: The New Media Consortium.

Kim, B. (2014). A graduate course as a game to learn about digital game-based learning. In A. P. Preciado (Ed.), *Proceedings of the IDEAS 2014: Rising to Challenge Conference* (pp. 103–112). Calgary, AB, Canada: University of Calgary.

Kim, B. (2015). Playing with Gameful Activities and Assessments: Avatars and Experience Points in a Graduate Course. In O. Lindwall, P. Häkkinen, T. Koschmann, P. Tchounikine, & S. Ludvigsen (Eds.), *The Computer Supported Collaborative Learning (CSCL) Conference 2015* (pp. 485–489). Gothenburg, Sweden: International Society of the Learning Sciences.

Kim, B., Gupta, D., & Clyde, J. V. (2015). Gameful Space, Activities, and Assessment for Game-Based Learning. In P. Preciado Babb, M. Takeuchi, & J. Lock (Eds.), *IDEAS 2015: Designing Responsive Pedagogy Conference* (pp. 90–100). Calgary, AB, Canada: University of Calgary.

Kim, B., Tan, L., & Bielaczyc, K. (2015). Learner-generated designs in participatory culture: what they are and how they are shaping learning. *Interactive Learning Environments*, *23*(5), 545–555. doi:10.1080/10494820.2015.106797

Lee, J. J., & Hammer, J. (2011). Gamification in education: What, how, why bother? *Academic Exchange Quarterly*, *15*(2), 1–5.

Li, W., Grossman, T., & Fitzmaurice, G. (2012). Gamicad: a gamified tutorial system for first time autocad users. In *Proceedings of the 25th annual ACM symposium on User interface software and technology* (pp. 103–112). ACM. Retrieved from http://dl.acm.org/citation.cfm?id=2380131

Martino, J. (2007). *The avatar project: Connected but not engaged –the paradox of cyberspace.* Final Report for VicHealth. Victoria, Australia: Victorian Health Commission.

McGonigal, J. (2011). *Reality is broken: Why games make us better and how they can change the world*. New York, NY: Penguin Press.

Reed, S., Satwicz, T., & McCarthy, L. (2008). In-Game, In-Room, In-World: Reconnecting Video Game Play to the Rest of Kids' Lives. In K. Salen (Ed.), *The Ecology of Games* (pp. 41–66). Cambridge, MA: The MIT Press. Retrieved from http://mitpress.mit.edu/books/ecology-games

Salen, K. (2011). *Quest to learn: Developing the school for digital kids*. Cambridge, MA: MIT Press. Retrieved from http://mitpress.mit.edu/books/quest-learn

Sheldon, L. (2011). *The multiplayer classroom: Designing coursework as a game*. Boston, MA: Cengage Learning.

Shultze, U., & Leahy, M. M. (2009). The avatar self relationship: Presence in second life. In *Proceedings of the 30th International Conference on Information Systems*. Phoenix, AZ, USA.: Association for Information System

Walz, S. P., & Deterding, S. (2015). *The gameful world: approaches, issues, applications*. Cambridge, MA, USA: MIT Press.

Wenger, E. (2008). Identity in practice. In K. Hall, P. Murphy, & J. Soler (Eds.), Pedagogy and Practice: Culture and identities (pp. 105–114). Los Angeles, CA: Sage.