Measuring Video Game Engagement Through Gameplay Reviews

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Abstract

Aim. In this article, we develop a method, that we call the gameplay review method, for measuring players’ engagement with digital games through players’ interactions with video recordings of their own gameplay.

Method. The gameplay review method arose from a microsociological study of the gameplay of eight young adults who each played approximately 20 hours of WORLD OF Warcraft over a 3-month period in 2012. Using data from in-depth interviews and audiovisual recordings of one of the eight participants, this article focuses on how the method leveraged participants’ knowledge of their experiences and ties that knowledge to measures of engagement. We outline the method’s four-step process (producing Level I data, analyzing Level I data, producing Level II data, analyzing Level II data) to guide the generation and analysis of rich video data. The method involves focused discussions on selected recorded segments of participants’ gameplay and is a means of connecting game design with both empirical and interpretive data.

Results. We show how, as participants progress, they learn about game design features and deepen their understanding of games. We found that participants’ developing perceptions of, and relationships to, design features affect their engagement with digital games.

Conclusion. The gameplay review method is significant in its ability to measure engagement by dealing explicitly with empirical and interpretive data.

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This article reports on one case from an interpretive study of how players’ interactions with video recordings of their own gameplay facilitated measuring player engagement with digital games. Through the case, we illustrate our development of this method for measuring engagement, which we call the *gameplay review method* (hereafter, GRM). We approached our study from a symbolic interactionist perspective (Blumer, 1969), which accepts the following two premises. First, the social world is processual and constantly in a state of becoming. As such, gameplay is not just an activity, but part of an interactive process through which players negotiate knowledge, competencies, and a sense of self. However, many of the details of those interactions are handled pragmatically and consciously ignored (Zerubavel, 1991, 1997). Second, individuals act purposively in situations based in part upon their past experiences and preferences, their definition of situations, and specific intentions and goals. As such, all people neither play games for the same reasons nor necessarily interpret their play, or what is going on in a game, similarly. Engagement, then, does not emerge systematically or universally from interactions with(in) games, but through developing an understanding of one’s own play in relation to the game’s design, which structures one’s interactions and interpretations of experiences.

Our focus on the relationship between player experiences and game design moves away from the traditional object of analysis in interpretive games studies, which has typically been the players, or interactions among players (Williams & Smith, 2007). Instead, we highlight the interactions between players and games specifically. The GRM enhances this distinction, which foregrounds participants’ agency and expertise vis-à-vis engagement with games. The GRM provides situations for participants to demonstrate expertise and to reflect on the relationship between play and game design elements. It also identifies patterns of subjective experience in order to improve knowledge of how game design elements function for players.

Our development of the GRM for understanding participants’ relationships with game design begins with a discussion of the significance of meaning for engagement, and we review Whitton’s (2010) model of digital game engagement, which we used to guide our analysis of participants’ interpretations of game design features. We then describe in detail the GRM as nested within four steps of generating and analyzing complex video data. Next, we present a case study in which we follow each step to illustrate how the GRM generates data. Finally, we discuss the method’s significance for producing rich and valid interpretations of participants’ experiences of engaging with digital games.
Engagement and Meaning

The purpose of game design is to create meaningful play (Salen & Zimmerman, 2004). Numerous studies attest to this assertion by focusing on meaning and player engagement in various forms, including motivations for play (e.g., Yee, 2006), participatory culture (e.g., Kafai, Cook, & Fields, 2010), sociability and social interaction (e.g., Ducheneaut, Moore, & Nickell, 2007; Hauert, Thij, & Copier, 2011), and learning and literacy (e.g., Commeyras, 2009; Gee, 2003). Whitton (2010) developed a five-factor model for digital game engagement, specifically for adult learners playing educational games and in higher education contexts. The model integrated her work on collaborative computer games, design and learning with Csikszentmihalyi’s (1990) seminal studies on flow, and Malone’s (1980) pioneering work on computer games and engagement. Although our participants were all adults, we framed their gameplay as entertainment rather than educational learning activities. We have therefore modified some of Whitton’s concepts. In particular, we do not see “interest” as something intrinsic to the individual in the gameplay context, nor do we see “purpose” as being limited to learning, but rather that they must be contextualized within emergent and contingent goals during gameplay. Digital game engagement, then, involves

1. Challenge— the motivation to undertake the activity, clarity as to what it involves, and a perception that the task is achievable
2. Control— the perceived fairness of the activity, the level of choice over types of action available in the environment, and the speed and transparency of feedback
3. Immersion—the extent to which the individual is absorbed in the activity
4. Interest—the interest of the individual in the activity or its subject matter
5. Purpose—the perceived value of the activity, whether it is seen as being worthwhile in context

Whitton’s model describes what constitutes each factor of engagement. The factors are in no particular order and the greater cumulative experience of them purportedly results in higher levels of engagement. However, the model focuses on perceptions of design features that constitute or lead to each factor of engagement. In a similar vein, Salen and Zimmerman (2004) suggested, “If your aim is to create a flow state for your players . . . design meaningful play” (p. 338). A missing link exists between perceptions of game design features and game engagement factors. Simply put, players differ in their subjective interpretations of things and hold particular definitions of what is meaningful to them. We want to make these connections more explicit by drawing attention to the relationship between perceptions and design features. For instance, if challenge involves the perception of an achievable task, what is the relationship between aspects of game design and players’ perceptions of those aspects?

This missing link involves player interpretations of design features. Attending to this link requires reflection on the parts of both player and researcher. Much of what people do in daily life, including playing digital games, is fleeting and based on
surface-level interactions, where meanings are taken largely for granted (Langer, 1990). This light engagement can be made more meaningful through promoting a “designer mentality” (Hayes & Games, 2008), where people learn to think in terms of the systems they interact with, effectively becoming literate in the domain (Gee, 2003). Reviewing and discussing recordings of gameplay can facilitate deeper understanding of how game design guides meaning-making and perceptions of engagement. The GRM illuminates the relationships among player interpretations, game design, and engagement. What became apparent is that as players developed designer mentalities through play and reflection, they acted toward the games with heightened engagement, became more confident in their proficiencies, interested in outcomes, and were curious to continue. In the following section, we describe our study, the qualitative methods we utilized that culminated in the GRM, and outline the four-step process for generating and analyzing empirical and interpretive data.

**Method**

Our data come from a single player’s experiences with the popular video game WORLD OF WARCRAFT (WOW; Blizzard, 2004); although they are representative of findings from our larger project in which eight participants (three females and five males) each played WOW and PORTAL 2 for approximately 40 hours (WOW = 20 hours, PORTAL 2 = 20 hours) over the course of about 12 weeks in 2012. None of the participants had played either game before, although some had played similar games. Most had a variety of gaming experiences, but we focus here on Drew, who reported having only ever played one digital game—a Tetris-like game she found on her phone. Her experiences with WOW offer clear insights into the interpretive force of subjective experiences as they relate to meaning-making, engagement with digital objects, and game design.

The study utilized multiple qualitative methods culminating in the GRM. We collected data in a small university office, where participants played on a desktop computer designed for gaming. We conducted an opening interview to explore participants’ gaming biographies and to assess any preconceptions of the games. Occasionally, participants were alone in the room, but typically David was co-present. David regularly observed gameplay and wrote field notes, in addition to making audio and visual recordings of the players at the computer and on-screen recordings of their gameplay via FRAPS. We used field notes to develop interview questions and as data for analysis. At regular intervals during play, as well as during unique moments when players’ behaviors suggested it was appropriate, David used a think-aloud protocol. This technique consisted “of asking people to think aloud while solving a problem and analyzing the resulting verbal protocols” (van Someren, Barnard, & Sandberg, 1994, p. xi). In addition to enabling players to express what they were experiencing in real time during gameplay, the technique also proved useful in helping players talk themselves out of binds (see Vygotsky, 1962, on talking aloud and problem solving). As such, their talk, along with video recordings and field notes, gave us a more complete view of what players were thinking, doing, and learning, or how they organized and utilized
knowledge to act back toward the game. We also conducted in-depth interviews, largely to facilitate participants’ reflections on their gameplay experiences. For WOW play, we did interviews after 1 hour, 10 hours, and 20 hours (i.e., at the end) of gameplay. Technically, we conducted the gameplay review as part of the final in-depth interview. However, it is important to note that we built the GRM itself upon prior analysis of data, as we describe below.

The GRM builds upon a tradition of reflective video review protocols, including After Action Review, a standard process in U.S. military exercises that is also used in conjunction with peer evaluation during in-game training (e.g., Raybourn, Roberts, Diller, & Dubow, 2008) and the video commentary model in user research (Ribbens & Poels, 2009) and games research (Jørgensen, 2008, 2012). From the perspective of symbolic interactionism, we found Bastien and Hostager’s (1992, 1993) use of “participant informants” especially relevant to help analyze complex processual data. They based their study on a commercial video recording of a critically acclaimed improvisational jazz concert in which the participating musicians had never met or rehearsed before. Unable to explain how the group accomplished a successful performance without a shared past, the researchers subsequently enlisted one of the musicians to review the video in detail with them. Similarly, we asked players to review and discuss gameplay footage of themselves. David selected three or four video clips of each participant’s play that he found to be significant based on research questions and that participants reported as significant, based on observations, informal conversations, and previous interviews. We were also open to players’ questions during gameplay, which enhanced our understanding of players’ development and facilitated our choosing relevant videos and themes for gameplay reviews. As in the think-aloud protocol, we asked participants to narrate each video clip and David asked questions like “What is going on here?” and “How did you solve this problem?” We also asked them to explain aspects of the user interface as a way of cataloging what they interpreted as (ir) relevant or (un)important in helping them play.

The think-aloud sessions and interviews created an environment for “reflective play [that] involves the process of externalizing various aspects of intrinsic play through communication, sharing, and discussion. When reflective play occurs, players step out of the predefined game boundary and reflect upon their intrinsic play activities” (Ang, Zaphiris, & Wilson, 2010, p. 364). As this description suggests, the GRM involved dealing with a rich and diverse set of data. To make sense of the variety of data available, it was necessary to identify two levels of data involved. Level I data—observable data of social actions such as players’ use of the UI, keyboard, or mouse—were collected through video recordings and field notes. These data provided empirical evidence of specific behaviors. In order for such data to be empirically useful, we had to contextualize properly the circumstances under which the behaviors occurred. Understanding who a player is and what knowledge she has about what she is doing, for example, provided a contextual frame for interpreting the empirical (Level I) data. Level II data were, in turn, collected from players’ descriptions of their behaviors, or more specifically from the triologue among the researcher, the player, and the video. Our approach emphasizes that gameplay and even interpretation of data were
interactional accomplishments among players, researchers, and games, rather than a highly controlled lab experiment. As the researcher and player watched the video, we worked together to establish a valid interpretation of the Level I data available in the video. Level II data brought together the researchers’ interpretations and the player’s interpretations of empirical data.

Level I and Level II data will not (and in our study, did not) always match. Players may engage in behaviors that they do not consciously recognize, and thus cannot accurately describe or discuss. Or players may choose to hide or misrepresent the reasoning behind certain decisions. Jørgensen (2012), for example, discussed her movement between the competent games scholar and the naïve or “curious” researcher as she sought to elicit data from her “player experts” (p. 383). One problem with such a technique is that the researcher is unable to control how players will interpret claims of competence or naiveté. Some may feel that we challenge their status as “expert” and subsequently engage in defensive practices to maintain face (see Goffman, 1959). Another problem could emerge around study participants having a little fun with the “competent” or “naïve” researcher by lying or hoaxing, as allegedly happened to the eminent anthropologist Margaret Mead (Shankman, 2009). To try to control for such problems, we developed a four-step analysis process in which the researcher and participant eventually worked together to develop an understanding of players’ actions and their meanings (Table 1).

The purpose of the first step is for the researcher to generate Level I data—that is, records of what the player is doing at each moment during data collection. Depending on the researchers’ goals, they may want to focus on one or more levels or amount of detail. The researchers should also decide analytically whether to focus on offscreen or on-screen behaviors, or both. For example, What is the character doing? How is the player controlling the character? or What is the player looking at on the screen? The second step involves the researchers’ interpretations of the data recorded. We synchronized the video with corresponding audiovisual files, observation notes, and memos. The researchers then contextualize the descriptions and, using these new layers of data, interpret the how or why of certain events or actions: Why is the character doing what she is doing? Why is the player using the mouse versus the keyboard? How is that player’s attention drawn to that object? The third step is the generation of Level II data in the gameplay review, which focuses on players’ interpretations of

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their gameplay. The purpose of this step is to leverage the participants’ knowledge/recollections to refine, add to, or even reject/displace researchers’ interpretations. The fourth step involves the researchers analyzing the gameplay review and has at least two potential functions. First, it involves integrating the earlier steps to satisfy larger research goals. Here the researchers may decide to write up findings based on the earlier analyses alone, but they may also involve the player in the process to get feedback on the validity of the claims made. Step 4 would typically involve the integration of data from multiple players or even multiple studies as the researchers establish significant patterns of behavior and meaning. Due to space limitations here, we now apply these steps to a single case to exhibit the GRM before discussing its potential value as a research method.

Drew’s Gameplay Review

We chose this case specifically for how far removed from the typical definition of an “expert” player the participant was. By focusing on a less experienced player, it illustrates how we as researchers relied on Drew as a player to help us make sense of her gameplay and how it enabled us to see patterns of subjective experience that were also found in other participants’ reviews (Kirschner & Williams, 2013). The case is divided into three sequential scenarios that weave together to tell a story of how one participant, Drew, learned key aspects of WOW and subsequently increased her engagement with the game. Our story also tells how the gameplay review process facilitated increasing both her own and our understanding of her relationship with the game’s design.

Drew was unique in this study in that she had never played a console or PC game. Indirectly, she had heard friends talk about WOW, and one reason she volunteered for our study was in hopes of understanding what it was about the game that her friends enjoyed so much. She entered the virtual world in this frame and immediately began a search for meaning. She spent her first hour–long session browsing the in-game FAQ seeking guidance because she did not know what she was supposed to be doing in the game. Drew faced many challenges during her play time. She always had questions, for example, about how to improve her combat abilities in order to survive or how to find and complete quests, which were challenges provided by computer-controlled non-player characters (NPCs) called “quest givers,” that rewarded players with items and experience points used to increase their characters’ attributes or level. In general, and until they had been stuck for a long time, we avoided giving “advice” to players because we wanted to see what computer-mediated tools they would use to get answers to their questions. It was not by chance that Drew’s gameplay review revolved around these two salient interrelated themes—questing and fighting—and consisted of three video clips that we chose after careful Level I data analysis. Although each clip contained much more activity than we include here, we focus on significant events in the story of how Drew constructed knowledge, refined interpretations of design elements, and developed expertise.
Scenario 1: Identifying Quest-Giver NPCs

Producing and analyzing Level I data. An NPC with a gray exclamation mark above its head is close in front of Drew and a second NPC with a golden exclamation mark above its head is in the distance. Drew approaches the gray-marked NPC and clicks 15 times either on the NPC’s body, on the exclamation mark, or on its character portrait (A). Nothing changes on the screen. Then she moves to and clicks once on the golden-marked NPC. Quest text appears (B). After a few seconds, she clicks “accept” (Figure 1).

This was the first quest Drew successfully accepted, at Level 6 and after approximately 8 hours of play. The presence of quests was something Drew had suspected and desired. As she wandered through the game world, she became concerned with and repeated one existential dilemma: “I don’t know what my task is. I have no meaning, no direction. What is my task? How can I find my task?” By “task,” she did not necessarily mean “quest,” but a more general direction or game-given goal to work toward. Although she suspected the presence of tasks, she had no method to test her suspicion. Without tasks to guide her, her sense of purpose, interest, and control—each an element of engagement as discussed earlier—were especially low.

Because she was struggling with purpose and because she repeatedly asked about it, David told Drew soon before this gameplay moment that exclamation marks represented opportunities for quests. We subsequently assumed that Drew learned this symbolic relationship, but had not yet learned to differentiate between gray and golden. However, we were mistaken in assuming that she held no differential meanings; she just did not hold the meanings that the designers intended, which were that golden exclamation marks signified available quests and that gray exclamation marks signified quests that would be available to her at a higher level. Drew used the information David gave her to elaborate her understanding of the significance of exclamation marks, which she related to us during the gameplay review. By analyzing Level I data, we found that she had previously traveled to several areas of the game world where enemies were much higher level than her character and had subsequently died many times. In some of those areas, she saw gray exclamation marks above NPCs’ heads. Referring to gray exclamation marks during a play session, she said, “This means I can take it, but I still didn’t take it. The level is very difficult for me.”

Producing and analyzing Level II data. During the gameplay review session, we watched the video of her interactions with the exclamation marks and talked about her understanding of them. Referring to the golden icon, she said,

I just clicked it. Oh, I saw, there was a task . . . the exclamation mark looked like a surprise. It is a surprise because when you finish it you can get a lot of rewards.

Here, we got initial insight into the significance that she attributed to exclamation marks. Based on analysis of her prior interactions with quest-giver NPCs, we thought that she had not distinguished between exclamation mark colors, but in fact she had
associated the gray exclamation mark with high-level enemies and inferred a tough challenge. She clicked on gray-marked NPCs many times, 15 times in this scenario alone; however, in WOW, no quest text appeared from this action and the lack of responsiveness from the NPC coupled with the quest’s perceived difficulty led her to believe that she had chosen not to accept the quest. This interpretation was functional for Drew, as it contextualized her understanding of quests, enemies, and exclamation marks; helped her make sense of her decisions; and allowed her to perceive some control over her activities. Drew also had a clearer idea about gray exclamation marks than golden ones because of the time she spent in high-level areas. Therefore, when we told her that exclamation marks signified quests, she immediately thought of gray exclamation marks. She described her perception of golden exclamation marks as attractive, “like a surprise” rather than a level-relevant quest opportunity, and as she discovered later through completing quests, it meant an opportunity to earn money and experience points. We could not have known the meaning she attached to the golden exclamation mark without her pointing it out to us. Once she accepted this quest, she gained an explicit game-given purpose: “Kill 8 Rockjaw Skullthumpers and 8 Rockjaw...
Bonesnappers,” two particular types of enemy that could be found nearby. Dickey (2007) discussed how quest narratives and rewards fostered motivation in players to find and negotiate challenges, and we found this was the case with Drew as well. Although it was momentarily too difficult a challenge to complete, this first quest was the foundation of her developing interest in the game, control over her experience, and becoming immersed in her play.

**Scenario 2: Learning to Use Hotkey Abilities**

*Producing and analyzing Level I data.* Drew, currently invisible to enemy NPCs, moves slowly toward one and right-clicks on it with the mouse to begin attacking. The NPC attacks back. Drew backpedals and it follows her, both of them moving away from other enemies in the area. She has five different ability icons on her action bar. The constant flashing of the leftmost icon indicates she is repeatedly tapping “1” on the keyboard (Figure 2).

Combat in WOW is performed by players using the mouse to click on icons in the action bar, located at the bottom of the screen. The action bar organizes various combat abilities and allows for keyboard shortcuts to replace mouse-clicking. Until just before this scenario, Drew had one ability icon on her action bar, which she never used. Instead, she right-clicked on enemies to initiate her “autoattack,” which was the game’s default attack mode and dealt minimal damage. As a result, Drew frequently died in combat situations, perceiving them as near-insurmountable challenges. This also made completing quests impractical. In response to her questions, and to help her gain some control over her gameplay, David explained to Drew that she could visit a special NPC who would train her in more powerful abilities, which she did.

During Level I analysis, we focused on how Drew learned to use two new abilities, “1” and Stealth. In order for these abilities to become part of Drew’s repertoire, she needed to recognize their value. Through practice, Drew realized that when she used
the “1” ability in combat, she did more damage to enemies than when she used autoattack. She also learned that using Stealth made her less visible to enemies. The fundamental outcome of learning to use these abilities from her perspective was practical: she died less. From an engagement perspective, she was able to exercise greater control and perceived an increase in the “fairness of the activity,” evidenced by a decrease in expressing frustration, confusion, and futility in audio and video recordings of her and a corresponding increase in expressing excitement, confidence, and reporting enjoying the challenge, as she had more choices and expertise in the types of actions available to her (Whitton, 2010, p. 604). With more control came greater concentration on her task and thus engagement. Our initial interpretation of events suggests that Drew was simultaneously developing engagement and competence in combat by filtering game design elements through a process of pragmatic meaning-making, but we did not know why Drew only used “1” and Stealth to the exclusion of her other new abilities.

Producing and analyzing Level II data. Drew emphasized two things in the gameplay review. First, she reported that using stealth was the most significant thing she learned how to do. Second, she emphasized the role that the action bar and ability icons as design choices played in her experience. Since she had only used “1” and Stealth, we asked her about the icons that we had never seen her use. She replied,

I just know the first one and the Sneaker [Stealth] . . . I know them by number, and the Sneaker is on top of “1.” I think these [pointing to the other icons] are very small. It’s very difficult to distinguish between them, so there is no need for me to know more about them.

Drew’s other abilities were known to her character, but not to Drew, and therefore were not functional because the meanings she attached to them reduced them to inconveniences rather than functional abilities. She did not need to do work to make them functional since the two abilities she did utilize, Stealth and “1,” worked well enough in her estimation.

For designers, these data stress the importance of understanding what gameplay elements mean to players and providing reasons and contexts for players to learn intended meanings when appropriate. If ability icons are defined as too small or do not clearly communicate a purpose, players may see no reason to engage with them. Thus, Drew called Sinister Strike by its number on the action bar, “1,” because she had no use for the name. The number and the icon’s location on the action bar are what Drew deemed useful. This was a very common theme among study participants. Many of them rarely, if ever, used most of their abilities. When they did not, it was because they did not know what the ability did or did not perceive it as functional. However, in order to complete quests, players needed to defeat enemies. In order to defeat enemies, players needed to develop knowledge and use of their abilities. If a few abilities and action bar icons are defined as “good enough,” or if others are defined as irrelevant or inhibiting, then like Drew, players may continue to play far within the boundaries of the game’s intended design limits, potentially affecting engagement in the long run.
Scenario 3: Fighting Enemy NPCs After Learning to Use Hotkey Abilities

Producing and analyzing Level I data. Drew is Level 9, currently invisible to NPCs, and standing at the entrance of a cave (A). Inside the cave, she approaches an enemy from its side and begins repeatedly pressing “1” to attack. The enemy attacks back. When the green health bars of both her and the enemy in the top-left corner of the screen are almost depleted, Drew presses “2” on the keyboard and the enemy dies (B). She clicks the Stealth icon again and, invisible to other enemies, begins walking toward an enemy on the opposite side of the cave. On the way, a second enemy crosses in front of her. She pauses for 5 seconds, as the enemy passes, and then continues toward the enemy at the opposite side of the cave. She approaches it from the side and repeatedly presses “1” to attack. In the meantime, her health bar has replenished itself (Figure 3).

Producing and analyzing Level II data. Drew agreed that our interpretations of combat success were a significant part of her gameplay, but shed light on one particular aspect of the situation, her understanding of “threat radius.” Threat radius is an invisible...
circle around enemy NPCs that, if breached, causes the enemy to engage the player in combat. We had interpreted her movement through the cave as considerate of the enemies’ threat radii, but did not know how she understood it. She was purposeful in her movement and positioning:

In fact, I don’t know exactly how to control the distance [the threat radius], but I just keep distance with my intuition. Because I’m a Sneaker, I can be closer to them, and especially with their backs to me, when they don’t face me, that is better.

She also suggested that the ability of enemies to detect her relates to their level disparity, what type of enemy they are, and their state, such as whether they are working or sleeping. This unanticipated functional understanding of threat radii coincided with her being more observant of her surroundings than we had interpreted, as she also described being attracted to mineral veins in the cave, looking out for captive friendly NPCs to rescue, and paying special attention to sleeping enemies. She especially enjoyed paying close attention, for example, to the enemies:

If I want to get into the deepest part of the cave, I have to go around the sleeping ones. But every time it is very easy for them to detect me, so I have to go around quickly! I like that. Challenging is good.

Such awareness of her virtual surroundings was indicative of her interest level and of immersion into her activity.

Discussion

Drew’s gameplay over the course of these examples exemplifies Whitton’s (2010) factors of engagement, which we have modified slightly in this article. She had a quest to focus on that gave her a clear purpose. She was interested in defeating enemy NPCs and exploring the cave to complete her quest, which helped her progress toward her overarching goals of leveling up and receiving rewards. She developed competence using some abilities and managing enemies, which increased her sense of control over her gameplay. Through acquiring the expertise to increase control, she was able to simultaneously regulate challenge. Whereas the quest was once an insurmountable and frustrating task, Drew eventually gained the abilities, as well as the control and interest, to complete it successfully. Finally, she was immersed in the activity both during gameplay and in conversation about it. During the gameplay review she said, “I remember this was the first time I wanted to play more. I always wanted to play even 2 hours more because I had tasks to complete . . . I would really want to stay here and finish.” Her immersion in the activity fed back into her purpose, strengthening it and focusing it.

The GRM illuminates how the five factors of engagement are further interrelated. For example, having a clear purpose and interest to complete an activity increases motivation to find ways to regulate challenge and assert control. Regulating challenge
and control facilitates immersion. Elements of engagement were also related to Drew’s knowledge of the game and her understanding of her relationship to the game’s design. For example, she perceived little purpose until she was able to acquire quests, which was only possible after quests and the golden exclamation mark became meaningful to her. Players are aware on different levels of the relationships between engagement and their understanding of game design, but the GRM allowed us to link empirical data to player interpretations.

Describing her engagement model, Whitton (2010) concluded that it
does not explicitly take account of the processes surrounding the actual game play, such as briefing, reflection, and debriefing . . . The relationship between debriefing and engagement, in particular, is worthy of further investigation as this has such a significant effect on learning. (p. 607)

Aside from pre-play briefing, we have responded to this call and have argued that the GRM is both “occasion and activity for the reflection on and the sharing of the game experience to turn it into learning” (Crookall, 2010, p. 907). We have shown that the GRM is predicated on the analysis of prior interpretive data gleaned from reflexive activities such as in-depth interviews, that debriefing is an essential feature of the GRM characterizing Step 3 (producing Level II data), that debriefing in Step 3 facilitates Step 4 (analyzing Level II data), and that debriefing using the GRM increased Drew’s engagement with the game.

Drew began referring to her character after acquiring the Stealth ability as “the Sneaker.” The name described the overall careful strategy she developed for questing and fighting. During the gameplay review, Drew summed up the Sneaker’s philosophy: “Wisdom is more important than bravery. Now I don’t need to attack so many enemies. I just need to finish my task.” Whereas she previously attacked (and was attacked by) nearly every enemy in the vicinity, becoming the Sneaker allowed her to attack only those enemies that stood directly in the way of her quest objectives. In addition, since she learned more about how to fight, these battles more often than not ended with her victorious. Her talk suggests the significance of knowledge and understanding, a contemplative mode of thought before action, and a focus on minimizing interference with long-term goals. It also suggests a growing comfort in her play, which is something all participants ended up valuing and working toward. As Drew reflected on her gameplay, she realized she knew both very little and very much:

The whole picture is still not very clear for me. For example, I don’t know about the story, the overall context, the guilds. I don’t know about my enemies, just how to use them, like I would use a device.

If enemies are devices, then she had been mastering them throughout her play. As any master knows, the more one plays with a system, the better one becomes at understanding and manipulating it (and its parts).
In the larger study, our participants began at different levels of expertise depending on previous gameplay histories. We chose not to brief or tutor participants, and therefore traded taking their initial understandings as data for our ability to control for prior knowledge and compare engagement across planned prime states. It could be that players with varying levels of expertise experience the factors of engagement differently, and that the deep sense of purpose, for example, that Drew perceived from acquiring her first quest would be perceived as insignificant by a seasoned player who had completed thousands of quests across a variety of game worlds before. However, we have presented engagement as something that is emergent rather than systematic. Various other factors of the study design may have affected participants’ engagement, such as playing in an office with a scholarly observer versus in the privacy of one’s bedroom or surrounded by friends in a cybercafé. For example, it was not uncommon, as participants often played at the university office during the middle of the school day, for them to have assignments, exams, class, and so on, weighing on their minds that affected their ability to focus. In addition, David’s co-presence, regular probing questions, video recording, and willingness to offer guidance may have led participants toward or away from perceiving game design elements as providing purpose, immersion, and so on, affecting engagement. Future scholars working in the area of engagement using similar methodologies may desire to control for some of these or additional mediating factors.

In this article, we have proposed the GRM as a means of connecting game design with both empirical and interpretive data collected from participants in a gameplay study. We have framed our analysis of a single case in terms of engagement, a common theme in game design research. To establish the intricacies involved in understanding players’ reflections on their own behaviors, we have differentiated between Level I and Level II data. Both are necessary components of a study involving the gameplay review method. Level I data provide researchers with detailed descriptive accounts of players’ behaviors. Although valuable, those data only provide a partial understanding of gameplay experiences. Much more understanding emerges through the GRM, a reflexive and interactional process that foregrounds the subjective interpretations of players’ actions and gives insights that cannot be developed based on observations or audio/video recordings alone. Although Level I analysis consists of etic interpretations of gameplay, the process of generating Level II data requires a willingness to allow the participant’s reflections of her own gameplay to emerge and recognizes that such reflections carry interpretive weight.

The four steps we outlined to produce and analyze Level I and Level II data are also significant for their iterative relationship. In line with a processual view of learning, this research approach may be likened to a spiral (Berg, 2007), where knowledge gained during later steps informs earlier steps as they are revisited, refined, and repeated. The researcher’s interpretations of empirical Level I data are like hypotheses that can be confirmed, rejected, or modified by the participant during the gameplay review in Step 3, or like findings during Step 4 if the researcher chooses to involve participants in reviewing later analyses or even papers or presentations (Pearce, 2009). The potential utility of the fourth step for validating findings is immense as it allows
them to be subjected to review, not only of individual cases, but also of comparisons among cases or even multiple studies. To this extent, the GRM allows for the development of generalizable findings among studies.

Finally, the GRM improves understanding of player engagement with digital games and facilitates an understanding of the reciprocal relationship between player understanding and design features, in addition to showing that players are experts in their own play. As players consider complex game design systems during debriefing, they not only deepen their understanding and appreciation of such systems, but use their developing expertise to suggest improvements or imagine alternatives (Peppler, Danish, & Phelps, 2013). The method is appropriate far outside academic studies on simulations and games. Designers interpret people’s subjective experiences and harness their feedback to create usable products; therefore, it is important to learn from a broad range of people, each of whom develops meanings and expertise, instead of, for example, focusing only on highly experienced player-experts in the simulation and game development cycle. Recall why Drew ignored icons on her action bar. She did not perceive them as necessary to make sense of, interpreting them as ignorable game features; this led to her playing far within the boundaries of the game’s design, negatively affecting engagement. We could apply a similar understanding in other domains, such as education, to encourage learners to critically reflect on their own activities, providing a feedback loop to engagement. Additional reflexive opportunities may also prove fertile to design into the GRM or into simulations and games themselves, including written debriefings (Petranek, 2000) like diaries or (in)formal discussions.

Author Contributions

Both authors contributed equally to this article. D.K. conducted the research with Drew. D.K. and J.P.W. wrote and revised each draft together.

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