How Games Work: Exploring the Instructional Design of *Diablo III*

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Abstract

This paper describes a portion of a three-part case study designed to research the instructional patterns that occur within role-playing games (RPGs). It presents a set of nine heuristics for learning in RPGs and analyzes how and where those heuristics occur within the game *Diablo III*. The findings from the study include an overview of a cyclical learning pattern that occurs with RPGs, as well as theoretical and practical implication for both industry and academic contexts.

Keywords: games, instructional design, pedagogy, role-playing games

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Introduction

A plethora of research exists on what types of skills players learn as they game, such as critical thinking, literacy, collaborative writing, problem solving, and so on (see, for example: Alexander, 2009; Rice, 2007; Salen, 2007). There is still a gap, however, in discovering what moves, precisely, games make when teaching players those skills. For example: How do games teach players about their rules and strategies? How do games teach players about choice, exploration, and discovery? What strategies, specifically, do games employ when teaching players about rewards-based systems? How do games implement feedback to their players? And how important is the concept of practice when teaching players new skills? In this paper I discuss a portion of a three-part case study I conducted to research the instructional patterns that occur within role-playing games (RPGs). Specifically, I set out to explore:

- What rhetorical and/or instructional moves do RPGs employ?
- What are some of the best practices/lessons learned from RPGs that could be applied toward creating a higher education classroom as a game?

To that end, I conducted a three-part case study of three RPGs, which included three phases: 1) personal gameplay (a total of 114 hours); 2) content analysis of all three games; and 3) participant observations of five participants over six one-hour sessions. In this paper I describe the third phase of my study, the participant observation phase, for one of the games I studied: *Diablo III*. For this portion of my study I observed the gameplay of three players: one expert gamer, one casual gamer, and one novice gamer. The observational sessions were held in Texas Tech University's Usability Research Lab, where I had access to a PlayStation 3 (PS3) gaming console, monitor, and couch for the participant and an area with a table and chairs for me to take notes, observe, and conduct surveys and interviews with the participants. Each participant observation included a pre-observation survey, a one-hour gameplay observation, and a post-observation interview. As the study progressed, I coded my results for signals

and marks of instructional design that occurred within the games. In this paper I present my theoretical framework for completing the study, as well as the results from the participant observations from the game *Diablo III*, as a means for establishing a set of heuristics that can be used to understand the instructional design characteristics of RPGs.

Establishing the Theoretical Framework:

Gee's Principles of Learning and Konzack's Layers of Ludology

Although there is not yet a singular established qualitative methodology for studying games, Malliet (2007) advises qualitative game researchers to create "a general scheme for analysis" based off of "topics of interest" to the study (p. 1). In his research, Malliet (2007) combined portions of the methodological frameworks used by Brand et al (2003), Smith et al (2003), Aarseth (1997), and Juul (1999) to construct a comprehensive rubric upon which to qualitatively analyze video game content. Following somewhat in Malliet's (2007) footsteps, I chose to utilize the work of two theorists: Gee (2007) and Konzack (2002), to establish a preliminary coding structure for my data collection and analysis. Specifically, I selected Gee's (2007) principles of learning and games and Konzack's (2002) 4th layer computer game research methodology (ludology) because of their representative scholarship in gaming and pedagogical application, especially relating to the game structure and mechanics of RPGs. In this section I describe both theorists' work in more detail.

A major finding from Gee's (2007) *What Video Games Have to Teach Us About Learning and Literacy* is that video games have the potential to teach 36 different learning principles, from "active, critical learning" to visual "design" expertise, knowledge about "semiotic domains" to skills in building "committed learning" (Gee, 2007, pp. 221-227). I started my study by referring back to Gee's learning principles that are most relevant to learning in the higher education classroom and then coded for instances of those principles I observed throughout my study. Specifically, I chose eight specific learning principles that I selected as most relevant to RPGs, and then used the principles as a starting point for

my categorization and coding. Those eight principles were: 1) *identity*, or how players create and customize digital identities; 2) *achievement*, or the rewards and feedback the game provides; 3) *practice*, or how often and when players can practice new skills; 4) *competence*, or the difficulty of the game; 5) *routes*, or whether and how players are given multiple opportunities to progress; 6) *subset*, or a simplified domain of learning within the game where risk remains relatively low; 7) *just-in-time*, or when instruction is introduced at a time and manner when it can best be used and practiced; and 8) *discovery*, or whether and when players are given a chance to explore within the virtual world.

In addition, I consulted Konzack's (2002) methodological framework for studying games, which is often cited as a methodological framework for a variety of different gaming studies and game study methodologies, especially those based on categorization and coding (see: Aarseth, 2003; Consalvo & Dutton, 2006; Malliet, 2007). With that in mind, I focused my case study around Konzack's (2002) 4th layer, or the ludology layer, which considers elements of: 1) *positions* ("from which the game is perceived," such as from "audience, players, or judges"); 2) *resources* ("the means by which the players are able to influence the game"); 3) *space* (the virtual world); 4) *time* ("time limit set for the game duration"); 5) *goals*; 6) *obstacles*; 7) *knowledge* (three kinds: "open knowledge (quite often the rules or statistics), *hidden knowledge* ("e.g., strategy of other players), and random knowledge (e.g., rolling dice or other kinds of randomization)"; and *rewards/penalties* (Konzack, 2002, pp. 93-94).

With these two theorists' work in mind, I then combined and honed the factors and principles to come up with a list of nine working heuristics of instructional design in RPGs. This essentially began with combining the two theorists' work, with a few exceptions. First, I chose not to code for Konzack's factor of Positions. This is because Positions are ultimately socio-cultural concerns in which players perceive, observe, and interact within the game (Konzack, 2002, pp. 93-98). Therefore, because every data point within a gameplay observation could potentially relate to Positions, or how the players could perceive actions within the game, I felt that it ultimately became irrelevant to this study in terms of instructional

design. I also felt similarly about the Resources heuristic. Nearly everything in games is geared toward Konzack's (2002) concept of Resources, or "the means by which the players are able to influence the game" (p. 94). Resources can refer to anything from how a player performs mechanics within a game to how they customize their characters, the way in which they loot items to how they equip gear. In a very real sense, Resources can refer to anything that the player can do within the game. In fact, Resources can be considered a given in RPG gameplay, as a signature element of the game genre is that players are given control over some aspect of their experiences in the virtual world, whether through combat mechanics, play style, or game options. Because one of my ultimate goals was to determine how RPGs teach their players certain things, Resources then became an element that wasn't entirely relevant to my study. In addition, I also decided not to focus on the factors of Space and Time, each of which specifically relate to the division of virtual space, as well as to time limits within a game (Konzack, 2002, p. 94). And although I could technically say that all elements of RPG gameplay occur within the dimension of virtual space, there really isn't anything necessarily instructional about that virtual world vs. real world division. Space is space and time is time, and *Diablo III* in particular doesn't explicitly provide its players with any specific instruction on either of those heuristics.

I also chose to merge a few of the categories. To start, I merged Konzack's factor of Rewards and Penalties with Gee's principle of Achievement. Nearly every instance that I noted of Gee's (2007) learning principle of Achievement was, quite simply, what we think of in instructional design and assessment as feedback. That is, achievements – or rewards, signals, and feedback – are the primary tools that the game provides as a type of assessment to players as to their progress in the game. This is directly linked to Konzack's (2002) element of Rewards/Penalties: the game provides feedback (rewards, signals) based on how well the player is doing in the game, by way of penalties and reward. Rewards and achievements provide players with knowledge about the game's rules and strategies, as well as information on how to use that feedback to further improve. Therefore, I combined both Gee's

Achievement principle with Konzack's Rewards/Penalties principle into one simply called Feedback. In addition, I moved Gee's principle of Subset into his principle of Practice. I found that whether or not an RPG has a specific subset area with little fear or death, there is always an opportunity to practice major elements of the game, such as questing, combat mechanics, skills, and performing basic movements. I also extended the description of the Practice heuristic to include instances that allow learners to practice skills within the context of a game without fear of failure. This, I believe, is the also more important aspect of the subset area, in that learners are able to practice their skills without fear of major retribution. Finally, based on my pre-observation research results from this portion of the study, which included personal gameplay and observations of other RPG gameplay, I merged the factors of Goals and Obstacles into one heuristic. With that in mind, the nine heuristics that I used for the participant observations of *Diablo III* can be viewed in detail in Table 1.

Table 1: Descriptive Overview of Instructional Heuristics Used in the Study

Instructional Heuristic	Description
Goals and Obstacles	What goals are presented to the players? What obstacles to the players face that attempt to impede the players from meeting their goals?
Knowledge	What knowledge (rules, strategies, and/or randomization) occurs within the game?
Feedback	What rewards or penalties does the game enforce? What rewards, signals, or feedback does the game provide?
Identity	In what ways are players allowed to create and customize their digital identities in the game?
Practice	How often and when are players given the opportunity to practice new skills? Does such practice occur within a subset domain, a simplified area where the risk of failure remains relatively low?
Competence	How difficult are various aspects of the game, and does the game overall remain challenging yet not undoable?

Routes	Are players given multiple ways to progress, with ample opportunities to choose their individual paths within the game? If so, how?
Just-in-Time	Is instruction provided at a time, and in a manner, when it can be used and practiced (as opposed to a time that is out-of-context with learning)?
Discovery	Are players given the chance to explore and discover within the game, and are they encouraged to do so?

These nine heuristics as described in Table 1 helped guide my research, similar to how Malliet (2007) and Consalvo & Dutton (2006) utilized Konzack's methods to create their own taxonomy for analyzing gameplay. As I moved forward with the study, I compared and contrasted Konzack's (2002) layer of ludology with Gee's (2007) learning principles and indicated where overlap occurred within the game. I also noted the various instructional elements that the games introduced, and when.

Personal Gameplay

Establishing a methodological approach for this study was challenging, as game research isn't about a singular methodology (see, for instance, Consalvo & Dutton, 2006). Rather, it's about picking the best methodology for the research questions at hand and then adapting that methodology, if necessary, to suit the interactivity and immersion of video game research. Most scholars agree that the best game analysts conduct their research through play (Aarseth, 2003; Kücklich, 2002; Malliet, 2007); that is, game researchers cannot expect to study games without experiencing the games themselves. Much like film or literature scholars, game researchers cannot simply observe others watching films or reading books; they must engage with the content themselves (Aarseth, 2003, p. 3). To research games, you must experience them as texts and as playable, changeable interactions. It requires a personal connection with the content in order to view its strengths, its weaknesses, and its experiences, which change based on the player's input. Therefore, I decided to adopt a flexible methodology that incorporated, among other things, personal gameplay as one of my methods. I looked for an approach that would allow for several different data gathering techniques, as well as an iterative, qualitative approach to data

collection and analysis. Ultimately, I felt that the in-depth recursive process of a case study was best suited to my goal, which was to fully explore and ultimately describe the specific rhetorical and procedural instructional moves that successful games utilize.

However, as is expected of game researchers, in addition to the player observations I also played each game myself to become familiar with its rules, goals, interactivity, feedback system, and mechanics. During this stage I kept a personal journal with notes about my experience and thoughts about the games. I also took notes of how well I felt the game was working within the selected learning principles. As a natural part of gameplay, I also visited online tutorials, help guides, and discussion forums as necessary. Much in the way that literature scholars read, engage with, and study written texts in order to understand their content, it was necessary for me to play, interact with, observe, and study the gameplay of the games in my study. This meant that I had to engage with, play with, and explore within the games of my case study through my own gameplay – not as a means of autoethnography or pre-study research, but rather as *the study itself*. The first part of my study, then, consisted of my own personal gameplay, including note-taking, observation, and exploration within the games' virtual worlds as a player, consumer, and researcher. The personal gameplay I experienced helped form the foundation for moving forward with my participant observations, which I describe more fully in this paper.

Participant Observations

Over the course of my study I observed five gamers over six one-hour gaming sessions. For the game *Diablo III*, which I describe in this paper, I observed three gamers play the PlayStation 3 version of the game over three different one-hour gaming sessions. Before I conducted the observations, I gave each participant a benchmark survey to establish their prior gaming knowledge, as well as establish their familiarity, if any, with RPGs. Participant #1 was a male aged 22-34, and what I would call an "expert" gamer. He plays games "sometimes" and is familiar with most of the new titles. Participant #2 was a

male aged 22-34, and the "mid-level" gamer that I identified from the pre-observation surveys. He had experience with RPGs but not this particular game, nor did he have much experience or confidence playing games on the PlayStation. Participant #3 was a female aged 22-34, and an amateur gamer. She admitted she hadn't played video games in years due to time, and when she did play it was mostly party games, such as Wii family titles or *Super Mario Bros*. All of the participants were selected using non-randomized purposeful sampling. Because I had already made my own observations through personal gameplay (30 hours for *Diablo III*; 114 hours in total over all three titles that I studied), the participant observations were primarily used to confirm and elaborate upon data I had previously unearthed. Therefore, in this phase of the study I was most interested in what I would observe watching others play—other gamers from three distinct player-demographic types (expert, casual, novice)—that I had perhaps overlooked or seen differently as I played the game myself.

Each observation session was recorded, but the video camera was focused on the TV screen the entire time; that is, the participants themselves were never recorded. As opposed to, say, a usability methodology, I followed a case study methodology for which I was more interested in the players' experiences gaming and the actions occurring within the game than I was about whether the participants performed a certain task or goal. For the actual observations, I was eager to see if there was any type of pattern as to when the games would make particular learning moves. Because I had also played the game extensively myself before the participant observations began, I was also interested to see if I would pick up on any additional information from watching others play that I hadn't caught myself while playing the game.

Gameplay Overview

Diablo III is a popular dungeon-crawling RPG with roguelike elements, developed and published by Blizzard Entertainment (the same developer behind the most popular MMORPG of all time, *World of Warcraft*). Despite *World of Warcraft*'s worldwide popularity, *Diablo III* sales have nearly tripled the

sales from *World of Warcraft*'s latest expansion (4.54 million copies vs. 1.6 million copies), making it the 7th highest-selling RPG (VGChartz Ltd., 2013). *Diablo III* is an accessible game that requires limited hardware requirements to play and has a relatively small learning curve. This means that unlike MMORPGs, *Diablo III* is not an expansive, open virtual world MMO but rather plays out through a series of smaller, maze-like dungeons via a linear narrative. In this section, I combine the gameplay notes and results from all three participant observations to provide a larger overview of the instructional design of *Diablo III*. The following provides an overview of my observation results, including what I observed and when.

Character Customization

The players first selected a character to play. Participant #1 chose a male Wizard and named it after himself. Participant #2 chose a male Monk; he chose it quickly, seemingly without much thought, and said it was because it "looked cool." Participant #3 chose a female Witch Doctor. She said she liked the look of her. The third participant did have a hard time entering in a chosen name, saying that the controls weren't intuitive.

Game Difficulty

The game prompted for a difficulty setting; however, Player #1 missed it. He ended up selecting the medium difficulty setting on accident. Because of this, the game didn't offer much if any tutorials throughout. Players 2 and 3 both chose "Easy." Both of them seemed embarrassed by this choice, noting their inexperience with the game and its genre.

Basic Controls and Movement

The game introduced the basic controls, but Player #1 missed it, instead simply pressing all of the buttons and trying them out for himself. Player #2 did the same thing, noting that he "stumbled across" how to perform many of the in-game actions. He even discovered how to break random items within the game without any instruction at all, simply from mashing the buttons until he found what

worked. Like Player #1, Player #2 told me that if the game explicitly told him how to use the controls, he didn't notice. Both Players 1 and 2 seemed to hit the ground running, experimenting with controls even if the game didn't explicitly explain the information.

Player #3 had a very different experience. For some reason, the tutorials wouldn't appear when they should, despite the fact that she selected the "Easy" setting and despite my clearing the game console's memory before her gameplay. Because she didn't have any explicit tutorial and also had no previous gameplay experience with the PlayStation 3 controller, she spent several minutes of the game using the incorrect controller commands (e.g., right-hand joystick vs. left-hand joystick). Because the game didn't tell her how to move nor how to perform in combat, shooting was also difficult for her as she had a hard time aiming. In fact, she didn't even notice many of the buttons on the PS3 controller (such as L1, L2, R1, and R2) until 55 minutes into the 60-minute observation when she accidentally pressed one and noticed that something happened on the screen.

Quests (Goals)

Objectives are listed on the top left of the screen. The game started off slowly, with small goals geared toward successful achievement. Despite his previous experience with RPGs, Player #1 had trouble with understanding the overall quest objectives; once getting into the major content of the game he often had a hard time figuring out where to go in the virtual world to complete various tasks. Player #2 didn't seem to have a problem navigating where to go and when, but he also wasn't paying very close attention to the quests and rather would just want to go out and kill enemies. Player #3 got confused like Player #1; because the game would feature the current quest on the screen and then fade it away, once it disappeared she couldn't figure out where to go to get a reminder about her current task.

Interacting with NPCs

When the players reached the first town, they began to interact with NPCs (non-player characters). Participant #1 went around and talked with every NPC possible to get further background on the game's lore. He read through all of the conversations and wanted to complete all of the discussions possible. Player #2 was the opposite; he would quickly "x" through all of the conversations, ignoring the text in order to more quickly get to the action. He said that he tends to play quickly through elements such as lore and narrative, to get to the "good parts." Player #3 had a difficult time even finding the NPCs much less talking to them. The map was difficult for her to understand, so she couldn't locate some of the NPCs for quite some time. Also, the controls (which required that players use "x" for several functions, including entering/existing buildings, talking to NPCs, and engaging in combat) were confusing, as she would think she was doing one thing but her character would do something entirely different. Overall, she seemed to engage with the NPCs somewhere between the other two; she would read most conversations but occasionally skip through those that she found frustrating or boring.

Inventory, Skills, and Equipping Gear

All three players had trouble navigating the inventory controls, skills system, and equipping gear. Player #1 had trouble understanding the skills system and the inventory; the controls were complex and unexplained. Throughout the gameplay, he would often just look at the skills and/or inventory, and then close it again without assigning skill points or equipping new gear, thereby losing several opportunities for identity customization throughout the game, and perhaps even harming his character's chances for success toward completing game objectives.

Player #2 would use the game's shortcut keys (which the game introduced) to review the gear he looted in the game and then equip it if it were better than what he was wearing. He approached this portion of the game with as much speed as he did much of the rest of the game, seemingly eager to get through the slower portions of the game and get back to the action. Interestingly, player #2 was also the

only gamer I observed who took the time to look at and customize his skill options as he leveled up and earned additional skill points.

Player #3 was also confused by the complex inventory system. Eventually, she just gave up and went back to the game.

Combat

Combat isn't explicitly explained in *Diablo III*. Players 1 and 2 didn't have much trouble with this, responding to the lack of tutorial by experimenting with various buttons on the controller until something worked. Player #1 even knew to use a health potion without the game prompting him how, likely showing his expertise in the gaming genre. Player #3, however, found it extremely difficult to aim her character's attacks and master the timing of combat.

Leveling Up and Skill Points

Players level up and the game rewards the players for their progress in the form of a skill point. This adds additional feedback and positive reinforcement. In addition, the players are prompted to explore and choose their own skill, which adds customization options and encouragement for discovery.

Learning and Practicing New Skills

Combat throughout the game increased with difficulty as the game progressed, with larger fights putting the players' abilities to the test. While leaving the first big fight and heading out into the larger game world, the game taught the players how to evade. Once they learned, the players used it often, getting a lot of practice with it in future fights. I noticed at this point that the game would occasionally provide just-in-time tutorials for some things, but not all, and that the tutorials seemed fleeting and random, especially for Player #3 (who perhaps ironically needed the tutorials the most).

Loot

The game provided feedback and rewards (usually via XP, gear, and gold) for the players while they looted enemy corpses and discovered things such as books, journals, and other items. This further

encouraged discovery and exploration of the virtual world. Additional treasure chests and hidden side dungeons provided extra motivation for exploring and discovering new areas. Players 1 and 2 seemed to understand this concept quite well, as they were familiar with RPG gameplay. Player #3 took some time to notice when loot or items were on the ground, even though items were glowing.

Exploration and Discovery

The game provided feedback in the form of large on-screen text and flashy sound effects for reaching checkpoints and finding new areas of the game's world map. Both Players 1 and 2 seemed familiar with this RPG convention; Player #3, however, asked, "I reached a checkpoint? Is that a good thing?" Despite the flashy interface and sound effects, she was still unsure as to whether the feedback she was receiving was negative or positive.

Quest Completion and Reward

Upon returning to town, players received a large reward and a visual and audio cue for completing their first major quest. All three players found this to be an exciting moment in the game, with good rewards for their achievements. Player #3, however, had to return to the NPC twice to pick up her reward as she couldn't quite see on the map where she was supposed to go. Yet once she managed to turn in the quest she proudly announced, "Suffice it to say, I'm pretty damn awesome." She was clearly thrilled with the positive feedback that she received and the progress that she was making in the game.

Increased Difficulty

The players then headed back out for another quest, and this time the fight was much more difficult, much like a mini-boss of a level of a game. At 34 minutes into play time, Player #1's character died. The screen announced: "YOU HAVE DIED." The player laughed, and then continued. A minute later he called out, "Not again!" and his character died again. He mentioned to me that this difficulty was scaled much higher—perhaps too high—than the previous monsters he fought. He said it was the first

time that he had to look at his health bar. However, the game did help in that the monster's health didn't reset after each death, so every time he came back the monster's health was where had left it. In that way, he could whittle away at the monster's health until he accomplished his goals; overall, it took three tries to win the single fight.

Player #2 had little trouble with this same fight, although he did say that it was more difficult than some of the others. He thought that he was having an easier time with it because he chose the "Easy" difficulty setting before starting the game. As for Player #3, she also died at this point in the game. She said it was because she was still struggling with the controls and with aiming, which the game still hadn't taught her how to do. I also found it interesting that the game never told her how to use a health potion, or even what it was.

Because this fight was more difficult than the others, the players received much better loot than in other fights. Player #3 didn't notice this, however, so she never equipped the much better gear that she received as reward for eventually completing this much more difficult fight.

Visual and Audio Cues

The game provides visual and audio cues when the character's health go too low. First the character calls out, then the screen gets red providing a visual cue that the health is in trouble. This provided players with enough time to hopefully use a health potion, if they had one and if they timed it right. Of course, Player 1 had the easiest time with this, Player 2 had the second easiest time (although he admitted that he was playing on an easy enough level that he really didn't feel he needed to pay attention to his health until later in the game), and Player 3 struggled with this the most due to her inexperience with the genre.

Risk vs. Reward

Both Players 1 and 3 put their characters into considerable danger to run down and attack Treasure Pygmies, creatures that are difficult to catch but if successful results in large-scale gold and

loot. As far as I could tell, the rewards seemed to be worth the risk; the game made it difficult but not impossible to chase down the Treasure Pygmy and take his loot. Player 3 died at one point while chasing one down, but that didn't seem to phase her, as she enjoyed looting her eventual rewards.

Maps and Navigation

During the first level of the first dungeon, Player #1 had to ask me for help to navigate the map. He had a hard time figuring out where to go and how/where to exit to the next level. Player #2 also had trouble with the map; he tried for a while to interpret it and then gave up and just ran around the levels killing all the NPCs in sight. He did tell me that he wasn't going to worry about it because he often has trouble interpreting maps in games; if playing co-op (which is what he prefers), he'll leave that part to his friends. At first Player #3 didn't notice the map at all; when she finally did, she had a hard time figuring it out and would often ask me where she was supposed to go next, as the game did a poor job explaining it. I found it interesting that the game never explained such a staple of dungeon crawlers: the map that reveals itself as you explore it.

Diablo III: **Post-Observation Interviews**

In the post-observation interviews, all three participants said that they enjoyed playing the game and would likely play it again. They each had different things that they particularly enjoyed. Player #1 enjoyed the narrative, story, game setting, and the skill options. Player #2 enjoyed that it was "user-friendly," "easy to assign and pick moves," and that the emphasis seemed to be on weapon choice rather than on skills, which made the game a bit easier to pick up. The participant with the least experience with RPGs, Player #3, enjoyed that the quests and navigation of the map made her think. She also thought that it gave good direction and feedback as she progressed in the game.

All three players also thought that the game could improve in some areas. Player #1 noted that the inventory was difficult to use and that the map was confusing, although he said that he thought that RPGs were always confusing even though he enjoyed playing them. Player #2 also remarked that the

inventory was confusing, especially with regard to equipping new gear. And Player #3 was a bit annoyed that the game didn't tell her about things like potions and icons on the screen; she felt that she learned them on her own way too late in the game.

Learning opportunities were also plentiful in the game. Player #1 noted that he liked that the game forced map use, which also forced you to learn it. He also liked learning how to use multiple skills together and then figure out how to implement strategy in the game in order to succeed. Player #2 also mentioned the strategy in the game, or as he put it: "what you get and how to use it." He also learned not to do as much breaking of items throughout the game, as he felt that the lack of good enough rewards for doing so discouraged the activity. Lastly, he mentioned that he felt he learned a lot about the lore and history of the game, which he thought added to his overall immersion in the gameplay. Player #3 said something particularly interesting, which was that the game taught her that it was indeed learnable; that is, "once you learn a few key things you could figure the rest out." In other words, she learned to gain confidence playing this particular game and RPGs in particular. In addition, she also noted that she felt that she learned some of the narrative behind the game, which ultimately helped her complete quests, etc. As a final note she mentioned that the game taught her that she could be a "hero and a rock star."

A few interesting responses also arose when discussing whether the players felt that the game provided them with good feedback. Player #1 said, "not necessarily," that he didn't think that the game was explicit in its feedback and actually that he didn't think much about it. Player #2 said yes, "definitely," that the game provided feedback with regard to XP levels, and that he felt an overall "nice progress" with how he was doing in the game. And Player #3 said that she was thrilled with the feedback inherent in the leveling system. She noted that she was "shocked" by the fact that she could level up at all, due to her initial lack of confidence in RPG gaming. She enjoyed the fact that the quests built upon

themselves, so that she could master something and then go on to the next task. This provided valuable feedback to her that she was progressing well in the game.

None of the players really felt that *Diablo III* provided them with control over the storyline in the game, as it does follow a fairly strict linear narrative path. Player #3 did mention, however, that she felt that while there were pre-determined paths, she still was able to make decisions with regard to moving from point A to point B and so on. She was also the only player who saw a benefit to the character customization screen, noting that while she couldn't customize her character much she felt that she could still make it her own by using her own "imagination and snark" to give the character an attitude and personality. Player #2 did note that he wished that there were more options for the game's character customization. In particular he said: "Different races could have been cool." He was also the only player to suggest that gamers should be able to not just chase down pygmies and goblins but to actually play as one in the game, which was an interesting idea. Player #1 thought that the game didn't do a very good job allowing for any customization at all, although noting that "Bioware has set the bar pretty high" (referring to the extensive customization they provide in many of their titles, such as the *Mass Effect* series).

Finally, I asked the participants whether they could see themselves using any additional help systems or tutorials. Player #1, the "expert" RPG gamer, said no, that he never uses walk-throughs or other documentation. Player #2 said yes, that he would like having some additional background information regarding the lore. He "hates doing it" and this game doesn't really force it because "it's pretty intuitive," but he might look things up for additional tips. Player #3 said that she actually wished for an in-game help system that could help her with things like quests, disappearing objectives, the map, and where to go and when. She said she consistently wondered, "Did I finish it?" whenever she worked on a task, and would like to have some additional guidance for meeting game objectives.

Discussion

Although the results of the portion of my study described in this paper cannot necessarily be generalized to all games in general or even to the genre of RPGs, there are a few general overarching conclusions that I believe can be applied to both game design and pedagogy.

The Cycle of Learning

The first overarching result that appeared throughout my study is that learning seems to happen cyclically and, when successful, occurs within an overall balanced environment. That is, when players are taught new skills in RPGs they are given a chance to learn, practice, apply that knowledge to a specific goal, and then receive feedback on how well (or perhaps not-so-well) they accomplished the assigned goal. The cycle then repeats, allowing players to try certain aspects of the game again and again until they reach a desired outcome and/or the difficulty increases in the game – whichever comes first. The key to this cycle seems to be consistency and strength across all aspects of learning: skills, practice, goals, and feedback (see Figure 1). That is, all elements must be in balance in order for learning to successfully occur.

Figure 1: The learning cycle of RPGs. Each of the elements must be in balance for successful learning.

In this study, learning did not happen when instructions weren't explicitly explained. Even the more experienced gamers had trouble with some of the game mechanics when elements such as the user interface, inventory system, and so on weren't explicitly explained. Without explicit instruction, when learning happens (if it occurs at all), it must be done through experimentation and trial and error, such as randomly pressing buttons until a player finds one that works. This is problematic to the learning process because seasoned gamers may not even

realize what they are doing, just that something is happening when they mash a lot of buttons together, and less experienced gamers may not even know to begin experimenting in the first place. This can lead to frustration and overall confusion in the gameplay and could potentially cause gamers to lose interest entirely. Likewise, goals need to be clearly outlined and explained within the learning cycle. In *Diablo III*, gamers are provided with a quest list that at times disappears from the screen. Players can then get confused as to what may be expected of them at any given time. As I discovered in my player observations, this lack of explicit instruction (or at least a clear way to find such information) can lead to frustration with the overall game mechanics and virtual world environment. A key lesson from this, then, is to be sure to incorporate consistent and explicit instructions, and ensure that objectives such as quest logs and other tasks are easily accessible.

Practice, too, needs to be frequent and consistent in order for players to learn and progress satisfactorily within the game. *Diablo III* lacks a beginning subset area, so instead of allowing for explicit practice the game expects players to learn by doing. This seems to work with some types of gamers but not others, thereby alienating some of the player demographic. That is, the game does not provide players with a risk-free environment for practicing new skills, especially at the beginning of the game. This lack of practice impedes the overall learning process by not allowing for discovery and exploration in a low-risk environment. Ultimately the ideal approach may be to allow players to practice new skills in a relatively low-risk environment, but allow for players to move on to the next skill when they determine that they are ready.

Finally, feedback must be continual and consistent to allow players (learners) to improve and progress in the game. In my study, the participants were frustrated when feedback was lacking or inconsistent. For instance, the lack of consistent feedback, good or bad, within *Diablo III* ended up leading to confusion and frustration at the entire game. In short, the lack of feedback impeded the

learning process. To be fully successful, then, a game must incorporate these four aspects (knowledge, practice, application, feedback) in a balanced cycle.

Interconnected Means of Learning

An important point of analysis in my study was to look at the way in which all nine heuristics informed and interrelated with each other. One pattern that emerged was with regard to Identity, or the ways that players can customize their in-game avatars, skillsets, and personas. Identity peaked at the beginning of the game and then after each major accomplishment, including: after gaining major knowledge in the game, after receiving feedback in relation to a major quest within the game, after completing a major dungeon (obstacle) within the game, and as a result of leveling up and earning additional skills and expertise. To that end, identity seems intrinsically linked as an important reward and mode of feedback as to players' progression within the game world. What's interesting about this is the direct connection to other studies that have looked at learning and games. Gee (2007) notes that learning happens when students are able to engage with content actively rather than passively; allowing students to customize and learn with an identity is a key part of this (p. 24, pp. 36-37). When learners are given the freedom to explore and create their own identities, they actively participate in shaping their overall learning experiences. This link between identity and learning is one of the key reasons I chose to study RPGs; role-playing by its very definition allows gamers to experiment with a variety of identities and roles, trying on varying personalities and skill sets until they find one that fits. When they do, learning begins to flourish. In my study, it was interesting to note when opportunities for identity customization occurred and how identity fit overall within the learning process. In the end, it was most often linked to feedback; that is, opportunities to customize identities and try on new hats appeared to occur most often as some sort of reward or achievement, as an intrinsic portion of the learning cycle. Identity, therefore, becomes not just a way for a player to become emotionally invested and immersed

within a game; it becomes a mode of achievement, a reward for completing tasks within the game and therefore another source of motivation for completing goals and obstacles.

In addition, throughout my study I noted a clear connection between Practice, Feedback, and Competence. As an RPG provides opportunities for learners to shift, regroup, and improve their skills (practice), it provides feedback on the players' progress and, if such progress is satisfactory, the game further increases the difficulty level (competence) of the activities (e.g., goals and obstacles) within the game. Part of the feedback process, then, is determining how and whether players/learners should progress further in the game. What this means for the real world is that not all learners can nor should necessarily progress at the same rate. Some learners may successfully complete a task while others ultimately fail it, but they all are given a chance to try again. (And, in some cases, if a learner fails they may be forced to try again.) Once successful, the difficulty of the next task would incrementally increase, thereby boosting the overall competence of the game. In such a model, the key is to offer opportunities for practice and revision, chances to re-do or re-work certain objectives, and so on with little to no penalty for doing so.

I also discovered key links between Knowledge, Goals and Obstacles, and Competence. As players gain knowledge about the game via rules and strategy, they also are given additional goals and obstacles through which they can apply that knowledge. Then, as they learn and apply that knowledge, the competence (or difficulty of the game) begins to increase as well. Overall, this seems to add additional insights into the cycle of

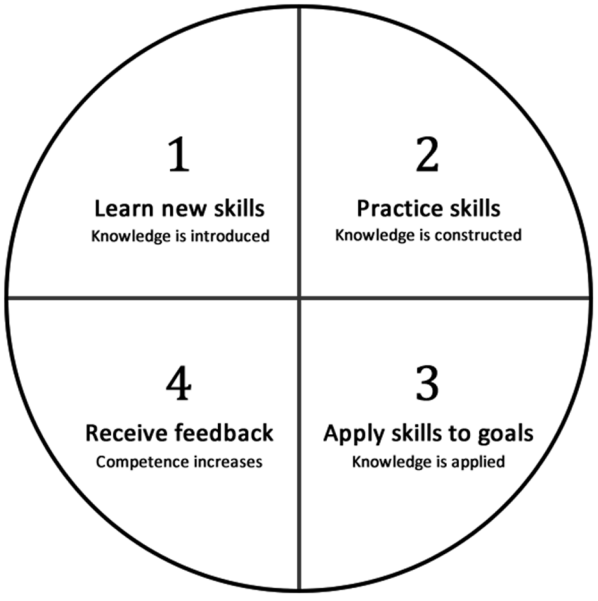

Figure 2: The learning cycle of RPGs, and how it relates to the heuristics of Knowledge and Competence.

learning that occurs within RPG gameplay, as shown in Figure 2.

Learning, as we can see, is tied directly to the practice and application of knowledge within specific contexts geared toward specific objectives. Essentially, the method I found that RPGs use to teach their new skills is as follows: 1) teach players a new skill or topic, 2) allow learners to apply that knowledge in a situated context, 3) give players feedback about their performance; and then 4) increase the difficulty of the goals and objectives. The cycle then repeats to include all four aspects of the learning cycle: knowledge, practice, application (goals and obstacles), and competence (feedback). Learning, then, happens when players are given a chance to apply new knowledge in meaningful ways.

Conclusion

From a pedagogical and rhetorical standpoint, we know that games work. From problem-solving to critical thinking, lifelong learning to digital literacy, skills-based learning to cultural inquiry, games can be used to explore, illustrate, describe, and understand a multitude of societal and cultural experiences. What this study has attempted to do is move us toward understanding *how* games work by uncovering and exploring the instructional moves that games make to teach their players new skills. It's important that as educators, gamers, and designers of games and games-based curriculums that we understand now just that games work but *how* they accomplish and sustain such meaningful learning experiences. Although the heuristics described in this paper can't be applied to every game or gaming situation, the processes observed and described here can hopefully become a starting point for us to understand the powerful instructional experiences of games.

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