The Exploration of Research Practices in the Field of Gamification

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Submitted in partial fulfillment of the requirements for the degree of Master of Education

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Abstract

The current state of gamification research is under criticism for a variety of reasons including the lack of structure, lack of rigour, and confusion of terms occurring in the field (Hamari, 2015; Hamari & Koivisto, 2015; Hamari, Koivisto, & Sarsa, 2014; Mekler, Brühlmann, Tuch, & Opwis, 2015; Seaborn & Fels, 2015). This study investigated these criticisms by exploring the perspectives of gamification researchers who conduct or have conducted gamification research at Canadian Universities. Four professors at Canadian Universities were interviewed for their perspective of the current state of gamification research. The professors garnered ideas on how to improve the field of gamification research. This study utilized criteria for gamification developed by Hamari et al. (2014) that requires research to a) be peer-reviewed, b) have empirical evidence, c) explicate research methods, d) identify motivational affordances, e) provides an outcome (Psychological or Behavioural), and f) be on gamification (Hamari et al., 2014). Using Hamari’s conceptual framework and a collective case study methodology, this study used semi-structured interviews to develop suggestions from gamification researchers to identify methods on how to improve research practices. The improvements included the need for more a) arm-length studies, b) detail concerning the methodology and methods used, c) longitudinal studies, d) use of cross-curricular teams, and e) theoretical frameworks that are developed from the field of gamification research. This study revealed a distinct tone of optimism and provides recommendations for future research studies and advice for novice gamification researchers.
Acknowledgements

Brock University is the place that I spent the best 8 years of my life. Throughout these years, I have built numerous relationships with colleagues, professors, and students. I am grateful for all the opportunities and experiences that Brock University has offered me throughout the years. I am sad to say goodbye to this exceptional institute and the wonderful people who have impacted my life.

First, I would like to express sincere gratitude to my MRP advisor, Dr. David Hutchison. His guidance, humour, and unwavering patience has allowed me to develop into the academic I am today. He personifies what it means to be an exceptional mentor, teacher, and researcher. Working with Dr. David Hutchison has been the highlight of my academic career here at Brock and I will always be grateful for the knowledge that he has instilled in me.

Second, I would like to thank my second reader, Dr. Mira Bajovic. Her guidance, insight, and feedback has allowed me to develop into academic. I would also like to thank her for allowing me the opportunity to audit her classes and learn more about game-based learning. She exemplifies what it means to be an exceptional teacher, researcher, and role model. In addition, I would like to thank Dr. Trevor Norris for taking me under his wings during the start of my M.Ed. He was an exceptional mentor, teacher, and supervisor.

Finally, I would like to thank Lianne Fisher, Karin Perry, and Dr. Jill Grose for their continual support during my entire M.Ed. Most importantly, I would like to thank my family and friends for their support. To my family, I would like to thank you for your compassion and steadfast support. I consider myself blessed to have such a supportive and loving group of people in my life.
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CHAPTER ONE: INTRODUCTION AND BACKGROUND TO THE STUDY

“No compulsory learning can remain in the soul. In teaching children, train them by a kind of game, and you will be able to see more clearly the natural bent of each” (Plato, The Republic, Book VII, Verse 537a).

How can videogames and game elements be used to improve learning? How can instruction be designed using game elements in a way that motivates and immerses learners as well as teaches them? These questions can be answered through conducting research studies that explore the potential of gamifying the classroom. Gamification, which is a form of game-based learning, has been suggested to use the motivational impact of using game elements to improve student learning. However, the field of gamification research has received a variety of criticism for its lack of structure (Dominguez, Saenz-de-Navarrete, de-Marcos, Fernandez-Sanz, Pages, & Marinez-Herraiz, 2013; Hamari, 2015; Hamari & Koivisto, 2015; Hamari, Koivisto, & Sarsa, 2014; Mekler, Brühlmann, Tuch, & Opwis, 2015; Seaborn & Fels, 2015). This study uses these criticisms to explore the current state of gamification research.

In contemporary education there are a variety of teaching approaches that incorporate the use of games to teach students. These approaches are all connected and share many similarities. The three major approaches to gamifying education are game-based learning, gamification, and pointification. Game-based learning is a type of gameplay that is defined by learning outcomes and represents the macro teaching approach that encompasses all other gamified teaching approaches (Tobias, Fletcher, & Wind, 2014). Everything from using video games as curricular experiences to creating video games for educational purposes comes under the umbrella of game-based learning
An offspring of game-based learning is gamification. Gamification is the use of game design elements in nongame contexts (Deterding, 2012). In essence, it is the application of game mechanics (conflict and competition) and game elements (point system and narrative) to a nongame curriculum context. The last teaching approach is a simplified version of gamification. Pointification is a simplified version of gamification that focuses only on extrinsic rewards such as points, badges and leader boards (Bogost, 2011; Deterding, Björk, Nacke, Dixon, & Lawley, 2013; Kapp, 2012; Robertson, 2010). Pointification is constantly being confused with gamification. Researchers insist that they are conducting gamification research when they implement only extrinsic rewards (Lawley, 2012; Robertson, 2010). In order to gain a better understanding of the two similar teaching approaches an example of pointification and gamification is provided in Figure 1.

As stated, pointification focuses entirely on extrinsic rewards such as points, badges, and achievements. An example of pointification and its confusion with gamification can be found in Dominguez et al. (2013). These researchers investigated the motivational impact on incorporating game elements into their classroom. These researchers stressed that the purpose of their study was to investigate the impact of gamification even though they implemented only extrinsic rewards. In order to collect data, these researchers utilized their own first-year university online computer science course. The researchers gamified their class by utilizing online software to track students’ experience points. The students created avatars to follow their progression on the leader board. Students received points for completing assignments throughout the designated
Figure 1. Macro to micro representation of game-based teaching approaches.
modules. The study had five modules that focused on teaching the students various skills needed to pass the course. The modules were not connected in any way, and points were given for the completion of each assignment within the module. Dominguez et al. found that this approach to gamifying the course did not result in any significant impact. The implementation of *points*, *badges*, and *achievements* did not result in a significant increase in student motivation (Dominguez et al., 2013). This study illustrates the function of pointification, which is to artificially incorporate extrinsic rewards in the hope of improving student motivation. The fact that these researchers utilize only extrinsic rewards such as *experience points*, *badges*, and a *leaderboard* demonstrates that their research study explored the impact of pointification rather than gamification.

In contrast, gamification builds off of the extrinsic rewards found in pointification by incorporating game elements that improve intrinsic motivation such as *narrative*, *quests*, and *role-play* (for definitions of game-base elements please see Appendix A). An example of gamification can be found in Lee Sheldon’s book *The Multiplayer Classroom: Designing Coursework as a Game*. Sheldon (2012) commends Dr. Jessica Broussard for gamifying her “Introduction to the Study of Education” course. Dr. Broussard started the gamified course by changing the language of the standard syllabus to invoke the game elements of the course and immerse students in the objectives. Sheldon explains that Dr. Broussard changed the weekly assignments for the course into *quests* (presentations of chapter material) and daily assignments into *mini quests* or *side quests*. The final assignments were transformed into *raids* (practicum or field work), and the final exam was known as the *final boss*. Sheldon explains this change in language from traditional to gamer language as *l33t speak* (elite speak). L33t speak is pseudo
language used by gamers and is found in multiplayer gaming and social networks (Sheldon, 2010). Dr. Broussard explains that she noticed an increase in students’ engagement from utilizing this gamer language (Sheldon, 2010). The use of l33t speak in Dr. Broussard’s course demonstrates the intrinsic motivational impact that narrative game elements can have on students.

In addition to intrinsic rewards, in this study they also utilized extrinsic rewards. These extrinsic rewards are not the core game elements of gamification, but rather are used to further improve student motivation. Lee Sheldon stresses how Dr. Broussard also utilized extrinsic rewards to engage students in the course. Lee Sheldon (2010) explains how Dr. Broussard utilized an achievement system in her class to recognize students for their productivity. The achievement system kept count of the contributions of the students. It tabulated the number of online posts each student shared with the class. In this class, there were two types of achievements. The first corresponded to the amount of comments students posted online. An example of this is seen in three categories of achievements. Students could receive Shine (posting 4–6 comments), Super Shine (posting 7–9 comments), or Mega Shine (for posting 10+ comments). The second focused on the quality of the content of a student’s posts in relationship to the rest of the class. There were a bunch of different achievement, such as ‘high 5’ rating for students who posted something that deserved congratulations and “golden apple” for mentioning their raid (practicum) experience. These achievements recognized students for their contribution and effort towards improving the course through their participation. Lee Sheldon explains that Dr. Broussard found that there was an increase in the amount and quality of posts from the students in direct relationship to the gamification of the course.
Dr. Broussard also observed an interesting social aspect, namely the competitive nature of the students while trying to be recognized (Sheldon, 2010). Dr. Broussard’s course demonstrates that extrinsic rewards can improve student motivation when used in conjunction with other intrinsic game elements. See table 1.

**Background of the Problem**

One of the major issues within the field of game-based learning is the confusion surrounding the differentiation of gamification and pointification (Kapp, 2012; Kim, 2015; Robertson, 2010). Researchers have confused the term “pointification” with “gamification” in many studies (de-Marcos, Dominguez, Saenz-de-Navarrete, & Pages, 2014; Dominguez et al., 2013; Kapp, 2012; Robertson, 2010). As shown above, Dominguez et al.’s (2013) study focused solely on pointification through the addition of points, badges, and other extrinsic rewards to their course. However, these researchers stressed that their study was in fact examining gamification. This confusion has led to the criticism by game-based researchers who have criticized gamification for being too narrowly focused. These researchers are actually criticizing pointification and not gamification. Researchers who argue that gamified learning should entail a much broader incorporation of game-based elements (e.g., role-play and story elements) are critical to avoid a narrow focus of rewards and points. For example, game designer Margret Robertson (2010) criticizes the use of pointification because it takes the things that are least essential to games (i.e., rewards) and represents them as the core of the experience. According to Robertson, pointification is a simplified and incomplete implementation of gamification. Related to this, Deterding et al. (2013) argue that the recent trend towards gamification reduces the complexity of a well-designed game to its simplest components,
Table 1

*Game-based elements found in pointification and gamification based on Sheldon 2010.*

<table>
<thead>
<tr>
<th>Pointification</th>
<th>Gamification (includes all of the game elements found in pointification)</th>
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<tbody>
<tr>
<td>Achievements</td>
<td>Avatar (create a story)</td>
</tr>
<tr>
<td>Avatars (for leader board)</td>
<td>Back story</td>
</tr>
<tr>
<td>Badges</td>
<td>Final boss</td>
</tr>
<tr>
<td>Coins</td>
<td>Guilds</td>
</tr>
<tr>
<td>Experience points</td>
<td>Missions</td>
</tr>
<tr>
<td>Leader boards</td>
<td>Narrative</td>
</tr>
<tr>
<td>Levels</td>
<td>Raids</td>
</tr>
<tr>
<td>Points</td>
<td>Role-play</td>
</tr>
<tr>
<td>Virtual goods/ rewards</td>
<td>Stories</td>
</tr>
<tr>
<td></td>
<td>Quests</td>
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such as badges, levels, points, and leader boards. This trend has arguably hurt the reputation of gamification, which has often unfairly been cast through the narrow lens of pointification (Bogost, 2011; Kapp, 2012; Robertson, 2010). In the view of gamification proponents, there are a wide variety of game mechanics, elements and dynamics (well beyond points and rewards) that should be incorporated into teaching in order to optimize student learning (Kapp, 2012; Lawley, 2012; Robertson, 2010, Sheldon, 2010).

The work of Werbach and Hunter (2012) points to the wide array of elements and characteristics of games that can be effectively incorporated into game-based teaching approaches such as gamification. The two researchers have created a model of game elements that has been widely utilized to explain the various dimensions of gamification and pointification. Werbach and Hunter’s sort out the various game elements into a pyramid (See figure 2). The pyramid is separated into three categories of elements: dynamics, mechanics, and components. This model demonstrates the wide variety of game elements that should be implemented into gamification, whereas pointification implements only extrinsic rewards, which are some of the most basic game elements in the pyramid. As such, pointification would include only a minimal number of these elements. This model of game elements visually demonstrates the complexity of gamification. In order to distinguish itself from pointification, gamification researchers should strive to implement a diverse array of these elements.

Academics who study game elements stress that gamification should encourage a deeper integration of game elements into the classroom instead of focusing solely on a point system like pointification (Kapp, 2012; B. Kim, 2015; Nicholson, 2012; Seaborn & Fels, 2015). They argue that gamification should focus more on game elements that help
Figure 2. Adapted pyramid of game elements (Werbach & Hunter, 2012).
foster intrinsic motivation rather than solely the pursuit of extrinsic rewards. In addition, gamification research highlights the negative impact that focusing only on extrinsic rewards can have on student motivation. These researchers stress that external game elements such as points and badges, which are often superficially attached to an underlying nongame activity, reduced motivation in the long run (Nicholson, 2012; Zuckermann & Gal-Oz, 2014). The negative long-term impact on student motivation is a major reason why educational researchers promote the use of gamification over pointification. B. Kim (2015) expresses the need for gamification to use game elements that do not rely on extrinsic motivation to immerse the students in the learning experience. This suggests that gamification should focus on utilizing intrinsically motivating game elements to improve the students’ long-term motivation. However, researchers explain that the challenge in this situation is how to make activities more enticing to engage students without relying on tangible rewards and extrinsic motivation (Kapp, 2012; B. Kim, 2015; Nicholson, 2012).

Another major dilemma in the field of gamification is the lack of empirical evidence in the research studies conducted on gamification. Gamification researchers express the lack of rigor within the field of gamification and stress the need for more empirical evidence (Dominguez et al, 2013; Hamari, 2015; Hamari & Koivisto, 2015; Hamari et al., 2014; Mekler et al., 2015; Seaborn & Fels, 2015). The researchers explain the need for future studies to become more rigorous by collecting empirical evidence as part of the research. Hamari and his colleagues (2014) provide some benchmarks for what criteria need to be present in a study in order for it to be considered rigorous. The researchers stress that in order for a study to be classified as a rigorous gamification
study, it should be peer reviewed, include empirical evidence, have research methods that are explicated, ensure that the motivational impact of game elements is identified, and ensure that the focus is squarely on gamification (Hamari et al., 2014). These researchers believe that if gamification researchers ensure that these benchmarks are followed, then the field of gamification research will become more rigorous.

Gamification researchers have noticed the lack of rigor within the field and have conducted massive literature reviews to demonstrate the need for more empirical evidence. Two major studies by game-based researchers demonstrate the lack of rigor within game-based literature and more specifically gamification. Connolly, Boyle, MacArthur, Hainey, and Boyle (2012) conducted a massive literature review that included 7,392 papers and found that only 129 of the research papers used empirical evidence to explain the impact of game-based learning. However, the authors do not provide an explanation as to what they meant by "empirical evidence." This study demonstrates the lack of rigor within game-based learning. In addition, Hamari et al. (2014) also conducted a massive literature review that focused specifically on the field of gamification. The researchers conducted a literature review of over 8,000 studies and found that only 24 studies had collected empirical data (Hamari et al., 2014). This statistic demonstrates the lack of rigor within the field of gamification and suggests the need for more empirical evidence to demonstrate that gamification does in fact improve student learning. These gamification researchers stress the need for future studies that utilize empirical evidence in order to prove their hypotheses and add credibility to the study of gamification. In addition, these researchers suggest that the use of empirical
evidence would also increase the rigor of the research conducted in the field of gamification.

**Purpose of the Study**

The purpose of this study is to contribute to the field of gamification research by exploring the perspectives of gamification researchers about some of the major criticisms within the field of gamification research. The purpose of this study is to examine how game-based researchers perceive the current state of gamification research. One of these criticisms relates to the choice by some researchers to not distinguish between pointification and gamification. Critics of pointification have stressed the negative criticism that gamification has received because of the confusion between the two terms (Bogost, 2011; Deterding et al., 2013; Kapp, 2012; Kapp, 2012; Robertson, 2010). These researchers stress that the credibility of gamification has been jeopardized by researchers who state that they are conducting gamification research but are in fact only superficially adding extrinsic rewards to their unit of instruction (Bogost, 2011; Deterding et al., 2013; Kapp, 2012; Robertson, 2010). The confusion of terms has hindered the perception of gamification research.

One reason for this confusion could be coming from the broad definition of what is considered to be gamification. The most commonly accepted definition of gamification could have an impact on the way researchers perceive both pointification and gamification. The broad definition of gamification allows researchers that are conducting research on pointification to consider their research gamification. In the current literature, the most commonly accepted definition of gamification is *the use of game design elements in nongame contexts* (Deterding, 2012; Hamari, 2015; Seaborn & Fels, 2015;
This broad definition potentially captures both gamification and pointification. Since the development of pointification as a simplified version of gamification, researchers have not reconceptualised the term gamification (Deterding et al., 2013; Kapp, 2012; Robertson, 2010). In order to clarify the differences between gamification and pointification, a better understanding of gamification is needed in order to explain the complexity of gamification.

In order to identify the origins of the problem, this study first elaborated on existing research studies and literature on gamifying education. Second, the interviews with game-based researchers in the field of education were conducted to gain a deeper understanding about how researchers perceive the current definition of gamification, and what are their perspectives on lack of rigor and empirical evidence in existing research and literature on gamification.

**Problem Statement**

Drawing on research that criticizes gamification for its lack of rigor and empirical evidence to support the impact that gamification has on learners (Connolly et al., 2012; de-Marcos et al., 2014; Dominguez et al., 2013; Hamari, 2015; Seaborn & Fels, 2015; Zuckermann & Gal-Oz, 2014) and the confusion between pointification and gamification within the field of game-based learning (Bogost, 2011; Deterding et al., 2013; Kapp, 2012; B. Kim, 2015; Robertson, 2010), this study endeavours to gain a better understanding about these criticisms and to provide some suggestions for improving future studies in gamification.

**Research Questions**

In the present study, four primary research questions were addressed:
1. What are the current trends in gamification research?
2. How do researchers distinguish between pointification and gamification?
3. What should be the standards for rigor in gamification research?
4. What criteria should future studies follow in order to improve the rigor of research conducted in the field of gamification?
5. What are the researchers’ experiences with implementing gamification?

Rationale

Criticisms within the field of gamification research have been growing. Gamification researchers have criticized the field of gamification for a variety of reasons such as the confusion between terms and the lack of rigor and structure in the research studies (Connolly et al., 2012; de-Marcos et al., 2014; Dominguez et al., 2013; Hamari, 2015; Hamari et al., 2014; Kapp, 2012; B. Kim, 2015; Seaborn & Fels, 2015; Zuckermann & Gal-Oz, 2014). The purpose of this study is to explore the current state of gamification research by collecting the perspectives of gamification researchers at Canadian universities. These perspectives allowed this study to identify suggestions as to how the field of gamification should change its practices in an attempt to improve its rigor.

Conceptual Framework

In order to explore the current state of gamification and its major criticisms, this study implemented a conceptual framework created by Hamari et al. (2014) to investigate the type of gamification studies being conducted. Researchers in the field of gamification have been stressing the need for a paradigm shift in the way researchers conduct research. Hamari et al. (2014) utilizes a conceptual framework to gauge the rigor of the research
conducted in the field of gamification. This conceptual framework follows the collective case study methodology because it improves our understanding of a complex issue. Soy (1997) states that “case study research excels at bringing us to an understanding of a complex issue or object and can extend experience or add strength to what is already known through previous research” (p. 1). Connolly et al (2012) consulted and reviewed over 8000 papers to determine what specific criteria should be included in gamification research in order to improve our understanding of this teaching approach. The conceptual framework developed and identified the following areas of exploration (see Figure 3):

1) The study is peer reviewed.
2) Empirical evidence is included.
3) Research methods are explicated.
4) The study identifies motivational affordances.
5) The study provided an outcome (psychological or behaviourial).
6) The study is on gamification.

Conducting a review of literature with a focus on the exploration of research practices in the field of gamification was beneficial in refining the major research questions for this study. The major authors and bodies of literature are used to identify the ways in which gamification researchers perceive the current state of gamification research. In addition, the work of these authors was drawn on to explore the changes that may be needed to better provide evidence for the impact that gamification can have on student learning. Recently, gamification researchers have criticized gamification research for a variety of reasons that have negatively impacted the way in which gamification research is viewed
Figure 3. Criteria for gamification research. Adopted from Hamari et al. (2014).
(Dominguez et al., 2013; Hamari, 2015; Hamari & Koivisto, 2015; Hamari et al., 2014; Koivisto & Hamari, 2014; Kou & Chuang, 2016; Mekler et al., 2015; Seaborn & Fels, 2015; Whitson, 2015). This conceptual framework structures the main criticism of gamification research in such a way that allows for an exploration of the current state of gamification research. This framework highlights two main criticisms in the literature which are the lack of empirical evidence and the confusion between pointification and gamification. In summary, the literature provides the theoretical foundation within which a collective case study can be measured. A more detailed exploration of the conceptual and theoretical framework will be presented in following chapters.

Scope and Limitations of the Study

This study focuses on the perception of gamification researchers in Canada and how these researchers perceive the current state of gamification. The data were collected through in-person interviews and online interviews with gamification researchers who are currently employed by a university in the spring/summer semester of the 2016–2017 academic year. Four (from different universities) were involved in the study, and their contributions represent a variety of research experience in the field of gamification. In order to ensure the validity of the data collected, the participants had to be a currently employed at a Canadian university and had to have published at least one research paper on gamification in the last five years. These criteria ensure that the participants were active researchers who would be able to comment on the current state of gamification research.

Since this study follows a qualitative, collective case study methodology, the findings from this study are not meant to generalize beyond the lived experience of its
participants in their various contexts (Bean, 2006; Toma, 2006). Professors of Canadian universities were invited to participate for exploration because they provide a wealth of experience that would help conceptualize the current trends occurring in gamification research. Currently the majority of research studies that explore the state of research and current trends in gamification research focus heavily on literature review (Connolly et al., 2012; Hamari et al., 2014; Seaborn & Fels, 2015) and do not utilize qualitative methodologies to explore the topic more in-depth. In addition, recent research stresses the need to re-evaluate gamification research in order to improve the rigor in the field (Dominguez et al, 2013; Hamari, 2015; Hamari & Koivisto, 2015; Hamari et al., 2014: Mekler et al., 2015; Seaborn & Fels, 2015). This research brings attention to the current state of gamification and looks at how it could be developed further in order to improve future research through improving a more rigorous approach.

**Summary of the Chapters**

Chapter Two presents a review of previous literature that collectively provides background information to support the need for this investigation. An overview of the current state of gamification is provided, exploring research studies that highlight the various criticisms of gamification research. These studies will be utilized to provide the reader with background information of the current state of gamification and provide a variety of examples of gamification studies that exemplify the criticisms that are occurring in current gamification research. Chapter Three is an outline of the research methodology and design, selection of participants, assumptions and limitations, ethical considerations, and data collection and analysis employed in the study. In Chapter Four,
the detailed results of the study are presented, and in Chapter Five, discussion and conclusions based on results are reviewed.
CHAPTER TWO: REVIEW OF RELATED LITERATURE

The game-based literature explores a variety of related topics connected to the implementation of gamification in an educational context. This study utilized creative practice theory as a theoretical framework to help explore the perceptions of experienced gamification researchers. As such, this chapter will begin by exploring creative practice theory, explaining how creative ideas are generated and accepted in the field. After explaining creative practice theory, this chapter will provide a context of the field of gamification research through a review of literature. This review will begin by exploring the canons of game-based learning and gamification through the work of James Paul Gee to further explain game-based teaching approaches. After a brief introduction to game-based learning, this chapter looked at previous studies to investigate the current state of gamification research. These previous studies were utilized to demonstrate the confusion within the gamification literature. In addition, these studies demonstrated the lack of rigor in prominent gamification studies that have shaped the way gamification is implemented. Rigorous research in this context is research that applies the appropriate research tools to meet the stated objectives of the investigation (Hamari et al., 2014; Koch, 2006). After examining these more practical studies, this chapter will turn its focus to quasi-experimental studies that have implemented gamification into the classroom for research purposes. The literature review concludes with an exploration of the major criticism that has plagued gamification research.

Theoretical Framework

The field of gamification research has received a variety of criticism as of late. As such, gamification researchers have stressed the need to re-evaluate the field of
gamification research (de-Marcos, 2014; Dominguez et al., 2013; Hamari et al., 2014). These researchers have explored the current state of gamification through literature reviews to suggest the need for change (Connolly et al., 2012; Hamari et al., 2014). The researchers investigate previous gamification research studies and explain the weakness of this field of study. These weaknesses focus on the confusion within terms, lack of empirical evidence, and lack of rigor (Connolly et al., 2012; Hamari et al., 2014; Hanus & Fox, 2015). This study explores the beliefs of gamification researchers to identify how the field of gamification research can be improved. As a result, this study followed creative practice theory in identifying creative methods through which to improve research practices in the field of gamification.

Creative practice theory is a theoretical framework created by J.T. Velikovsky (2012). This theory blends key concepts from sociologist Pierre Bourdieu’s ‘practice theory’ (Bourdieu, 1986; Bourdieu & Johnson, 1993; Bourdieu & Nice, 1977) and key concepts from Mihaly Csikszentmihalyi’s ‘systems of model of creativity’ (1996, 2014). Velikovsky ventured to identify how creative ideas are generated, assessed, accepted, and incorporated into the field. In this instance, creativity refers to ideas that are regarded as being critically or commercially successful (Velikovsky, 2012). According to Csikszentmihalyi (1996), creativity occurs when a person using the symbols of a given domain, such as education, has a new idea and when this novelty is selected by the appropriate field for inclusion into the relevant domain (See Figure 4). Velikovsky builds off of this notion to explore how new ideas emerge in the field. In addition, Velikovsky incorporates Bourdieu’s practice theory to explore how people transform the world. Bourdieu and Nice (1977) explore how people with a variety of motives and intentions
Figure 4. Csikszentmihalyi’s system of creativity. Adopted from Velikovsky (2012).
transform the world in which they live. Creative practice theory incorporates both
theories to identify how creative ideas from experienced academics can transform the
field of study in which the academics are situated.

The first theory that Velikovsky incorporates into creative practice theory is
Bourdieu’s practice theory. Velikovsky (2012) utilizes this theory to examine how people
impact the world through their motives and intentions. Practice theory allows for a
framework to explore the way in which individuals can impact the field in which they are
situated. Velikovsky utilizes five of the key concepts from Bourdieu’s practice theory to
explain how individuals can impact the world. The first concept highlighted in
Velikovsky’s theory is capital. There are four types of capital which include economic,
social, cultural, and symbolic. Capital represents the resources that are available to
individuals based on their economic position, cultural background, social status, and
prestige (Bourdieu, 1986; Velikovsky, 2012). The second concept is habitus, which is
the practical sense that is gained through experience (Bourdieu 1986; Bourdieu
&Johnson, 1993; Velikovsky, 2012). This is the knowledge that individuals gain through
experience that allows for a better understanding of the field. The third concept is agents.
Agents are individuals in any field whose agency is enabled by their individual position
within the structure of that field (Bourdieu & Johnson, 1993; Velikovsky, 2012). The
fourth concept that Velikovsky incorporates from Bourdieu is the field. Bourdieu and
Johnson (1993) explained the importance of examining various fields such as arts, law,
and education, noting that fields have the ability to overlap. It is important that the
individual has knowledge of the field and other similar fields. The last concept is the field
of work. This relates to the knowledge the individuals have of the literature in the field
(Bourdieu & Johnston, 1993; Velikovsky, 2012). These concepts explain how individuals can change their field of study based on their knowledge, experience, and education. Velikovsky utilizes these key concepts in combination with Csikszentmihalyi’s systems model of creativity to explain how creative ideas enter the field of study.

The second theory incorporated into creative practice theory is Csikszentmihalyi’s systems model of creativity. Csikszentmihalyi’s model of creativity examines how creative ideas are generated and accepted in the field of study. Csikszentmihalyi and Wolfe (2000) explain that creativity can be defined as an idea or product that is original, valued, and implemented. This model explains how creative ideas emerge from academics. Csikszentmihalyi (1996) generated this model from the results of an empirical study. This empirical study examined 91 exceptionally creative individuals across various domains who have won academic prizes and other outstanding individuals in both the arts and sciences. Velikovsky incorporates key concepts from Csikszentmihalyi’s model to explain how creative ideas emerge in the field of study. The incorporation of the five key concepts from Csikszentmihalyi allow Velikovsky to explore how creative ideas are generated and accepted in the field of study.

The first concept incorporated into creative practice theory is creativity. Creativity is an idea or product that is original, valued, and implemented (Csikszentmihalyi & Wolfe, 2000). Creativity is generated from an individual in the field who develops ideas that are original and valued. The second concept is the field. Similarly to Bourdieu, the field implies the canon in the field, such as the gatekeepers of the domain (Csikszentmihalyi, 1996). In this sense, the field is composed of the lead researchers in
the field. The third concept is the domain. According to Csikszentmihalyi (1996), a
domain consists of a set of symbolic rules, cultural rules, or symbolic knowledge that is
shared by a particular society. These rules dictate the way in which knowledge is
transferred and understood and is connected to symbolic knowledge. Symbolic
knowledge in this context is the shared knowledge of a particular society.

Csikszentmihalyi’s fourth concept is the interaction between the domain, individual, and
field (DIFi). In this interaction the domain, individual, and field are connected to
evaluate innovation, transmit the existing body of knowledge, and produce innovations
(Csikszentmihalyi, 1996). The domain, individual, and field are connected in this concept
to produce creative innovations that will improve their existing body of knowledge (see
Figure 5). The last concept in Csikszentmihalyi’s systems model of creativity is the
internalizing of the domain. Csikszentmihalyi (1996) believes that in order to produce a
work that will be judged creative by a specific field, a person must learn the rules of the
domain and practice their art, which is a process that takes 10 years on average.

Velikovsky (2012) implemented ideas from both Bourdieu and Csikszentmihalyi to
develop creative practice theory.

Creative practice theory explores how individuals impact the field of study
through their experience and creative ideas. Velikovsky created this framework by
implementing the ideas from both Bourdieu and Csikszentmihalyi. Velikovsky separates
this theoretical framework into nine stages. The first stage is the overlap of the social and
cultural systems (Velikovsky, 2012). This stage pre-exists the individual and deals with
the social and cultural system that the individual grows up in. In the second and third
stages, an individual emerges into the existing social and cultural system and establishes
Figure 5. Csikszentmihayli’s cycle for the system model of creativity. Adopted from Velikovsky (2012).
habitus (Velikovsky, 2012). In these stages, an individual emerges as a person and is influenced by genetics and the environment (parents, teachers). The individual gains habitus, that is the ability to gain knowledge through experiences and react in social situations. In the next stage, the individual acquires economical capital and more habitus (Velikovsky, 2012). This economic capital allows the individual the opportunity to further her/his educational studies. The next five stages are the most influential in relationship to this study. The following stages explain how individuals internalize information from the field and affect the field through creative ideas.

The following stages of creative practice theory explore the way in which individuals impact the field of study. After understanding the social and cultural systems and gaining economical capital, an individual can start understanding the field. This leads the individual to reach the next stage in which the individual internalizes the domain, interacts with the field, and further develops their habitus (Velikovsky, 2012). In this stage an individual studies the field and internalizes information from the domain by learning from members of the field. The next stage is when the individual absorbs the domain, after about 10 years of learning and practicing in the field (Velikovsky, 2012). According to Velikovsky, this is when an individual can become creative and improve the field of study through making a creative contribution to the domain. Velikovsky (2012) explains that after this an individual can acquire social capital (individual and in the field) and cultural capital (individual, domain, and cultural system). By acquiring these capitals, an individual may have the capacity to contribute a creative idea, artefact, or process into her/his domain. The next stage is where the individual’s creativity occurs in the field and is judged by the field, either selected or de-selected by the field.
(Velikovsky, 2012). The creative idea is judged by the field, and if found useful, it will be implemented into the field. This is because creativity does not occur unless the innovation is both implemented and recognized by the field (Csikszentmihalyi, 1996; Velikovsky, 2012). The last stage is when the creative individual acquires symbolic capital. This last stage does not happen to every creative individual. Symbolic capital occurs only when the individual’s work is highly valued by the field (Velikovsky, 2012). Through utilizing creative practice theory, this study hopes to generate creative ideas from individuals who have experience in the field of game based-learning see Figure 6).

By utilizing creative practice theory, this study identified creative ideas from academics that may be able to improve the field of gamification research. Furthermore, the literature review explores the major criticisms of gamification research in order to provide a meaningful context for determining those innovative ideas which are needed to improve the field of gamification research. In chapter One, Hamari’s conceptual framework was utilized to identify the major areas of criticism in gamification research. Creative practice theory was utilized to investigate how gamification research can be improved through the suggestions of gamification researchers. This study explores the perceptions of experienced gamification researchers to identify ideas related to how gamification research should be conducted. Creative practice theory allowed this study to identify innovative ideas from experienced academics with the goal of positively affecting the field of gamification research. However, before this can occur, it is imperative to explore the literature in the field of gamification.
Figure 6. Velikovsky’s Model for Creative Practice Theory. Adopted from Velikovsky (2014).
Game-Based Learning through James Paul Gee

James Paul Gee is one of the best known proponents of game-based learning. He has written books and articles on the positive impact that games have on student learning (Gee, 2003, 2005, 2007, 2008). Gee’s work has revolutionized game-based learning by investigating the positive impact this teaching approach has on learning. His research focuses on the way games can improve student learning by utilizing games to teach students skills that improved their ability to complete educational tasks (Gee, 2003, 2005, 2007, 2008). Many game-based researchers have utilized Gee’s game-based learning analysis to further demonstrate that games can have a positive impact on student learning (Gros, 2007; Rigby & Przybylski, 2009; Ryan, Rigby, & Przybylski, 2006; Squire, 2005).

For the purpose of this study it is essential to examine Gee’s 16 good game principles for good learning in order to understand how game-based learning and gamification can improve student learning (Gee, 2005).

The 16 good game principles that promote good learning are principles that should ideally be incorporated into game-based learning. These principles are used to improve student learning experiences. Gee (2005) stresses that these principles are supported by research in the cognitive sciences and that these principles improve student motivation and engagement. Gee stresses that video games focus on challenges and learning. According to Gee (2003), challenges and learning are what make good video games both motivating and entertaining to play. By implementing similar game elements into instruction, instructors can invoke the motivational impact of video games in the classroom. Gee (2005) explains that people, when properly motivated, enjoy learning and that if schools were to incorporate these 16 good game principles into learning, students
would enjoy school even more. Furthermore, Gee believes that good instruction should
strive to include as many of these principles as possible to improve student learning (Gee,
2003, 2005). The 16 good game principles for good learning (See Table 2).
James Paul Gee’s research on game-based learning demonstrates to the field of education
how using game-based practices can improve student learning. Educational researchers
have utilized Gee’s innovative research to explain the psychological improvements that
game experiences can have on learning (Prensky, 2003; Rigby &Przybylski, 2009; Ryan
et al., 2006). Game-based academics have utilized Gee’s research on game-based
learning to argue that this style of learning can actually provide students with a new
method of thinking that incorporates a lot of skills needed to succeed in school. These
researchers stress that game-based learning helps the student master skills such as
problem identification, hypothesis testing, interpretative analysis, and strategic thinking
in order to complete a game-based unit of instruction (Gee, Hull, & Lankshear, 1996;
Gros, 2007; Squire, 2005). Gee’s research progresses the study of game-based learning
by identifying the ways that game-based learning can improve the education of students.
Furthermore, the research conducted by Gee has, along with other influences, allowed for
a variety of “offspring” game-based teaching approaches to come into fruition, including
gamification and pointification.

**Gamification Studies**

This section reviewed a number of current studies of gamification with the
purpose of providing a context for gamification research. Furthermore, this section
highlighted the positive and negative aspects of gamification research. These
gamification studies highlighted a variety of problems that gamification
Table 2


<table>
<thead>
<tr>
<th>Gee’s good game principles for good learning</th>
<th>Explanation of principle</th>
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<tbody>
<tr>
<td>1. Identity</td>
<td>Learning a new domain requires the learner to take on a new identity. The learner must make a commitment to see and value work in a new way.</td>
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<td>2. Interaction</td>
<td>Learning should include interaction. In a good game, words and deeds are all placed in the context of an interactive relationship between the player and the world or the player with other players (Gee, 2005).</td>
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<td>3. Production</td>
<td>People are not just passive in a game but should also produce. Players are producers, not just consumers (Gee, 2005).</td>
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<td>4. Risk taking</td>
<td>Good video games lower the consequences of failure. Players are allowed to start from the last saved spot when they fail. Players are encouraged to take risks, explore, and try new things (Gee, 2005).</td>
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<tr>
<td>5. Customization</td>
<td>Players can customize a game to fit their learning and playing styles. All good games allow players to solve problems in a variety of ways and difficulty levels.</td>
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<tr>
<td>6. Agency</td>
<td>Students need to feel like they have control over their own education. These good game principles give students agency by allowing them to have control over their actions.</td>
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<td>7. Well-ordered problems</td>
<td>In good video games, the problems people face are sequenced so that the earlier, easier ones are built to lead players to form ideas that work well for later, harder problems (Gee, 2005).</td>
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<td>8. Challenge and consolidation</td>
<td>Good games offer players a set of challenging problems and then let the person solve these problems until their solutions are automatic. The game then throws a new problem at the players, requiring the players to rethink their preconceived notions, learn something new, and integrate this new learning with what they have already mastered (Gee, 2005).</td>
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<tr>
<td>9. “Just-in-time” and “on demand”</td>
<td>Good games provide information just in time for the activity. This allows the person, to understand what they are expected to do right before their task. Good games also provide information on demand which provides players with the information when they ask for it.</td>
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<td>10. Situated meaning</td>
<td>Video games connect words with other familiar experiences, allowing players to have a better understanding of the meaning of the word, action, or idea (Gee, 2005).</td>
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<tr>
<td>11. Pleasantly frustrating</td>
<td>Thanks to many of these principles, good games stay within, but at the outer edge of the player’s “regime of competence” (Gee, 2005). Players find the game difficult, which provides them with a challenge.</td>
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<tr>
<td>12. System thinking</td>
<td>Good games encourage players to think about relationships, not isolated events, facts, and skills (Gee, 2005). Players look for relationships in games in order to complete the task.</td>
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<tr>
<td>13. Explore, think laterally, rethink goals</td>
<td>Good games encourage players to explore before moving on. They also promote exploration and lateral thinking to rethink one’s goals from time to time.</td>
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<tr>
<td>14. Smart tools and distributed knowledge</td>
<td>Good games provide smart tools such as the skills that the characters in the games already have to complete missions (Gee, 2005). Good games also sectionalize information to force players to collect clues or information to complete tasks.</td>
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<td>15. Cross-functional teams</td>
<td>In some games such as massive multiplayer games such as World of Warcraft, players often play in teams in which each player has a different skill set (i.e., Mage, Warrior, or Druid). These teams help players work together to complete tasks.</td>
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<td>16. Performance before competence</td>
<td>Good video games operate by a principle which is the opposite of most schools, which is performance before competence (Cazden, 1981). Players perform before they are totally competent, being supported by the design of the game, the “smart tools,” and the support of other players (Gee, 2005).</td>
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researchers have identified within the field of gamification. These problems stem from a lack of clarity within the field of gamification, the lack of academic rigor, and the lack of methodological structure within gamification studies. This section highlighted the major problems that have led to the variety of criticisms that currently plague gamification research. These gamification studies identified the need for change within the field of gamification. The section then reviews studies that implement a rigorous quasi-experimental design to demonstrate the more positive aspects of gamification research. The chapter concludes with an exploration of some of the major criticisms of gamification including the lack of clarity, lack of empirical evidence, and lack of structure within gamification research studies.

**Current Context of Gamification**

In the field of game-based learning there is a constant debate about the effectiveness of gamification. Even though the term was coined in 2002 by Nick Pelling, “gamification” did not reach widespread adoption in the field of education until 2010 (Deterding, Dixon, Khaled, & Nacke, 2011; B. Kim, 2015). Since 2010, there has been an increase in the attention that researchers have placed on gamification as a teaching approach. However, gamification researchers themselves have expressed confusion as to what exactly constitutes gamification (Julius & Salo, 2013; Kapp, 2012; Nicholson, 2012; Robertson, 2010). This confusion has led to a wide variety of criticism from academics. As a result, the reputation of gamification has been hindered. Without clear markers to differentiate between gamification and pointification, researchers have conducted research on gamification that should really be defined as pointification.
In addition, another major criticism of gamification is the lack of empirical evidence and rigor within the field of game-based learning. Connolly et al. (2012) conducted one of the largest literature reviews of game-based literature known to date and found that only 129 of the 7,392 papers reported using empirical evidence to explain the impact of game-based learning. However, these researchers do not provide a definition as to what comprises empirical evidence. These researchers stress the need for more rigorous evidence to explain the effectiveness of game-based learning. Similarly, gamification has been criticized for the same lack of empirical evidence to prove the effectiveness of gamification. Hamari et al. (2014) conducted a literature review of over 8,000 studies and found that only 24 empirical studies were found. In order for a study to be classified as an empirically rigorous study the paper had to be peer reviewed, include empirical evidence, the research methods are explicated, and the motivational impact of game elements is identified (Hamari et al., 2014). Gamification researchers have stressed the need for more rigor within the field of study in order to understand the impact that gamification has on student learning and motivation (de-Marcos et al., 2014; Dominguez et al., 2013; Hamari, 2015; Hamari et al, 2014). These researchers stress the need for future studies to conduct more rigorous research by collecting empirical data.

Even though gamification research has been criticized for its lack of rigor, there are research studies that have collected empirical evidence. These research studies have utilized a variety of methodologies and methods to investigate the impact that gamification has on student motivation and learning. However, the results from these studies are contradicting and stress the need to investigate specific game elements within the gamified learning experience. Academics have utilized a variety of research
methodologies to either prove the effectiveness of gamification as a teaching approach (Banfield & Wilkerson, 2014; Figg & Jaipal-Jamani, 2015; Fitz-Walter, Tjondronegoro, & Wyeth, 2011; Sheldon, 2010) or to demonstrate that gamification has no significant impact on student learning (de-Marcos et al., 2014; Dominguez et al., 2013). It is of interest to note that the two research studies that found no significant impact explored only extrinsic rewards, which could have negatively impacted their study. Dominguez et al. (2013) explain that it could have been the lack of variety in game elements used that could have influenced the study’s results. It could be argued that Dominguez et al.’s study actually focuses on pointification because all of the game elements used in the study would be considered extrinsic rewards (Kapp, 2012; Robertson, 2010). The current state of gamification is in conflict as to both the rigor of the research conducted in the field and also the confusion within the field as to what constitutes gamification.

**Dominguez et al. (2013) on Gamification**

Dominguez et al. (2013) is the first study explored because it highlights one of the major criticisms in gamification. This criticism focuses on the confusion within the field about what constitutes gamification. Even though these researchers utilized a quasi-experimental design to investigate the impact of gamification, only extrinsic game elements (such as badges, points, and a leader board) were used within the study to gamify the classroom. Gamification researchers would suggest that this study, because of its focus on extrinsic rewards, would technically be pointification (Bogost, 2011; Kapp, 2012; Robertson, 2010). Even though this study used only points, badges, avatar, and leader board, the results from this study illustrate the impact that these extrinsic game
elements can have on student learning. The study demonstrates how these extrinsic game elements impact student learning through online software.

The purpose of the Dominguez study was to implement game elements into a nongame context in order to explore how these game elements impact student learning. Dominguez et al. (2013) utilize past literature that suggested using game-based learning in the classroom should improve student motivation. In order to test this hypothesis, the researchers conducted research in a university computer software course entitled “Qualification for users of Information and Communication Technologies” (Dominguez et al., 2013). The researchers set up an e-learning platform to conduct the research. The e-learning platform involved five modules (introduction, word processor, spreadsheet, presentation software, and databases) to teach the students the content of the course. In order to conduct an empirical study, the researchers developed a quasi-experimental design through which they created a controlled group that received the traditional course and an experimental group that received the gamified course. The gamified course received a similar program, but with the implementation of points, badges, avatars, and a leader board. Dominguez et al. (2013) explain that the control group had 80 first- and second year students, with only 73 completing the course, whereas the experimental group in the study had 131 first-year students, with 123 completing the gamified course. The study utilized these two groups to explore the impact of gamification on student learning.

The researchers wanted to collect both quantitative and qualitative data to explore the impact of gamification. The data were collected through an exploratory mixed methods methodology that included both quantitative data from surveys and qualitative
data from questionnaires (Dominguez et al., 2013). The researchers were aware of the lack of rigor in the field of gamification and explain the importance of collecting empirical data to support their hypothesis (Dominguez et al., 2013). The results from the quantitative data demonstrated that gamification had both a positive and negative impact on student learning. Dominguez et al. (2013) found that the gamified course performed better on all the items that were concerned with practical application of concepts. Dominguez et al. (2013) explain this by stating that they scored higher on practical exercise such as the spreadsheet, software presentation, and database modules. However, the results also illustrated how the same students received significantly lower scores on the final examination and participation (Dominguez et al., 2013). The researchers utilized a one-way ANOVA to determine the significance of the findings. This specific finding of lowered participation goes against the findings of previous literature and is seen as an interesting phenomenon by the researchers. However, even with lowered participation and final exam marks, the study found that the implementation of gamification did not result in a significant difference in final marks (Dominguez et al., 2013). These results contradict the researchers’ hypothesis and the findings from previous literature.

In comparison, the qualitative data from the study came back almost entirely positive. Dominguez et al. (2013) explain that the majority of the qualitative feedback received from the students was positive. The qualitative data explained what parts of the gamified course the students found most interesting. Feedback from the questionnaires stressed that the students found that the leader board was the most successful in improving their learning experience (Dominguez et al., 2013). The qualitative response from students identified one major reason why they appreciated the leader board. It was
the ability to see how they stacked up in relationship to other students in the course (Dominguez et al., 2013). Even with the positive responses from the qualitative data, the researchers expressed how the findings did not support their hypotheses. Dominguez et al. (2013) concluded that gamification does have the potential to increase student motivation, but that the effort to design and implement the experience might not be worth the outcome. However, the researchers stress that there were some limitations in the study, specifically the heavy focus on extrinsic rewards.

The restricted use of only extrinsic game elements could have negatively impacted the study by not utilizing a variety of game elements to improve student learning. As stated above, gamification researchers have criticized gamification studies that rely too heavily on extrinsic rewards. Zuckermann and Gal-Oz (2014) criticize using too many extrinsic game elements and suggest that gamification should include a variety of game elements to make it meaningful to the students. Researchers explain how some gamification studies utilize these extrinsic rewards to persuade students to complete tasks. Kapp (2012) explains how researchers and instructors have utilized gamification as their personal “gold rush” through using extrinsic rewards to get students to perform tasks. Gamification researchers criticize these researchers for only artificially attaching extrinsic game elements to their unit of instruction to sway students to complete tasks (Kapp, 2012; Lee & Hammer, 2011; Nicholson, 2012; Robertson, 2010; Zichermann & Cunningham, 2013). Dominguez et al. follows a recent trend in gamification research which is to focus on extrinsic rewards which some gamification researchers would classify as pointification.
Interestingly, Dominguez et al.’s study itself uses the conclusion section of the study to explain the importance and need to utilize a variety of game elements. Dominguez et al. (2013) explain that in future studies the need to implement a variety of game elements is needed to investigate how this would impact the gamified learning experience. The researchers realized that the study could have failed because of the lack in variety of the game elements. In order to improve the gamified learning experience, the researchers cite Deterding, Sicart, Nacke, O’Hara, and Dixon (2011) and Nicholson (2010) to express the need to implement more than a reward system that focuses on badges and achievements (Dominguez et al., 2013). This suggests that their own limited application of gamification could have been the reason for their negative findings. It also suggests the need for future studies to implement a variety of game elements that induce both intrinsic and extrinsic motivation. As Nicholson (2012) explains, the gamified learning experience is only as good as the facilitator who is implementing it. This stresses the need for future gamification researchers to implement a variety of game elements to improve student motivation and learning.

**de-Marcos et al. on Gamification**

de-Marcos and his colleagues developed a study to explore the impact that gamification and social networking have on e-learning. Adrian Dominguez, the author of the first study explored in this chapter, was one of the researchers in this study. For this literature review only the gamification section of the study were explored. Similarly to Dominguez et al. (2013), these researchers wanted to improve their own understanding of gamification by implementing a study that looked at gamification on an e-learning platform. The researchers utilized an undergraduate course entitled “Qualification for
Information and Communication Technologies.” de-Marcos et al. (2014) explain that the course lasted 15 weeks and was made up of seven modules (computers and components, operating systems, word processing, spreadsheets, presentations, databases, networks and communications). For this study participants were separated into three groups: the control group, the gamification group and the social group (de-Marcos et al., 2014). For the purpose of this literature review, the focus was put on the controlled group, and the gamified group. de-Marcos et al. (2014) explain that there were 73 first- and second year undergraduate students in the control group that received the traditional course and 114 first- year undergraduate students who received the gamified course. This gamified course was a gamification plug-in deployed by a Blackboard system. The researchers implemented the gamification course through online software that allowed them to efficiently collect data.

The researchers explain that the gamified course focused on competition in order to invoke participation and increase student motivation. de-Marcos et al. (2014) hypothesized that the gamified module should have increased both intrinsic and extrinsic motivation. In this situation, intrinsic motivation is when the activity itself becomes rewarding. Extrinsic motivation is when the students are given rewards for completing tasks. The gamification course divided the modules into levels and provided rewards to the students in the form of trophies (de-Marcos et al., 2014). These trophies were given to students for completing work. The researchers explain that these trophies and levels would provide the students with a sense of progression towards the mastery of the skills in the course. In addition to the trophies, a badge system was devised to provide further rewards for the students. These badges allow students to demonstrate social status
(Domínguez et al., 2013). The last game element that the researchers implemented into their gamified course was a leader board. de-Marcos et al. explain that the leader board was utilized to keep track of the students’ badges and to increase the competition within the course. Even though these researchers explain the importance of intrinsic motivation, their study focused entirely on providing students with extrinsic rewards to complete tasks.

The researchers chose to use a quasi-experimental design to collect data to explore the impact that gamification has on student learning (de-Marcos et al., 2014). Similar to Domínguez et al., these researchers state that there is a lack of rigor within the field of gamification. A quasi-experimental design was chosen because of lack of empirical evidence to provide insight into the impact of gamification. The researchers utilized a pre-test, post-test experimental design to assess and compare the students’ performance on every module (de-Marcos et al., 2014). The researchers stress how they used the pretest performance and assignment scores as a way to measure the post-test scores that were collected from the final examination and participation scores (de-Marcos et al., 2014). In addition, the researchers also conducted an attitudinal survey that looked at the students’ attitudes towards the gamified learning experience (de-Marcos et al., 2014). The survey followed a five-point Likert scale, with all the questions scored in a positive scale (de-Marcos et al., 2014). This attitudinal survey was optional, and only 45 students from the gamified course took the survey. The researchers utilized this method to probe deeper into why the students believed that this gamified style of teaching impacted their learning.
The results from this study illustrate a partially positive impact through the gamification of the course. de-Marcos et al. (2014) explain that the results demonstrate that the students in the gamified course performed significantly better on the practical assignments. The researchers utilized a one-way ANOVA to determine significance. However, the study also demonstrated some negative impacts. de-Marcos et al. explain how the gamified group scored significantly lower on the final exam and participation. The researchers express some confusion as to why the participation rates of the students in the gamified course were lower than the control group. However, the researchers explain that this negative finding has occurred in other gamification research studies and should be further explored in future studies (de-Marcos et al., 2014). The researchers stress that the highest rate of participation came from the social networking group. de-Marcos et al. (2014) explain that a teaching style that utilizes social networks promotes collaboration among the students. The researchers express the need to foster collaboration in order to increase motivation and participation.

The findings from this study could have been caused by the researchers focusing too heavily on extrinsic rewards and competition. Gamification researchers stress the importance of utilizing a variety of game elements in gamification in order to induce conflict, competition, and collaboration (Figg & Jaipal-Jamani, 2015; Kapp, 2012; Nicholson, 2012). The findings from de-Marcos et al.’s study express the importance of collaboration in order to increase participation. However, these researchers consciously decided not to include any collaborative game elements (such as guilds or quests) to promote socialization within the gamified learning experience. Gamification researchers stress the importance of including social game elements in order to promote collaboration.
(Hamari, 2015; B. Kim, 2015; Müller, Reise, & Seliger, 2015). As stated above, gamification should implement a variety of game elements that promote conflict, competition, and collaboration. It is clear through the limitation section that the researchers realize that their limited application of gamification might not permit generalization of the teaching approach and that the effects of gamification depend on the context in which it is implemented (de- Marcos et al., 2014). The researchers specifically state that future research on gamification needs to explore the integration of a variety of game elements like narratives (Berns, Gonzalez-Pardo, & Camacho, 2013; de-Marcos et al., 2014). Even with the limitation of this research, the results from the attitudinal surveys illustrate that the students enjoyed the gamified learning experience.

The results from the attitudinal survey demonstrate the way in which the students perceived gamification as a teaching approach. de-Marcos et al. (2014) explain that the results from the surveys were positive. However, the students did complain about the poor ease of use with the gamified e-learning platform (de-Marcos et al., 2014). It could have been the difficulty of using the platform that led to the negative participation results. In addition, the difficulty of using the platform could have also hindered the students’ learning and their experience of their gamified learning. Another problem with the study is the lack of variety in the gamified learning experiences. Some gamification researchers would consider this study pointification. The use of only extrinsic rewards could have also negatively impacted the results (Deterding et al, 2013; Kapp, 2012; Robertson, 2010). Overall, the results from the study demonstrate that gamification does improve some facets of student learning. However, as the researchers’ stress, there needs to be more empirical evidence. This empirical evidence needs to focus on specific game
elements such as narrative in order to gain a better perspective of the impact that gamification has on student learning and motivation.

**Hanus and Fox (2015) on Gamification**

Hanus and Fox’s study further demonstrates the confusion within the terms gamification and pointification. The researchers wanted to test the intrinsic motivational impact of gamification by implementing a leader board and badges into their classroom. To achieve this goal, the two researchers implemented gamification into an online communications university course (Hanus & Fox, 2015). The researchers do not mention if they used points, but if they implemented a leader board it is evident that the students must have been given points for competing tasks. The researchers split the 70 students into two separate groups. One group received the gamified course, featuring a leader board and badges, whereas the other group received the same course but without the gamified elements (Hanus & Fox, 2015). In order to collect data, the researchers implemented attitudinal surveys four times throughout the 16-week course (Hanus & Fox, 2015). The surveys used a Likert scale to allow the students to express how the gamified learning experience impacted them. The researchers believed that implementing a leader board and badges would positively impact the students’ intrinsic motivation.

The results from this study correlate with the results from the other two studies that implemented only extrinsic rewards. Hanus and Fox (2015) found that the students in the gamified group showed less motivation, satisfaction, and empowerment over time than the students in the non-gamified group. The students in the gamified course were actually less motivated than the students in the non-gamified course over time. This connects to a criticism of gamification researchers who suggest that the implementation
of only extrinsic rewards decreased the students’ long-term motivation (Nicholson, 2012). The researchers in this study found that implementing only extrinsic rewards actually hindered the students’ motivation. Furthermore, the researchers stress that the implementation of only extrinsic rewards negatively impacted the students' learning experiences and led to decreased marks on the final examination (Hanus & Fox, 2015).

After conducting this study, the researchers stress the need to implement a variety of game mechanics. Hanus and Fox (2015) suggest that care needs to be taken when applying certain game mechanics in an educational setting. In the conclusion, the researchers admit that they should have utilized more intrinsically motivating game elements such as narrative. Hanus and Fox conclude that they might have relied on game mechanics that others have suggested have negative effects on the classroom. In addition, they suggest that that future studies should consider other game elements that yield positive effects, such as elements that emphasize cooperation and interesting narrative context. It is interesting that the researchers chose to implement only extrinsic rewards when previous literature suggests that these types of game elements have negative effects. Furthermore, it is interesting that the researchers still considered their study to be gamification, even though it implemented only extrinsic rewards. The researchers conclude their study by explaining the need for future studies to implement a variety of game elements in order to identify how each impacts student learning (Hanus & Fox, 2015). However, the researchers do not make any suggestions as to how such future gamification research studies should be conducted.
Professional Development Studies in Gamification

The next three studies explored in this chapter focus on professional development to explain the importance of integrating a variety of game elements into gamification. This section also illustrates how the major contributors of gamification research generally do not utilize any empirical evidence to prove its effects on student learning. Even though these studies do not provide any empirical evidence to the field of gamification, they are highlighted in a variety of gamification studies as example of how to properly implement gamification (Figg & Jaipal-Jamani, 2015; Kuo & Chuang, 2016). Sheldon, Kapp, and Nicholson utilized their experience as instructors to identify how the teaching approaches of gamification should be implemented within higher education. However, it must be stated that gamification researchers have criticized gamification studies like Sheldon’s, Kapp’s and Nicholson’s for their lack of empirical evidence, rigor, and methodological limitations (Dominguez et al., 2013; Hamari, 2015, Hamari et al., 2014). Although these professional development types of studies have been criticized by other gamification researchers, the studies are still influential in the field of gamification and present models of how gamification should be integrated in the classroom.

Lee Sheldon on Gamification

Even though gamification is a relatively new teaching approach, the term gamification has actually been around for more than a decade. The term gamification was created in 2002; however, it was not until late 2010 that this term became widely adopted (Deterding, Dixon et al., 2011). Even though the term gamification was more widely spread in 2010, some academics in the field of game-based learning did not make use of the term and instead utilized other terms in place of gamification. One major example of
this comes from Lee Sheldon who called his teaching approach “the multiplayer classroom.” Sheldon (2010) gamified his university game design course using game elements in a nongame context to teach his students how to create video games. According to the field of game-based learning this teaching style would be considered gamification (Deterding et al., 2011; Zuckerman & Gal-Oz, 2014). Sheldon (2010), later in his study, admits that what he was studying could be considered gamification, but that he was not fully familiar with this terminology when the study started. This confusion of terms illustrates the confusion that is evident in the field of game-based learning.

Lee Sheldon’s research in *The Multiplayer Classroom: Designing Coursework as a Game* is an influential study in the field of game-based learning. It is influential because it demonstrates the impact that gamification can have on student motivation across an entire course and over multiple iterations of the course. Sheldon (2010) utilize an action research study to develop a course that used game design elements to improve the learning experience of students. The goal for this study was to model a course after a video game, utilizing game elements to improve the learning experiences of students. Building off his experience as a game designer, Sheldon constructed a course in the image of a massively multiplayer role-playing game or MMORG for short. Sheldon wanted to replicate the motivational impact that video games have on players, but for an educational purpose. He believed that utilizing a variety of game design elements would positively impact student motivation and improve the overall learning experience of the students in his course.

Sheldon (2010) chose game elements that would make the class more engaging for the students. Sheldon created an action plan through his course syllabus that would
allow him to gamify his course. The goal for this action plan was to improve student motivation and increase participation within the course (Sheldon, 2010). After reviewing some previous studies, Sheldon decided to revamp his course by utilizing other game elements such as back-stories to improve his course. Sheldon explains how research on the motivational impact of videogames and his own experience with video games led to the implementation of this gamified teaching approach. The game elements that Sheldon chose to demonstrate the importance of utilizing both intrinsic and extrinsic game elements to optimize student motivation.

In order to gamify the classroom, Sheldon began by creating a narrative within his classroom that changed the traditional language to a gamified language in his syllabus. The syllabus built on a narrative that followed a MMORG approach (Sheldon, 2010). The traditional assignments in the course were recast as conventional game elements. Sheldon (2010) explains the gamified transformation by stating that exams were recast as bosses, and that successfully completing an exam was reconceptualised as defeating a boss. In addition, Sheldon included narrative game elements such as avatars, zones, quests and guilds to further immerse his students in the course. The avatars, zones, and guilds were utilized to further the MMORG experience of the students. For example, Sheldon (2010) explains how the students had to create a back-story for their avatars which integrated fantasy environments into the course. Immersion in these fantasy environments was designed to intrinsically motivate students to complete work insofar as the students derived meaning from the fantasy environments. Furthermore, the point of these narrative elements was to create a low risk environment in the classroom where students could explore their own learning without the worry of being isolated.
Sheldon makes it clear in his study that it was important to incorporate both intrinsic and extrinsic motivational factors into his gamified teaching approach in order to optimize student learning. In order to invoke the competitive nature of his students, Sheldon utilized the students’ avatars to create a leader board (Sheldon, 2010). The leader board was used in the gamified course to demonstrate how many experience points each student had collected. The students collected experience points by completing specific activities within the course. In his book, Sheldon (2010) explains the importance of utilizing competition in the course to motivate students to participate. Each student’s marks in the course were related to the amount of experience points they collected. Sheldon (2010) explains that this is a difficult strategy to use during the start of a course because everyone starts off with a failing mark. The students were originally opposed to this point system at the beginning of the course. However, the students eventually saw the merits of this point system and began working harder to improve their position on the leader board and their marks in the course (Sheldon, 2010). The students realized through the leader board that the more effort they put forth in the class, the more their marks improved, creating an atmosphere of immediate gratification for the students. Sheldon demonstrates the positive nature of effectively utilizing extrinsic rewards.

Sheldon’s four-year study found that in order to effectively use gamification as a teaching approach, the instructor must use both intrinsically and extrinsically motivating elements. Lee Sheldon (2010) utilized student responses and self-reflections to improve on his implementation of gamification. The study’s results illustrated that the students enjoyed the adventure atmosphere that the gamified learning experience produced. Sheldon commented on the students’ responses and how the students found a lot of the
game elements fun and exciting. One of the students expressed that they “liked how the class was set up like a game. Made it more interesting” (Sheldon, 2010, p. 80). A lot of the responses followed this positive explanation of why they enjoyed gamification. The student responses illustrate the positive perspective that students have on the use of gamification as a teaching approach.

In addition, Sheldon (2010) noticed an increase in student attendance and participation. The students were more motivated in class because of the game elements. Sheldon stressed that the experience points and the leader board ramped up the competitive nature of the students, leading to an increase in participation. The students realized that the acquisition of points was connected to their effort put forth in the class. Sheldon explains that students wanted to participate more in order to gain more points to move up the leader board. The results from Sheldon’s findings suggest that gamifying his course did result in an increase in participation and motivation. Sheldon explains that the motivation occurred in two different ways. Students were more extrinsically motivated, which is to be motivated by external factors like the leader board and points (Sheldon, 2010). In addition, the students were also more intrinsically motivated, which is being motivated by internal factors such as having fun playing together (Sheldon, 2010). However, it is important to note that the only data that Sheldon gathered was from student responses and his own observations.

The data that Sheldon (2010) collected support his hypothesis that utilizing a gamified teaching approach does in fact increase student motivation. However, critics of gamification would look at the data collection methods that Sheldon utilized to argue against the credibility of his finding. Critics of gamification have pointed to a lack of
clear focus in the collection of data in some academic studies (Dominguez et al., 2013; Hamari et al., 2014). Without a clear focus, the gamification researcher’s data may lose credibility in the eyes of her/his peers. Hamari et al. (2014) explain that many studies on gamification have suffered from methodological limitations. Sheldon’s study arguably exemplifies this methodological limitation by never formally aligning his study with any methodology. Sheldon never mentions any reference to the methodology that he utilized for the study. This lack of an explicit methodology is arguably a reoccurring problem in some gamification studies that has potentially impacted the credibility of gamification studies.

In addition, critics of gamification have also criticized the relatively small sample sizes that are used to collect data (de-Marcos et al., 2014; Hamari et al., 2014). Sheldon (2010) himself explains that he could use only a small quantity of the students’ responses because some of the student responses did not relate to the study at all. Some of the students’ responses had nothing to do with the gamified learning experience. Even though Sheldon does explicitly identify the limitations of his study, he did not (in subsequent offerings of the course) appear to modify his data collection tools to increase the number of collected student responses. Another limitation of Sheldon’s study is related to the lack of focus when it came to identifying the impact that specific game elements had on students. Gamification critics have criticized recent gamification studies for taking a holistic approach to gamification rather than controlling for different game elements (Hamari et al., 2014; Seaborn & Fels, 2015). Seaborn and Fels (2015) argue for the importance of setting controls to investigate how certain game elements impact student learning. Hamari et al. (2014) explain how relatively no gamification studies set
controls to see how specific game elements impact student learning. It is these criticisms that have plagued gamification research studies and have hindered their credibility.

**Scott Nicholson on Gamification**

Similar to Sheldon, Nicholson utilized his own experience with gamification to innovate his teaching practice. Nicholson (2012) created a user-centered theoretical framework that aims to promote meaningful gamification. To create this framework, he utilized previous literature on gamification and his own experience to determine the best possible method for applying gamification within the classroom. Nicholson explains the importance of making gamification meaningful by focusing on intrinsically motivating game elements. According to Nicholson, to ensure that gamification is meaningful, the facilitator must focus on introducing elements of play instead of focusing gamification on scoring elements. In order to improve a student’s long-term motivation, it is important to focus more on intrinsically motivating factors rather than extrinsically motivating factors. Nicholson explains that once gamification is used to provide external motivation, the student’s internal motivation will decrease. This belief implies that the pointification teaching approach hinders student motivation and is not as meaningful to students.

Nicholson provides a great example of how to make gamification meaningful to students. He stresses that meaningful gamification should be like an alternate reality games (ARG). Nicholson (2012) explains that ARGs are a type of game that utilizes narrative to stimulate players’ interests instead of using points and leader boards. Although ARGs do have score-based elements, a well-designed ARG does not need these elements to create an engaging and meaningful experience (Nicholson, 2012). By utilizing ARGs as a model to set up gamification within the classroom, the instructor can
engage students using a narrative. Game researcher Jane McGonigal (2011) stresses that ARGs present obstacles within a narrative (story) that satisfy players by allowing the players to overcome the obstacles by using their own abilities. As a result, meaningful gamification utilizes game elements to tell a narrative that is based in a nongame setting (Nicholson, 2012). Following this approach promotes intrinsic rather than extrinsic motivation. This approach to gamification allows students to be immersed within a gamified learning experience through an engaging narrative, rather than relying on a point system alone (Nicholson, 2012). The example provided by Nicholson reiterates the importance of utilizing intrinsically motivating game elements to improve the student’s learning experience. Through this, Nicholson explains that meaningful gamification encourages a deeper integration of game mechanisms into a nongame context like education.

Gamification researchers have utilized Nicholson’s (2012) work to demonstrate the importance in the way in which the instructor creates the gamified learning experience. Zuckerman and Gal-Oz (2014) explain that Nicholson has shown how to negate the potential negative consequences of gamification by creating a gamification system that is meaningful to students. Nicholson’s meaningful gamification can be seen as an innovation in the gamification field that has improved the implementation of the teaching approach. Zuckerman and Gal-Oz (2014) highlight Nicholson’s advice that students should be involved in the creation or customization of the gamified systems that are integrated into their courses. By including students, the gamification experience can better serve the students’ specific interests. Nicholson explains the large amount of effort that it takes to implement meaningful gamification in the classroom. It is more difficult to
implement meaningful gamification rather than pointification because the former incorporates a variety of game elements in order to improve student learning. It is clear that Nicholson realized that the instructor must put in a large amount of time and effort in order to positively impact student learning. However, Nicholson’s work suggests that when meaningful gamification is implemented with a focus on narrative, student learning will improve.

Nicholson suggests that student learning and motivation can be positively impacted by gamification. However, there is no empirical evidence in this article to conclude that gamification teaching does in fact improve student learning. The article relies heavily on previous literature to stress the positive impact of gamification. In addition, Nicholson utilizes only his own observations and without totally going into detail of where and how he observed the impact of gamification. Nicholson’s article exemplifies two major criticisms of gamification. First, this article does not include any empirical evidence. Hamari et al. (2014) criticize studies such as this one for the lack of empirical evidence and lack of new data to prove the positive impact of gamification. The article does not actually perform any experimental design, but rather relies on previous literature to make its argument. Second, this article lacks structure and does not follow a methodology. Gamification critics have criticized gamification research for its lack of methodological focus (Domínguez et al., 2013; Hamari et al., 2014). Nicholson’s article does not explicitly explain what type of epistemology or methodology was used. As a result, Nicholson does not explicitly stress where his observations were or how much experience he has with gamification. Nicholson’s article highlights a variety of
criticisms within the field of gamification. It also exemplifies why gamification researchers suggest the need for change in order to improve rigor.

**Karl Kapp on Gamification**

Karl Kapp created a guide to help teachers and researchers improve their understanding and implementation of gamification as a teaching approach. Similar to Sheldon and Nicholson, Kapp utilizes previous literature and reflects on his own teaching experience to explore how gamification should ideally be implemented within an educational context. Kapp (2012) explains how gamification should be set up much like a game and closely integrate game dynamics that enticed students to learn. Kapp believes that gamification should incorporate three key principles: conflict, competition, and cooperation. By focusing on these three principles, a gamified teaching approach can improve student motivation and increase participation. Kapp explains that while it is important to consider conflict, competition, and cooperation separately, often good games include all three elements.

In his teaching guide on gamification, Kapp (2012) explains the three main principles of gamification which conflict, competition, and cooperation are. Conflict is a challenge that is provided by a meaningful opponent in which the player must actively defeat an opponent or game system (Kapp, 2012). Kapp believes that conflict awakens a student’s competitive nature. As a result, the student places more effort into the task. The second principle that improves gamification is competition. Competition within a gamified instructional context occurs when opponents do not purposefully impede one another, but instead devote their full attention to optimizing their own individual performance (Crawford, 2003; Kapp, 2012). According to this principle, students need to
be faster, cleverer and more skilled than their fellow students. Kapp believes that competition gets students to think more deeply about ways they can go about besting their fellow students. The last principle is cooperation. Kapp explains that cooperation occurs when students work together to achieve a mutually desirable and beneficial goal. Cooperation allows students to work together to complete tasks and finish activities. In order to unlock all three of these principles, the facilitator of the gamified learning experience must utilize both intrinsically and extrinsically motivating game elements to optimize student learning.

As Kapp suggests, facilitators must utilize a variety of extrinsic and intrinsic game elements to invoke conflict, competition, and cooperation. By unlocking these principles, the facilitator can increase student motivation. Kapp (2012) stresses the need to effectively use a wide variety of game elements that invoke both extrinsic motivation (such as points) and intrinsic motivation (such as stories). However, Kapp’s guide explains how previous instructors have had negative experiences with gamification. These facilitators had negative experiences because they focused too heavily on extrinsic motivational game elements. Kapp explains that sometimes students become totally reliant on the acquisition of points. As a result, these students did not complete activities or tasks that do not increase their score on the leader board. The instructors feel as if their students complete tasks only to gain points and not for the educational value (Kapp, 2012). Such as, students did complete only tasks that earned the students rewards such as points, badges, or recognition. Students will begin work only if there is an extrinsic reward attached to a task, which negatively impacts their intrinsic motivation. This is
why Kapp stresses the importance of utilizing both intrinsic and extrinsic motivation to instil conflict, competition, and cooperation into the gamified instruction.

Gamification researchers have utilized Kapp’s work to gain a better perspective on the teaching approach known as gamification. Gamification researchers utilize Kapp’s (2012) work to define and explain the concept of gamification (Seaborn & Fels, 2015; Stott & Neustaedter, 2013). In addition, game researchers applaud Kapp for his criticism of pointification and the need for gamification to focus more on intrinsically motivating game elements. Seaborn and Fels (2015) utilize Kapp to tackle the common criticism of gamification, which is distinguishing gamification from pointification. Kapp’s work on gamification demonstrates its differences with pointification. According to Kapp, pointification utilizes only extrinsic rewards, and gamification incorporates a variety of game elements to optimize student learning. As stated above, gamification researchers have also utilized Kapp to explain the importance of intrinsically motivating game elements. Figg and Jaipal-Jamani (2015) cite Kapp to explain the importance of implementing a narrative within the gamified learning experience in order to improve student learning. These gamification researchers also reference Kapp to explain the importance of implementing a variety of specific game design elements in order to optimize student learning (Figg & Jaipal-Jamani, 2015). Even though Kapp’s work did not add any empirical evidence to the field of gamification, it is clear through the considerable citation that his work has received that his ideas about gamification have improved the implementation of the teaching approach.
Quasi-Experimental Research Studies of Gamification

This section reviewed gamification studies that utilize a variety of game elements to impact student learning. In addition, these studies were chosen because of their rigor and the way they defend their hypotheses through the collection of data. Although not all of these studies collected empirical data, they do implement specific methods and methodologies to explore the impact of gamification. These studies explore how gamification impacts student learning and motivation. The following studies examine the impact of gamification as they implement a variety of methodologies to investigate a range of questions relating to the impact that gamification has on student learning. These studies all focus on higher education and how gamification impacts university students.

Candace Figg and Kamini Jaipal-Jamani on Gamification

Candace Figg and Kamini Jaipal-Jamani (2015) investigate the implementation of gamification in a preservice technology course. These researchers explore how gamification impacts the students’ perception of how they can utilize technology to teach. In order to do this the researchers gathered data from both the instructors teaching the course and the preservice students who were taking the course. The total population of the study was five instructors and 133 preservice students (Figg & Jaipal-Jamani, 2015). These researchers utilized a qualitative research methodology. This study gathered data from email interviews with the instructors, research field notes from instructional meetings, student reflections, student artefacts, and a student survey (Figg & Jaipal-Jamani, 2015). The researchers collected qualitative data to explore the perspective of the students and instructors. In addition, the researchers explain that they chose to utilize gamification in this course in order to address the problem of engaging preservice
teachers with the knowledge they needed to teach with technology (Figg & Jaipal-Jamani, 2015). As a result of the purpose of this study, the researchers investigated the impact that gamification had on improving the student ability to understand how to use technology. In order to complete this study, Figg and Jaipal-Jamani utilized a variety of game elements to ensure the successful implementation of gamification.

The study explains how the researchers utilized previous studies on gamification to formulate their implementation of gamification. Figg and Jaipal-Jamani (2015) build on such gamification researchers as Cronk, Johnson, Sheldon, and Kapp to formulate their gamified learning experience. Figg and Jaipal-Jamani utilized Cronk’s and Johnson’s ideas about gamification to incite competition in the students through incorporating extrinsic motivational game elements (such as points, badges, levels, and other rewards). These extrinsic motivational game elements are used in the study to provide students with incentives to complete their tasks and assignments. In addition, Figg and Jaipal-Jamani incorporate Sheldon’s and Kapp’s ideas. The study utilized Sheldon’s and Kapp’s work as a way to implement more intrinsically motivating game elements such as utilizing game language (Figg & Jaipal-Jamani, 2015). The researchers emphasize the importance of including intrinsic motivational game elements into gamification.

Even though Figg and Jaipal-Jamani explain the importance of utilizing narrative in a gamified course, they did not choose to implement a narrative (storyline) into their study. Figg and Jaipal-Jamani (2015) stress that one of their limitations of their study is that they did not implement a narrative into her/his application of gamification. The researchers stress that they chose not to include narrative out of concern that it could have
disengaged some students (Figg & Jaipal-Jamani, 2015). The researchers do not provide any further detail about why they did not use narrative in the study. This exclusion is surprising because the researchers express the positive features that narrative can have on students’ learning. However, the researchers did implement intrinsic motivation game elements such as avatars. Considering previous research that focused on professional development, Figg and Jaipal-Jamani implemented a gamified learning experience that utilized a variety of game elements to improve student learning.

As stated above, the original preservice course did not engage the students. Figg and Jaipal-Jamani (2015) explain that in the original course, preservice students would read chapters and complete quizzes to demonstrate their understanding. This type of teaching style did not engage the students in the content. As a result, the researchers decided to utilize gamification to improve student motivation. Figg and Jaipal-Jamani did not specifically state what they meant by motivation, but they did stress that motivation was linked to improved engagement and an increased effort to learn course content. In order to increase motivation and improve student engagement, the researchers utilized WordPress (an online free blogging site) to create a gamification interface (Figg & Jaipal-Jamani, 2015). In addition, the textbook reading materials from the “Teaching with Technology Methods” course was paired with video and interactive activities and structured as tasks in the online gamified TPACK teacher quest (Figg & Jaipal-Jamani, 2015). It is clear that the researchers utilized the gamified software to make the course more interactive in order to improve the students’ engagement with the course. After the course was completed, the researchers collected the data from the instructors and students
to defend their hypotheses that gamification improves preservice student's ability to teach with technology.

After analyzing all the data, the two researchers found that gamification positively impacted student learning by improving the students’ ability to understand the content. Figg and Jaipal-Jamani (2015) explain that the findings from the study positively demonstrate an improved understanding of how to teach with technology. As a result, the study illustrates that the students could more successfully apply the knowledge they learned (Figg & Jaipal-Jamani, 2015). The results of the study demonstrated an overall positive impact when it came to improving student learning through gamification. Furthermore, the study illustrates that the application of gamification also improves the students' motivation. As stated above, motivation was linked to student engagement within the course. As a result, Figg and Jaipal-Jamani (2015) stress how gamification motivated the preservice teachers to engage with background information about teaching with technology. This increase in motivation improved student participation and led to an improved understanding of course material.

**James Banfield and Brad Wilkerson on Gamification**

Like other gamification researchers, Banfield and Wilkerson wanted to improve the environment of their class by implementing a gamified learning experience. The researchers utilized gamification as a teaching approach to improve their students’ motivation in an undergraduate systems administration course (Banfield & Wilkerson, 2014). The researchers explain that motivation comes in two forms: extrinsic, which is focused on grades, and intrinsic, which focuses on the satisfaction that comes out of performing a task (Banfield & Wilkerson 2014; Lei, 2010). The research was intended to
investigate the impact that gamification had on their students’ intrinsic motivation. The population for this study was 96 undergraduate students enrolled in systems and security course (Banfield & Wilkerson, 2014). The researchers wanted to see if this gamified teaching approach was more effective in increasing student motivation in comparison to a traditional didactic teaching approach (Banfield & Wilkerson, 2014). In order to complete this study, the researchers utilized a qualitative methodology that focused on semi-structured interviews (Banfield & Wilkerson, 2014). The data from these interviews were then analyzed and coded to demonstrate the impact that gamification had on the students involved.

The researchers implemented a quasi-experimental study that consisted of two groups. The first group received the traditional didactic style of teaching. This style of teaching focused on algebraic computation and problem-solving methods (Banfield & Wilkerson, 2014). The second group in the study received a gamified course. The gamified teaching approach utilized a variety of game elements such as capture the flag events, quiz challenges, debates, use of leader boards, and point systems (Banfield & Wilkerson, 2014). More specifically the gamified course focused on a role-play event where the students had to utilize their computer skills to complete a task (Banfield & Wilkerson, 2014). After completing this task, students in the gamified course read a case study on a Microsoft breached server event. This event was a mock security threat that was set up by the instructor to imitate a real security threat. The goal was to identify how much of the content of the course the students could recall. Banfield and Wilkerson (2014) stressed that while these students were fixing the problems, they were receiving points for each problem they fixed. This activity demonstrated the quiz challenges that
the students had to complete. The points in this challenge represented the achievements of the students. The students found as many errors as they could and completed the activity by writing down all the security problems they found in the case study.

In order to collect the data, the researchers developed interviews to defend the hypothesis. The hypothesis was that gamification does improve the intrinsic motivation of students over a traditional didactic teaching approach. Banfield and Wilkerson (2014) utilized an open-ended interview. These interviews were meant to start a conversation with the students about their attitudes towards the course. An example of one of the questions is “What are your feelings on the assignment?” (Banfield & Wilkerson, 2014, p. 295). The question was broad enough to allow the students to answer the question any way they wanted. The researchers explored how the students perceived the gamified course. As a result of the open-ended questions, a lot of the students’ answers were broad, which complicated the coding process. The researchers explained the coding process by stating that “students answered cool, fun, or loved it” were coded as positive response under the category of experiencing pleasure from the task (Banfield & Wilkerson, 2014, p. 295). The coding process allowed the researchers to explore a variety of responses from the students (see Appendix C). The researchers used Lei’s model of measuring intrinsic motivation and extrinsic motivation as a tool to measure the student motivation (Banfield & Wilkerson, 2014; Lei, 2010). This tool allowed the researchers to measure the students’ motivation and draw results to defend their hypotheses.

The results of this study demonstrate how significantly gamification improved the student’s learning experience. Banfield and Wilkerson (2014) explain how the traditional didactic course had only two students who found the exercise exciting, and only three
students were able to connect the work to existing knowledge. In the gamified course, 25 students found the work exciting and 56 were able to tie the work to previous knowledge (Banfield & Wilkerson, 2014). The results from this study demonstrate that the students perceived this gamified learning experience to be more intrinsically motivating than the traditional didactic style of teaching. The researchers explain that 92.2% of students in the gamified course responded in intrinsic motivating themes (Banfield & Wilkerson, 2014). This is a significant stat when compared to the students in the traditional didactic style of teaching in which only 30.5% of students found the traditional style intrinsically motivating (Banfield & Wilkerson, 2014). The results from this study demonstrate that the gamification of the course significantly impacted student motivation. More research like Figg and Jaipal-Jamani’s, and Banfield and Wilkerson’s’ studies is needed to challenge criticisms and prove the effectiveness of gamification as a teaching approach.

### Criticisms of Gamification

As stated above, the field of gamification research has received a variety of criticisms from researchers who have identified a number of limitations within the field. These limitations stem from the lack of structure within many of the research studies conducted on gamification. Critics have identified a variety of limitations in gamification research that have negatively impacted the way researchers perceive gamification research. The major criticisms of gamification focus on the lack of empirical evidence, lack of rigor within gamification studies and the confusion of terms within game-based teaching approaches (Connolly et al., 2014; de-Marcos et al., 2014; Dominguez et al., 2013; Hamari, 2015 Hamari et al., 2014; Kapp, 2012; B. Kim, 2015; Seaborn & Fels, 2015; Zuckermann & Gal-Oz, 2014). This section reviewed the three major criticisms of
gamification research. By acknowledging the limitations of gamification, this study hoped to collect data that allowed for suggestions on how to improve gamification research.

**Lack of Empirical Evidence Within Gamification Research**

One of the most predominate criticisms of gamification research is the lack of empirical evidence within gamification studies. Critics have stressed how gamification researchers praise gamification for improving student learning and motivation without having any empirical evidence to prove this statement. Despite considerable speculation about the positive impacts that gamification has (Brunsell & Horejsi, 2011; Gonzalez & Area, 2013; Hellwege & Robertson, 2012; McGonigal, 2011; Muntean, 2011 Prince, 2013; Sheldon, 2010), empirical evidence on the effectiveness of gamification is limited (de-Marcos et al., 2014; Dominguez et al., 2013; Hamari, 2015 Hamari et al., 2014). Gamification critics stress the need for more research studies that collect empirical evidence to prove the effectiveness of gamification.

**Lack of Structure**

Another criticism of gamification research is the lack of structure within the studies. Hamari et al. (2014) explain that gamification research studies suffer from methodological limitations. These methodological limitations have negatively impacted the field of gamification research. This lack of structure in gamification studies includes a lack of comparison groups, small sample sizes, unorganized planning, and a lack of control of gamification elements (Hamari et al., 2014). Critics of gamification research stress the need for these limitations to be addressed to improve the results of the studies. Dominguez et al. (2013) reiterate these limitations and stress the need for gamification
studies to include larger populations. Hanus and Fox (2015) stress the need for gamification studies to focus on specific game elements and identify how they impact student’s learning. These critics all highlight the need for change in gamification research studies and the need to attempt to solve these limitations to provide more rigorous results.

**Confusion Within Game-Based Terms**

Another major criticism of gamification research is the confusion within game-based terms. Gamification has been confused with a more simplistic type of game-based teaching approach which is known as pointification (Kapp, 2012; Robertson, 2010). This confusion has led to a criticism of gamification for simply rewarding students for completing tasks. Critics have errantly criticized gamification for using only extrinsic rewards to persuade students to complete tasks (Robertson, 2010). However, these critics are actually criticizing pointification, which solely utilizes extrinsic rewards. This confusion stems from the definition of gamification, which is the use of game elements in a nongame context (Deterding, 2012; Kapp, 2012; Nicholson, 2012). It is this broad definition that has allowed game-based researchers to conduct studies on only extrinsic rewards and still consider their research to be gamification. Gamification researchers have stressed the need to reconceptualise gamification in order to differentiate it from pointification (Kapp, 2012; Robertson, 2010). Researchers express the need for a more specific definition to ensure the correct utilization of gamification as a teaching approach. This study hopes to generate an improved understanding of gamification. This improved understanding should help differentiate the various game-based teaching approaches.
Summary of the Chapter

The concepts and studies described in this chapter were used to provide an overview of the existing research in the field of gamification. As such, these studies were utilized to illustrate the major conflict, confusion, and criticism within the field of gamification research. The hope of this chapter was to provide the readers with a context of the current state of gamification. These studies were selected because they exemplify the main criticisms of gamification. These criticisms include lack of empirical evidence, lack of methodological structure, and confusion of terms within game-based learning (Hamari, 2015; Hamari et al., 2014; Hanus & Fox, 2015). As such, these studies provide concrete examples of the major criticism of gamification research. In addition to the criticism, these studies provide strategies and ideas on how gamification research could be improved. This chapter provides some examples of quasi-experimental research studies that highlight how gamification research studies should be conducted. Thus, this study aims to contribute to the growing understanding of how gamification research should be conducted to improve rigor in the field. The following chapter describes the epistemology, methodology, and methods used in this study to further improve the understanding of gamification research.
CHAPTER THREE: METHODOLOGY AND RESEARCH DESIGN

The purpose of this chapter is to outline the methodology and research techniques used to complete the study. Following a social constructivist epistemology, the goal of this study is to explore how game-based researchers perceive the current state of gamification research (Creswell, 2014; Lincoln, Lynham, & Guba, 2011; Mertens, 2014). To achieve this goal, the study uses a qualitative collective case study methodology to gather data from the participants. The belief is that the participants contributed multiple perspectives that help elucidate current trends in gamification (Stake, 1995; Toma, 2006). In summary, this chapter describes the methodology and design, the participants and site selection process, the data collection, processing, and analysis, and concludes with assumptions made about the data, limitations, and ethical considerations that are present in this study.

Research Methodology and Design

The purpose of this study is to examine how game-based researchers perceive the current state of gamification research. The research focuses on current trends, conflicts, and confusions within the field of gamification. This study is one of the first investigations on research practices within the field of gamification that calls upon the perspectives of game-based researchers. The study implements a qualitative methodology to explore the perspectives of game-based researchers. A qualitative methodology allows the study to explore and develop a detailed understanding of this central phenomenon of interest (Creswell, 2013, 2014). This methodology allows for the gathering of data from participants who are valued and central to the study. These participants’ experiences and knowledge provide for multiple perspectives that can help explain the current state of
gamification research (Toma, 2006; Velikovsky, 2012). In addition, these perspectives can also provide insight into how future gamification studies should be conducted. This study attempts to understand the participants’ perspectives in order to gather rich, descriptive data. This type of data helped explicitly describe the viewpoints of the participants (Wolcott, 1994). Thus, the use of a qualitative methodology helped reveal how game-based researchers perceive the current state of gamification research.

The main focus of this study is to explore how game-based researchers perceive the current state of gamification research. As a result of this focus, this study implemented a social constructive epistemology. A social constructivist epistemology fits the purpose of this study as such an epistemology seeks to better understand the world in which the research participants live and work (Crotty, 1998; Lincoln & Guba, 1984; Lincoln et al., 2011; Mertens, 2014). Through this lens, the study focuses on the complexity of the participants’ beliefs. In addition, a social constructivist epistemology allows the participants the opportunity to reflect on their own research practices and beliefs. Creswell (2014) explains that a social constructivist epistemology allows individuals to express a subjective meaning of their own experience, which is varied and multiple. Utilizing this epistemology allows the study to focus on the complexities of the participants’ views rather than narrowing the participants’ beliefs into a few categories of ideas. Thus, the social constructivist lens permits the study to explore the current state of gamification research from a broader rather than narrow outlook. Creswell explains that this broader outlook decreases bias because it relies as much as possible on the participants’ views of the situation under study. Following a social constructivist
epistemology allows for a more in-depth understanding of how gamification researchers view the current state of gamification research.

The study implements a case study methodology as a way to understand how gamification researchers perceive the current state of gamification research. A case study methodology supports the social constructivist epistemology that this study follows (Stark & Torrence, 2005). The methodology allows the study to construct knowledge from the participants to explore the current state of gamification research. In addition, the study uses a case study methodology because, “case study research excels at bring us to an understanding of a complex issue or object and can extend experience or add strength to what is already known through previous research” (Soy, 1997, p. 1). This study is conceptualized as a response to the gap within current gamification literature. Previous gamification literature has been criticized for its lack of rigor when it comes to identifying a methodology, the use of empirical evidence to prove its efficiency, and the confusion between game-based terms. Thus, a case study approach can help improve our understanding of a complex issue by filling the gap within the literature.

More specifically, this study explores the current state of gamification research with a focus on how research should be conducted in order to improve the rigor within the field. The use of a case study methodology helps accomplish this goal by allowing participants the ability to express their own understandings related to gamification research (Richardson, 1997; Soy, 1997; Stake, 1995). The study draws on the participants’ own perspectives of what they already know and believe about gamification research (Richardson, 1997). By exploring these perspectives, this study hopes to gain a better perspective of how Canadian gamification researchers perceive the current state of
gamification research. The study treats each of these gamification researcher’s perspectives as a single case. As such, the researchers’ beliefs allow this study to compare a variety of research beliefs within the field of gamification research.

The population of the study was four gamification researchers who are employed currently at Canadian universities. In order to investigate these researchers’ perceptions this study implemented a collective case study methodology. Creswell (2012) expresses that a case study is a form of qualitative research that uses individuals, or small groups of participants to collect data. A collective case study methodology allows this study to explore the differences and similarities within and between cases (Stake, 1995, 2005). The study explores each game-based researcher’s perspective as its own case. Furthermore, the study investigates the differences and similarities between each of the game-based researchers’ responses. The collective case study also allows the study to explore differences within and between cases, while attempting to look for synergies across the cases (Baxter & Jack, 2008; Stake 1995, 2006; Yin, 2011, 2013). The study explores each participant’s response individually, because each participant had a different experience conducting gamification research. The collective case study methodology allows for comparisons to be drawn and for the prediction of similar results across cases (Baxter & Jack, 2008; Yin, 2013). This type of methodology allowed the study to explore four case relationships collectively. Through exploring these relationships, this study aims to enhance our understanding of the current state of gamification research.

In order to collect data, this study implements a semi-structured interview design to collect data from the participants. The semi-structured interview design is composed of mostly open-ended questions in order to gather data from the participants. While
qualitative research largely utilizes open-ended questions, some closed-ended questions are required in order to investigate certain questions that are relevant to the topic. Because gamification research is so diverse, it was important that the participants are not ambiguous with their responses. Semi-structured interviews allow the researcher to focus the conversation around the topic. This style of interview allows the researcher to use predetermined open questions to prompt discussion (Creswell, 2013). This style of interview aligns with a case study methodology in which the context of the topic being studied needs to be highlighted (Farquhar, 2012). Furthermore, the semi-structured interview allows for the exploration of specific sections within the topic. As such, the semi-structured interview design allowed the researcher to react to participants’ comments and pose follow-up questions on emerging ideas (Nohl, 2009). Thus, by utilizing a semi-structured interview design the researcher can probe deeper into the research questions. The semi-structured interview were comprised of 16 questions outlined in an interview protocol (See Appendix C). The interview questions were developed based on a review of the existing literature, the research questions, and the current gamification trends/ideas that are prevalent in gamification research. The thesis supervisor and committee members contributed ideas about the direction of the interview and the word selection. The study uses the conceptual framework, which illustrates the main criticism of gamification research with a focus on methodology and methods, collection of empirical data, investigation of motivational affordances, outcome of the study, and confusion of the term gamification to create the organizational flow of the interview questions. By following these criteria, the interview elicits data that helped explain the current state of gamification research. As a result, the data help suggests
criteria that future gamification studies should follow in order to ensure more rigor in the research.

**Selection of Participants and Site**

The study explores the current state of gamification research by exploring the perspective of four gamification researchers who are employed at a variety of Canadian universities. The participants for this study were invited to participate using purposeful sampling. Creswell (2013) stresses that purposeful sampling occurs when the researcher “selects individuals and sites for the study because they can purposefully inform an understanding of the research problem and central phenomenon in the study” (p. 156). As a result, the researcher selected gamification researchers who educate in a variety of Canadian universities. This ensures the participants have the knowledge and experience to provide innovative ideas that can positively impact the field. Furthermore, these gamification researchers must currently be conducting gamification research or have conducted gamification research within the last four years. In addition, the participants must hold a faculty position at a Canadian university. These conditions help ensure that the participants possess the status, experience, and knowledge needed to provide an educated perspective on the current state of gamification research. Potential participants were selected while conducting the literature review for this study, through university websites and the help of my supervisor and committee. By utilizing these methods to select participants, the study ensures that the participants have the knowledge and experience needed to provide an insightful perspective on the current state of gamification research.
A letter of invitation was sent to the participants via email. Participants were invited to participate in either face-to-face or online interviews. Only participants that meet the specific criteria stated above were asked to participate in this study. It was decided that the study would need four gamification researchers to participate in order for the findings to be both insightful and manageable for a master’s thesis. Once the four selected researchers agreed to participate, no more participants were solicited. Prior to beginning the interview process, the participants were provided with a letter of informed consent. This letter outlines their right to decline to answer any questions, the right to refuse to participate in any component of the study, and/or to withdraw from the study at any time. The site of the interview was chosen based on each participant’s preference. The interviews could take place in person or take place online (via Skype or Google Hangout). Each participant was asked a combination of closed-ended and open-ended questions (see Appendix C), and each interview was expected to take between 50 and 90 minutes to complete.

**Instrumentation**

The study utilized two instruments to collect data. The study implemented two instruments to collect data for this study. This includes semi-structured interviews and researcher field notes. These instruments gathered data from the participants to gain a better understanding of how gamification researchers perceive the current state of research in their field. A semi-structured interview design was utilized to obtain data from the participants. While conducting the semi-structured interviews, the researcher also took field notes. Field notes can provide additional data to the study (Krueger &
Casey, 2009; Li, 2008; Marshall & Rossman, 2006; Walford, 2009). The semi-structured interview design and field notes and their usage are described in the following sections.

**Semi-Structured Interview Design**

The semi-structured interviews gathered the perspective of gamification researchers (see Appendix C). The semi-structure interview design consisted of 16 questions that integrate the conceptual framework. The interview began by soliciting demographic and background information from participants in lieu of a registration form. The interview questions helped explore the perspectives of the gamification researchers on how they perceive the current state of gamification research. Participants were asked to describe their beliefs when it comes to gamification, pointification, and the research that surrounds the two teaching approaches. In addition, the interview questions were used to identify how these researchers perceive the major criticisms that are evident in the field of gamification research. The interviews focused on specific questions including questions pertaining to gamification, pointification, comparison of the two teaching approaches, gamification research questions, and conclude with questions on how future gamification studies should be conducted. Participants were asked to share their beliefs when it comes to gamification research. In addition, the participants were asked to reflect on their experience with gamification research. As such, the semi-structured interviews aspired to gather data that help suggest how gamification research studies should be conducted.

**Researcher Field Notes**

Research field notes were collected throughout the interview process. Following the social constructivist epistemology of this study, unstructured field notes were used.
Unstructured field notes are utilized in qualitative research when the researcher wants to understand and interpret a specific set of beliefs (Merrell & Williams, 1994; Mulhall, 2003; Pretzlik, 1994). Furthermore, unstructured field notes allow the researcher to enter the field of study with no predetermined notions as to the behaviours that were observed (Mulhall, 2003). Entering the field with no predetermined expectations allowed the themes to emerge throughout the interview process (Mulhall, 1998, 2003). Unstructured field notes allow the researcher to collect inductive themes from the data they observe. These themes raised by the participants help guide the semi-structured discussion. Furthermore, the generation of themes can help elicit more insight into the specific topic under investigation. The use of unstructured field notes allows for an inductive collection of themes during the data collection process. Inductive analysis refers to an approach that uses detailed readings of raw data to derive concepts, themes, and patterns (Thomas, 2006). Through taking field notes, the researcher can record emerging concepts, themes, and patterns as they develop during the interview process.

The field notes also include observations from the interview. These observations include participants’ tone, pauses, and silence (Krueger, 1998; Krueger & Casey 2009). It is important to note that silence does not imply a lack of opinion on a particular topic, but rather can be a meaning of analysis in itself (Krueger, 1998). Thus, the inclusion of nonverbal observations within the field notes helps in the transcribing process. The field notes help identify nonverbal actions when the transcription conventions are inserted into the transcript. This study implemented the transcription conventions found in Tilley and Powick (2002). Following Tilley and Powick’s conventions allow this study to insert important nonverbal actions such as silence, pauses, and change in body language. Tilley
(2003) explains that these conventions include strategies for noting contextual aspects (such as nonverbal) of the interview. The field notes help identify important non-verbal cues that should be included into the final interview transcript. Thus, field notes are helpful in guiding the interview. The field notes drew emerging themes from the interviews. In addition, field notes helped complete the final transcript of the interviews.

Data Collection

Multiple methods were utilized to collect qualitative data for this study. The semi-structured interviews were utilized to gather data relating to how the participants perceive the current state of gamification research. The interviews were audio-recorded on both the researcher’s smart phone (using “voice note recorder”) and laptop (using “QuickTime Player”). Field notes were taken during the interview process to document participant’s responses (Mulhall, 2003). In addition, field notes also helped in the completion of the final transcript for the interviews. The following sections highlight the data collection process of the semi-structured interviews, and the qualitative data processing and analysis used in this study.

Qualitative Data Processing and Analysis

The interviews were transcribed using denaturalized transcription. This style of transcribing takes involuntary sounds and focuses on the essence of the interview. Mero-Jaffee (2011) stresses that denaturalized transcription “accurately describes the discourse, but limits dealing with the description of accent or involuntary sounds” (p. 232). The use of denaturalized transcription was also used to ensure the essences of the participant without distorting the participant’s meaning. Mero-Jaffee explains that denaturalized transcription demonstrates that the “accuracy relates to the essence of the interview, the
meaning and the perceptions that were created and its part in the discourse” (p. 232).

Denaturalized transcription helped in the member checking process through allowing the participants to focus on how their words were being represented and not on the sounds or noises. Once the participants had reviewed the transcripts and sent back their alterations, the data analysis began.

**Open and Axial Coding**

The coding process began with open coding of the data which was discovered through reviewing the transcripts through a rigorous and systematic reading to allow the major themes to surface (Thomas, 2006). These themes were cross-referenced with the field notes that were taken at the time of the interview. Field notes from each interview were kept within appropriate files and used to cross-reference certain data during the qualitative data analysis process of coding. The second stage of the coding process involved axial coding. This style of coding involves finding codes that are interrelated and crosscutting (Corbin & Strauss, 2008). Furthermore, axial coding allows for the refinement of themes and to develop the relationships that exist in the data (Flick, Kardoff, & Steinke, 2004). In essence, axial coding allows parallels to be found between the participant’s perspectives of gamification research. This two-stage process of coding allowed themes to emerge from the transcripts and field notes allowing for an improved understanding of gamification research. Major and minor themes were identified based on codes to develop greater understanding of central factors that need to be addressed to improve the overall rigor of gamification research.
Methodological Assumptions

This study utilizes a collective case study methodology. As such, the research would be considered qualitative research. Qualitative research depends on a number of methodological assumptions. An assumption of this study is that pure truths cannot be constructed from participants’ perspectives. However, this study’s methodology is rooted in the belief that knowledge can be socially constructed (Creswell, 2014). Thus, the data collected for this study are the opinions of the participants and do not represent an entire truth. As a result of this assumption, the study utilized a set of selection criteria to ensure the highest quality of data. The selection criteria for the participants ensured that the participants are experts in the field of gamification research. The implementation of the selection criteria for participants ensured that the participants invited to participate for this study have experience conducting gamification research. In addition to experience, the selection criteria also ensured that the participants had formal research training. In order to ensure the quality of the data collected, only gamification researchers who have 10 years of experience conducting research, have conducted gamification research within the last four years, and who are currently employed at a Canadian university were invited to participate in this study.

Another assumption of the study is that the gamification researchers were not be able to provide full on-the-spot answers to the entire list of interview questions. As a result, the participants received the questions prior to the interview. This preparation time allowed the participants an opportunity to reflect on each question prior to the interviews. The interview questions were emailed to the participants one week before the scheduled meeting. This preparation was allowed the participants a chance to prepare thoughtful
and informed responses to the questions posed during the interview. Providing participants with preparation time allowed the participants a chance to reflect on their own research beliefs. It is the researcher’s belief that providing the participants with the questions prior to the interview improved the quality of the participants’ responses. The participants had the opportunity to contemplate their own research beliefs when it comes to gamification. This contemplation allowed the participants to construct their responses - thus leading to a more in-depth understanding of how gamification researchers perceive the current state of gamification research.

As stated above, this study follows a qualitative methodology which constructs meaning from the responses of the participants. As such, this study assumes that the participants were honest in their responses. Furthermore, the study assumes that the participants provided accurate responses to the questions during the interview process. The study also assumes that the participants were able to recall previous gamification studies that they have conducted and reflect on that research. The participants were asked to recall their research studies that occurred a maximum four years prior to this study. The qualitative methodology assumes that the participants were able to recall their research experience.

**Limitations**

Qualitative research requires the researcher to acknowledge the scope and limitations of the study (Creswell, 2014). The population of the study does not represent the entire field of gamification researchers. The population represents only gamification researchers in a limited field of discourse and in a Canadian context. Gamification research has been conducted in a variety of disciplines such as business, nursing,
technology, computer science and a variety of other fields of study (Hamari, 2015; B. Kim, 2015). The findings from this study might not be generalizable to all the fields because other disciplines might hold different research philosophies. In addition, this study looks only at the Canadian context of gamification. The study may not be generalizable to other countries. However, this study can reasonably be expected to positively impact the field of gamification research beyond Canada through the knowledge gained on the subject. Huang (2010) states that this specific knowledge can be shared through peer review mechanism and “that a new stock of knowledge becomes available to all and the possibility of transferability of knowledge may also grow” (p. 105). Thus, the goal is for the study to transfer knowledge to gamification researchers by demonstrating the practicality of the suggestions made in this study. Transferability in this sense is achieved when readers feel as though the suggestions of the research are related to their own situation and readers intuitively transfer the research suggestions into their own practices (Tracey, 2010). In order minimize this limitation, ensure transferability and collect high quality data the study carefully chose its participants.

Another limitation of this study is that the participants were not randomly selected. Rather, the study utilized purposeful sampling in order to ensure the quality of the participants’ data. This study utilized purposeful sampling because it allowed for individuals who are informed and can provided an understanding of the research problems and central phenomenon of the study (Creswell, 2014). As a result, the participants were not randomly selected but rather invited to participate utilizing a set of criteria. The review of literature was fundamental in selecting participants for this study. The previous gamification studies allow for the collection of possible participants in the
field of gamification research. In addition, the review of literature also identified who were the main gamification researchers that are currently employed at universities across Canada. It is the researcher’s belief that the use of purposeful sampling resulted in the most relevant data from the participants because these participants were chosen because of their experience and knowledge in conducting gamification research.

Establishing Trustworthiness

In qualitative research it is vital to establish trustworthiness. In this study, trustworthiness is established by fulfilling the criteria of credibility, transferability, dependability, and confirmability (Guba, 1981; Guba & Lincoln, 1989; Lincoln & Guba, 1984; Schwandt, 2001; Schwandt, Lincoln, & Guba, 2007). This set of criteria is developed to improve rigor within the naturalistic paradigm (Schwandt et al., 2007). The naturalistic paradigm argues that realities are multiple, constructed, and holistic (Lincoln & Guba 1984). As such, qualitative research follows the naturalistic paradigm to construct knowledge from individuals. Lincoln and Guba (1984) developed this naturalistic trustworthiness from the positivistic paradigm (scientific community) that built trustworthiness in research from internal validity (credibility), external validity (transferability), reliability (dependability), and objectivity (neutrality). As a result of following a qualitative research design, this study established trustworthiness by following Lincoln and Guba’s naturalistic criteria.

Credibility

Credibility refers to the degree of verisimilitude (the appearance of being true) and authenticity that the results from a study provided (Guba, 1981; Richardson, 1997; Tracy, 2010). In other words, credibility is the ability of the study’s findings to seem
plausible to other researchers. Credibility is achieved through practices including member checking, thick descriptions, and triangulation (Guba, 1981; Tracey, 2010). Through implementing these three practices, the credibility of the data was improved. Guba and Lincoln (1989) believe that member checking is the most important research technique for establishing credibility. In this situation, member checking is the method of taking findings back to the participants and allowing the participants to determine if the transcript is accurate and true (Lindlof & Taylor, 2002; Tracey, 2010). As such, this study implemented a thorough member checking process to ensure the credibility of the data.

**Member checking.** The member checking process was explicit throughout the study. The participants were told about the member checking process through the letter of invitation, letter of consent, and after the interview process. In addition, the participants were provided with timeframes as to when they could expect the transcripts to be sent to them. After the transcript were sent to the participant via email, they had two weeks to submit any changes. The participants were asked to use track changes in MS word (with accommodations for those who do not have access to the software) to make any suggestions or changes in the transcripts. A letter of instructions was sent to the participants with the transcripts. The letter outlined the purpose of the member checking process and also explained that the participants could remove anything that they would not like to be factored into the research analysis.

**Thick description.** The second practice that promotes credibility is thick descriptions. Tracey (2010) explains that thick description is one of the most important means for achieving credibility. Thick description occurs when the researcher illustrates culturally situated meaning (Geertz, 1973) and concrete detail (Bochner, 2000). These are
included into the study to provide context for the study. As a result, think description occurs when researchers provide enough detail that readers can come to their own conclusion (Tracey, 2010). As such, this study utilized a variety of direct quotes from the participants. These direct quotes allow the readers to situate their own meaning and develop their own conclusions about gamification research. The readers had the opportunity to consider or disregard any suggestion made by the participants. The researcher hopes that connecting the participants’ perceptions about gamification research (interviews) to the data collected from the review of literature allowed readers of the study’s results an opportunity to develop their own conclusions about how gamification research should be conducted.

**Triangulation.** The third practice was used to improve the credibility of the study was triangulation. Triangulation is the use of multiple data sources to check the integrity of the inferences and ideas drawn from the study (Bloor, 2001; Schwandt, 2001). The use of triangulation insists that the conclusion found in research is more credible when two or more sources of data, theoretical frameworks, or types of data collected are included in the study (Denzin, 1977, 2008). This research implemented triangulation through transcripts from the interviews, field notes, analysis of previous studies on gamification, and reflections from the researcher. The study compared data from these sources to improve the credibility of the data and deepen the understanding of gamification research. The use of multiple types of data, researcher’s views, and methods of analysis allows the study to analyze different facets of the problem under study by increasing the scope, deepening the understanding and encouraging consistent interpretation of the
study (Tracey, 2010). Thus, triangulation improves the credibility and widens the scope of the study.

Transferability

Transferability refers to the way in which results from a study can be applied in other contexts and still remain relevant (Lincoln & Guba, 1984). It is the ability of the results to be applied to a variety of contexts and situations. Transferability is achieved when readers feel that the focus of the research overlaps with their own situation and transfer the research to their own action (Ellis, 1995, 2007; Tracey, 2010). As such, the study focuses on the perceptions of the participants who are researchers in the field of gamification. In addition, this study attempts to invite transferability by gathering direct testimony, providing thick descriptions, providing examples and definitions for any gamification-related jargon (Tracey, 2010). The study utilizes direct quotes from the participants with explanations and definition in parentheses to explain any jargon or discipline-specific terminology provided by the participants. The participants member checked their transcripts and provided an explanation for any jargon or discipline-specific terms. In addition, the participants member checked their transcripts to ensure the accuracy of their research beliefs. The researchers’ beliefs are directly quoted in the results chapter to ensure the transferability of the study.

Dependability

Dependability is hard to ensure in this qualitative research study because of the subjective nature of study. As such, it would be difficult to duplicate the same results if this study were to be recreated. Steps were taken to improve the dependability of this study. Lincoln and Guba (1984) explain the importance of having an inquiry audit
conducted on the study in which external reviewers examine both the process and the product of the research for consistency. To create dependability, external researchers (committee members) reviewed this study for consistency. Another step to ensure the dependability of this research is to make sure the description of the study is described in detail to provide transparency (Shenton, 2004). As a result, this study thoroughly explained to the reader the methods (interview), methodology (collective case study), and epistemology (social-constructivism). However, even with this information researchers might not be able to attain the same results.

**Confirmability**

Confirmability is related to the level of objectivity of the research and findings. It refers to the degree to which the research can demonstrate neutrality within the research interpretations (Lincoln & Guba, 1984; Schwandt et al., 2007). This study utilized a variety of strategies to improve the confirmability of the research. As such, this study implements confirmability through the use of member checking. The participants reviewed their transcripts to make sure that the responses were accurate. In addition, the researcher kept a reflexive journal which included analysis notes, process notes, and personal notes (Lincoln & Guba, 1984). The last strategy implemented to improve confirmability is a confirmability audit. To allow for the confirmability audit, the researcher provided the external researchers (committee members) with raw data, analysis notes, reconstruction and synthesis products, process notes, personal notes, and preliminary information (Guba, 1981; Lincoln & Guba 1984). Similar to the audit completed for dependability, the confirmability audit was complete by an experienced
researcher who reviewed the interview questions, coding process, and the results of the study to help ensure the objectivity of the research findings.

**Ethical Consideration**

Prior to contacting any potential participant or collecting data, the ethics application for this study was reviewed by the university’s Research Ethics Board (REB) and granted clearance (file 16-141 HUTCHISON). The following section describes this study’s specific considerations of informed consent, participant withdrawal, confidentiality, member checking, and reciprocity (Carlson, 2010; Creswell, 2013, 2014; Mero-Jaffe, 2011). The following sections demonstrate the vast ethical considerations that went into the planning of this study.

**Informed Consent**

The potential participants were found while conducting the literature review, searching university websites, reading conference proceedings, and with the help of the study’s committee members. A letter of invitation was emailed to the potential participants that were found to meet the study’s participant criteria. The participants had to have at least 10 years of experience with conducting research. In addition, the participant must currently be conducting or at least have conducted gamification research in the last five years and must work at a Canadian university. The opportunity to participate was extended to all of the participants that fit the criteria. The letter of invitation explained the purpose of the study, the process involved, and the voluntary nature of the study. In addition, the letter of invitation instructed the participants to contact the researcher if they wished to participate or had any questions related to the study.
The participants received a copy of the letter of consent form prior to the semi-structured interview. A blank copy of the letter of consent was provided to the participants at their request. The letter of consent explained the potential risks of participation, including the sense of stress, fear, or inferiority that could arise from speaking to other academics in the focus group. In addition, the letter of consent also outlined the potential benefits of participation including the opportunity for the participants to share and reflect on their research beliefs. The letter of consent explained that the study was voluntary and that the participants had the right to withdraw or not participate in anything they did not feel comfortable with.

**Participant Withdrawal**

The participants were informed that this study was entirely voluntary and had the right to withdraw from the study at any time. Participants knew they had the right to refuse to respond to any question or topic that arose in the study. If a participant chose to withdrawal from the study, any individual data collected (contact information, individual interview transcripts, personal information) would be destroyed. The letter of consent informed the participants that should they withdraw none of their information, experiences, or direct quotes used in the study. Participants were informed that they were not able to withdraw after the master list linking the participants to their pseudonyms had been destroyed after the completion of the study. After the master list is destroyed, there would be no way to identify a particular individual’s data. As such, that participant’s information was included into the study.
Confidentiality

In order to maintain confidentiality for the research participants, this study includes a number of protocols as such securing data, using pseudonyms, removing identifiers, and having participants sign confidentiality forms (Toma, 2006). Any data collected during the study was stored securely. The data were securely stored on the researcher’s laptop using a double password feature or in a locked filing cabinet. Only the researcher and the researcher’s supervisor had access to the data. In addition to the data being secured, participants were all assigned pseudonyms for their data. Participants’ names, titles, and any other identifiable features from their experience are not included into the study. Any identifiable data were removed from the interview. These protocols ensure the confidentiality of the participants.

Reciprocity

The purpose of the study is to explore the current state of gamification research through the perceptions of the researchers who conduct research in this field. The study was beneficial to the participants who volunteer to take part in this study. These benefits include an opportunity to reflect and contemplate about their own research philosophies, generate new ideas related to gamification research, and help construct a more in-depth understanding of how gamification research should be conducted. By conducting interviews, this study allowed participants to reflect and contemplate on their own research practices and beliefs. The researcher provided the participants with the questions prior to the interview. This gave the participants a chance to reflect on their own research philosophy. Through this reflection, the participants could improve their own understanding of how they conduct gamification research.
New ideas could be generated from this study that could improve the rigor within the field of gamification research. The participants’ perspective concerning gamification could generate more insight into how gamification research should be conducted. All of the participants in this study have a vast amount of experience with conducting gamification research. As such, the participants’ insight could generate innovative ideas that improve the current state of gamification research, since the purpose of this study is to generate an improved understanding of gamification research and to counteract its criticisms. The participants in the study could help identify practices that could improve the way in which gamification research is perceived. In addition, these researchers could also feel as if they are helping conceptualize gamification as a teaching approach. As a result, the researchers could generate ideas that could be implemented into their future research studies on gamification.

Summary of the Chapter

This collective case study is designed to explore the current state of gamification research, focusing on the main criticism, conflicts and confusions within the field of gamification. The study utilizes a social constructivist epistemology to construct knowledge from the participants. This construction of knowledge attempts to provide a more in-depth understanding into the field of gamification research. In addition, the knowledge generated in this study is meant to provide suggestions and a framework for future gamification research studies. The epistemology, methodology and design, selection of site and participants, instrumentation, data collection and analysis, methodological assumptions, limitation, credibility, and ethical considerations discussed
in this chapter strengthen the results of this study. The findings of the study are presented in the next chapter.
CHAPTER FOUR: PRESENTATION OF THE FINDINGS

This study set out to examine the current state of gamification research by gathering the perspectives of professors who have conducted gamification research in an attempt to generate recommendations as to how to improve the overall rigor of the field. Four participants were interviewed independently. All of the participants met the study’s criteria (i.e., being a tenured professor at a Canadian university who has conducted research on gamification within the last five years). Furthermore, all of the participants have at least 10 years of research experience from which their insights were drawn. Data were collected from the professors’ own research studies, the semi-structured interviews, and the researcher’s notes to help with the triangulation of data.

This chapter begins with a brief discussion of the four professors’ epistemological beliefs in order to provide background on their research beliefs. The chapter then moves into a discussion of the five categories that emerged from the initial open coding of the transcripts. These categories include: a) the impact of gamification on student motivation; b) the impact of gamification on student behaviour; c) the difficulties that are sometimes encountered when implementing gamification; d) the difficulties that are sometimes encountered when conducting gamification research; and e) suggestions as to how to improve gamification research. The final section provides suggestions to novice gamification researchers and it explains some of the problems that might hinder their research studies. This chapter presents important ideas from the interviews, field notes, and professors’ research studies.
Portraits of the Participants

The participants for this study were all selected because they hold tenured professor positions at Canadian universities. All of the participants currently conduct research while simultaneously teaching university courses. Even though the participants come from different disciplines, they have all conducted gamification research or written papers on gamification within the last five years. In order to understand their perspectives for gamification, this study asked the participants to explain their epistemological beliefs when it comes to research. The participants express how they conduct research focusing on the methods and methodologies they use while conducting research. This section intends on providing some background information on the participants to explain their experience, epistemological beliefs, and research foci.

Introducing Dr. Who

Dr. Who is an associate professor at a university in western Canada. He currently works in the Faculty of Interactive Arts and Technology, where he conducts research that focuses on computer human interaction. His research foci are telepresence, domestic computing, mobile computing, and pervasive games. He has conducted research on computer human interactions for over 15 years. Furthermore, Dr. Who is an instructor in a few upper level design courses, where he “teaches people how to think about design and create technology of the future and evaluate them” (Interview, March 2017). In one of these courses, he incorporated gamification and has conducted research on the teaching approach. Dr. Who believes that gamification would interest his students through the implementation of a variety of game elements. Dr. Who reflects on his experience with gamification and explains that he has conducted six different studies on
gamification. However, not all of his gamification studies are in an educational context. He has also implemented gamification within an interactive arts context where he used gamification to create technologies to better connect people. Dr. Who believes that gamification is pragmatic in nature and needs to be implemented in real life situations.

His epistemological beliefs are pragmatic in that he believes researchers should conduct research in the real world and not in the lab. He emphasized the importance of working in the real world throughout the interview. Furthermore, he expressed that he does not like to conduct research in a lab, but rather his research group likes to “move out of the lab and go into the real world to conduct research because we value natural observation.” When collecting data, he has utilized a mixed method approach to gather both quantitative and qualitative data. He stressed that you just have to make sure each type of data are appropriate in their own way. You use qualitative because you want to know the why of the experience and quantitative more so because researchers and publications want to see numerical data. (Interview, March 2017)

Dr. Who advocated for both types of data. However, researchers need to determine which type of data is appropriate depending on the type of study they are conducting. While reminiscing about his previous studies, Dr. Who stated that he believed that he is much more of a qualitative researcher. During the interview, he continued to express that he used qualitative research because he recognizes the value of lived experience. As such, he prefers to talk to people about their experience and get in-depth details about his participants. Dr. Who follows a pragmatic epistemology that focuses on a qualitative methodology that values people’s experiences.
Introducing Dr. Dif

Dr. Dif is a full professor at a university in southwestern Ontario. She is employed in the department of Information Technology Management. Her research interests involve inclusive design, inclusive technology and media, and inclusive video game design. Dr. Dif has over 15 years of research experience in the field of inclusive design and inclusive technology. In addition to her research, she also is an instructor at her university. As an instructor, she has implemented gamification into her course to explore its impact on her students’ learning. Her biggest accomplishment in this course is the implementation of an in-game economy. The in-game economy allows students to earn online currency for completing mastery tasks with the opportunity to complete extra tasks to unlock more points and tasks. In order to identify the impact of gamification in her course, she implemented a qualitative methodology to gather in-depth information from her students.

Dr. Dif conducts research on inclusive media and technology and inclusive design. Her research is primarily qualitative in nature. The methodology she has used in her studies was “very similar to a usability kind of methodology.” She explained this methodology is “where you implement an idea and you test it using attitudinal instruments.” The methods she utilized in her studies were interviews and questionnaires. In order to identify the changes in behaviour, she used “pre and post questionnaires looking at a variety of things, we look at it before and after.” These research tools were implemented to determine the change in the students’ behaviour resulting from the gamified learning experience. Dr. Dif placed emphasis on the need for longitudinal
studies to validate behavioural change. Longitudinal studies would allow researchers an opportunity to gather more in-depth data on how gamification affects student behaviour.

**Introducing Dr. Dice**

Dr. Dice is an assistant professor at a university in southwestern Ontario. She is a sociologist whose research focuses on game studies, software studies, and surveillance studies. She has taught courses in the Sociology and Legal Studies Department. Dr. Dice has over 10 years of experience in conducting research. Her work on gamification looks at how governance and control are designed into games and how playful rationalities are used to shape user behaviour and govern people through freedom and pleasure. However, she has stepped away from gamification research and has taken a closer look at the game industry. Currently she is working inside game studies and with developer communities to learn about the struggle for new media producers.

Dr. Dice conducts research that looks at workplace organization, problem-solving, and socioeconomic models of the game industry. Even though she has written papers on gamification, as of late she has shifted her focus to gameful design. According to Dr. Dice, gameful design focuses on the use of play and it implements “the satisfying properties-things like agency, emotion, and immediate feedback to improve student motivation.” She has distanced herself from gamification research and stressed the need for gameful design. She believed that gamification was at the end of its hype cycle and that researchers have switched into different areas of research such as gameful design. Gartner’s hype cycle characterizes the typical progression of an emerging technology and new ideas through a period of disillusionment to an eventual understanding of the technology and idea’s relevance and role in society (Linden & Fenn, 2003). Her research
is qualitative in nature. She states that she conducts “embedded ethnography with interviews and surveys.” As a sociologist, she believes that qualitative research is important in order to get more in-depth data from her participants. Furthermore, she likes to keep up with current research and looks at “the documentation and all the developers’ conferences and blogs and chatter happening on social media.” This allowed her to discover new and innovative research. She stressed the importance of conferences in her field of study to ensure that her research is including the newest ideas.

**Introducing Dr. Game**

Dr. Game is an associate professor at a university in southwestern Ontario. Her research focuses on the use of technology to improve teaching and learning. In addition, she also researches technology integration in teaching practices, curriculum, and instruction. Dr. Game has over 15 years of research experience in the field of education. In addition to her research, she teaches a variety of teacher education courses that focus on integrating technology into the classroom. It is in these classes that she has implemented gamification and studied its impact on student learning. Gamification is seen as a way to improve her students’ retention of the course’s content through improving their participation in the course. As such, Dr. Game explored the impact of gamification in her classroom, specifically on how it affected her students’ behaviour.

Dr. Game conducts gamification research focusing on how it affects student behaviours. She described herself as being a naturalistic inquiry researcher in that her research begins with a broad question. As a researcher, she identified herself with qualitative research because she perceived that people’s experiences are crucial in formulating knowledge. In addition, the research that she is interested in lends itself to
qualitative research. She stressed that “when it comes to teaching and individual teachers, it is difficult to think that quantitative is the correct way to go because we are all different.” Qualitative research allowed her to pull commonalities out from the different things that occur. She believed that “if we are all individuals and we are doing all of these different types of things and yet if there is something common in the research exploitative thought then that is very much what I am interested in.” As such, she stressed the need for interviews, questionnaires, and focus groups. She mentioned these tools throughout the interview. These tools allow her to gather data that are pertinent to her research questions. Dr. Game stressed the need for researchers to identify and evaluate methodology and methods in conjunction with the purpose of their study.

**The Impact of Gamification on Student Motivation**

This is the most comprehensive section of the findings that address how gamification affects student learning. The participants explored the idea of how gamification affects student motivation. However, gamification was not seen by all of the participants as being a teaching approach that could improve student motivation. This topic brought forth the idea of needing to use extrinsic motivation to transition into intrinsic motivation. The participants explained how this could improve student motivation and lead to improving student learning. Furthermore, game elements were an important topic in improving student motivation. Participants explained how specific game elements could motivate students to learn. The last theme explored was how pointification can affect motivation. Pointification was identified as both positively and negatively impacting student motivations. Some participants thought that using only extrinsic rewards might actually help certain students succeed in school. The participants
viewed gamification as a teaching approach that could improve student motivation if implemented properly.

The Participants’ Beliefs About the Motivational Impact of Gamification

All of the participants mention the importance of studying motivation in their interviews. However, the participants had mixed reactions to how gamification affects student motivation. One participant believed that gamification is a psych hack that leverages game elements to condition students to perform activities. However, the participant did not elaborate on her definition of a psych hack. Dr. Dice did mention how some “types of mechanics that are seen in Farmville (like appointment-based mechanics) can leverage psych hacks.” She stressed that the use of gamification to promote motivation in something compulsory like education goes against the reasoning behind games. Dr. Dice stated that “if you are leveraging something in a gameful way then it automatically needs to be voluntary.” It is clear that she believed that games are supposed to be voluntary and that gamification goes against this by using “psych hacks” to use games to govern students into completing tasks. Dr. Dice stressed you cannot be using gamification for education purposes because “being forced to participate starts to destroy the whole game-like aspects when you are forced to join in.” As such, gamification could actually have a negative impact on student motivation because it is not voluntary and could take away the students’ autonomy in the class. Dr. Dice strongly criticized gamification because it has the possibility of actually negatively affecting student motivation.

In comparison, the three other participants viewed gamification as having a positive impact of student motivation if implemented properly. Most of Dr. Dif’s research
on gamification focuses on how to use gamification to increase student engagement in the learning process. These research studies allowed her to improve her own teaching abilities in order to positively affect her students’ learning. Dr. Dif believed that gamification would make her a “better instructor which in turn would improve her students’ motivation”. After the first implementation of gamification, she had the best student responses in 20 years. The students wrote about how they wanted to come to class in order to experience this new teaching style. Dr. Dif expressed that gamification tries to allow you to use other motivational tools such as an in-game economy, leader boards, points, and avatars. The in-game economy was set up like a stock game where students could earn currency to use to improve their grade. She believed that grades were the number one motivator in her university course. As such, she implemented gamification in such a way that it would affect her students’ marks.

Dr. Game and Dr. Who also noticed a rise in student motivation and participation in their respective classes. Dr. Game’s research focused heavily on behaviour change but did notice an improvement in student motivation. She stressed that the implementation of gamification into her teacher’s education course improved how students perceived her course. She mentioned throughout her interview the increase of student participation. The course did not only implement gamification, but also taught the students how to use it in their own classrooms. However, she does stress that her implementation of gamification focuses heavily on extrinsic rewards. Dr. Game promotes the need to use extrinsic rewards as a way to transition students into finding intrinsic motivation in the course’s content. Extrinsic rewards motivated the students to put forth more effort to learn the material, through which they became more interested in course content.
Similarly, Dr. Who believes that extrinsic rewards could help get the students interested in course content. He stresses that “getting students to be intrinsically motivated to learn was difficult.” As such, he uses extrinsic rewards to get students to buy into his course and its content. His study looks at motivation as well and investigates gamification instructors. His findings suggest the need for “gamification to use extrinsic rewards to develop enjoyment in the activity.” The use of extrinsic rewards could hook students into course content. The belief is that gamification can improve student learning through utilizing extrinsic rewards to motivate students to complete more reading. This in turn will allow students to become more interested in the course content. As such, gamification can improve student motivation if planned properly by promoting both extrinsic and intrinsic motivation.

The Need for Extrinsic Motivation to Promote Intrinsic Motivation

The idea of using extrinsic motivation in order to promote intrinsic motivation was an important topic explored by Dr. Who, Dr. Dif, and Dr. Game. Dr. Who talks extensively about the transition because this transition occurs in a number of his gamification studies. He referenced psychology literature to state that the general consensus is “that it is really hard to design for intrinsic motivation and often what the studies do are focus on the extrinsic motivation to allow people to develop enjoyment in the activity.” As such, the researcher noticed that the enjoyment will carry forward and the extrinsic motivation is no longer needed and turns into intrinsic motivation. Dr. Who stresses that extrinsic rewards should be utilized as a way to introduce students to a topic with the hope that they find enjoyment in the topic. As a result, the students will not need the extrinsic reward, but will be intrinsically motivated because of the learning
experience. In order to interest the students into the course, the researchers use extrinsic rewards by using gamification to help the students find enjoyment in the course’s content.

Dr. Dif had a similar view when it came to the need to utilize extrinsic rewards to promote intrinsic motivation. She believed that you “cannot just motivate people intrinsically,” but rather “they need to be intrinsically motivated themselves.” As such, Dr. Dif used external motivation to promote intrinsic motivation. She utilizes gamification as a way to help her students transition into internal motivation. This motivates students to “want to do things themselves because it is interesting to them, not because it earns the students grades or points.” The transition from extrinsic rewards to intrinsic motivation is essential in gamification to ensure the success of student learning. Connecting her research to psychology, she stressed that extrinsic motivators do not last if there is not transition to intrinsic. She explains that using “currency such as grades as a motivator will not last.” Extrinsic rewards will not be an effective motivator in the long term. Dr. Dif expressed that gamification needs to transition from extrinsic rewards to intrinsic motivation using points and badges in order for students to become interested in the learning experience itself.

Dr. Game held a similar opinion when it came to gamification. However, she used this argument to explore the idea of gamification versus pointification. She argued the necessity for pointification because it provides immediate extrinsic rewards. However, she believed that you “needed to include more than just extrinsic rewards to improve student motivation.” As such, she argued the need for both intrinsic and extrinsic rewards to improve student motivation. She expressed that “if you build it with just one or the other, such as only pointification you do not get as much buy in.” It is clear that she
believed that the immediate rewards that pointification provides can help in the transition from extrinsic to intrinsic motivation. Dr. Who expressed that “intrinsic motivation is what you try to build through the engaged learning experience.” Game elements have to be specifically chosen by the researcher to help increase student motivation.

**Impact of Game Elements on Motivation**

One of the most interesting findings from the interviews concerns the inclusion of story line or narrative into gamification. Research suggests that the incorporation of narrative would positively affect student motivation (Kapp, 2012; Sheldon, 2010). However, the participants experienced the opposite when including narrative into their implementation of gamification. Dr. Who found that incorporating a story line in the class did not interest his students. He stated that “the students were not interested in a story line.” This goes against other findings in current research. However, Dr. Who stressed that there could be other factors that affected the students’ beliefs towards the story line, such “as the time of the class and the type of story implemented.” He suggests that each student is different and each class is different, and thus he will continue to try to improve his application of gamification.

Similar to Dr. Who, Dr. Dif found some resistance to her implementation of gamification that included narrative. She attempted to implement avatars into her gamified learning experience. She stressed that the students preferred “for her to pick their avatar” and that “this game element did not interest them as much as I thought it would”. The students were not interested in the avatars. The students did not want to build an avatar for the course. Dr. Dif explained that “the students did not seem interested in narrative game elements” and that it might not be needed”. The students wanted to
focus their time and energy on the course work to ensure a high mark in the course. The avatar was seen as a distraction that would not improve their overall mark in the course. This demonstrates that narrative game elements might work for some students, but possibly not in a competitive university course.

Dr. Game did not view narrative game elements as being essential to the gamified learning experience. She expressed that “storyline or narrative is not needed in the implementation of gamification, but that it would be nice to have.” Dr. Game found it difficult to try to implement narrative into her implementation of gamification. This difficulty arose from the need to ensure that all her course’s curriculum was included. Even with this difficulty, she expressed that she intends to implement narrative into her future gamified learning experiences. Dr. Game cites previous research studies to stress that narrative could improve her students’ motivation. In addition, she expresses the desire to explore the impact of narrative game elements within her own classroom.

Narrative game elements take time away from the content, and gamification researchers need to ensure that the courses curriculum is followed. Narrative was seen as a game element that could improve student motivation but could possibly hinder the incorporation of curriculum. As a result, Dr. Game’s implementation focused on extrinsic rewards to motivate students to learn.

Extrinsic rewards were the main game elements mentioned in the interviews. The participants expressed the need to use these rewards to entice the students into the learning experience. Dr. Who expressed that “most of the game elements we included in this game were extrinsic motivators, such as players would gain points for placing items or placing a story line.” In his implementation, students would gain points for completing
various activities. He found that after implementing gamification, the students’ participation went up. Furthermore, he observed that students were more interested in the activities. Dr. Who explained that these extrinsic rewards prompted his students to be more involved in the course and complete more activities. As a result, he believed that the extrinsic game elements influenced his students’ participation.

Similarly, Dr. Dif utilized experience points (XP) to improve student motivation. This XP would then be used to calculate the student’s grade. She stressed that “it could be earned in class and there were a whole bunch of ways that they can earn XP.” This is where she introduced an in-game economy for the first time. She mentioned that this was the first time anybody has done an in-game economy at her university. In the in-game economy, the students would have to purchase the extra mastery elements in order to improve their grades. The currency is “called stock option and the students earned stock options with the assignments they complete.” The students gain this currency by completing assignments. Furthermore, the students can choose to purchase mastery assignments, which than acted as a multiplier for the remaining XP. The in-game economy provides the students with autonomy and allows them to choose their assignments. She found that the students in the gamified course completed a lot more assignments then her previous traditional courses. As a result of gamification, she found that the participation in her course and the completion of assignments went up in her class. Dr. Dif found that gamification improved her students’ attendance and increased the completion of assignments.

However, not all of the participants perceived the use of extrinsic rewards as being beneficial. Dr. Dice stressed that “some people take the worst things in games such
as only using points and feedback loops to impact people’s behaviours and motivation.” She believed that giving points for completing activities goes against what games are intended to do. As such, she has distanced herself from gamification research because of the way it artificially incorporates game elements. Dr. Game also expressed the need to include more than just extrinsic rewards in order to improve student motivation. She stressed that in the long run the students will not be as motivated by extrinsic rewards. As a result, student learning will actually be hindered by implementing only extrinsic rewards. The students will only complete assignments and activities that are rewarded.

Dr. Dice and the other participants were critical of pointification and implementing only extrinsic rewards.

**Impact of Pointification on Student Motivation**

Many participants had differing views when it came to pointification. Dr. Who and Dr. Dif believed that pointification was a good way to reward students for completing tasks. The argument was that courses are already set up to promote extrinsic rewards through grades. Gamification just takes these extrinsic rewards and introduces them in a more interesting and gamified way. On the other hand, Dr. Game and Dr. Dice believed that it would have a negative impact in the long run. As a consequence of pointification, students might complete tasks only if there were rewards attached to them. Dr. Dice thought that adding extrinsic motivation to something that should inherently be intrinsically motivating could make students value learning less. In this view, pointification was seen as negatively affecting student motivation because they learn to complete tasks only to gain rewards. In the long run, this would cause students to
devalue their learning. Students might devalue their learning if pointification is implemented long term.

Pointification was seen as a teaching approach that made visible the extrinsic rewards that already exist in the classroom. Dr. Who provided an example of this stressing “the most basic extrinsic motivation for a class is when a student gets a score on an exam which impacts their final grade.” He believed that implementing pointification game elements through these extrinsic rewards could entice students. He perceived the benefit of pointification because “it is novel and it could increase excitement.” Dr. Who thought that by changing the course to be more gamified, you can call “these scores XP and maybe the final XP total creates levels for them, where they can accomplish something in the class.” He explained that pointification used the same extrinsic motivation as traditional courses, such as a grade or a score on the exam, except in pointification you use other terms, which could make learning more exciting for the students. Pointification utilizes gamified language to gamify the extrinsic rewards found in school.

Dr. Dif expressed a similar view. She believed pointification is interesting because it exemplifies the extrinsic rewards present in traditional education. Throughout the interview, she continually compared pointification rewards to traditional rewards such as grades. She explained this stating, “whether you use percentages or other marks, you are still working within a currency system.” She perceived education as a currency system where students complete assignments for marks. Students are conditioned in school to work hard and put forth effort for marks. However, students must become intrinsically motivated by the topic to be successful in school. She perceived that using
these extrinsic rewards as a currency system does not last that long and those students could lose motivation. As a result, instructors must transition students from being extrinsically motivated to be intrinsically motivated with the content of the course. In this process, the students are introduced to the topic through gamification and becoming interested in the course material.

Dr. Game worried about the long-term impact of pointification. However, in the end pointification would negatively affect student motivation. Dr. Game explains that over time pointification will negatively affect student motivation. Students will become less engaged. However, she also stressed that it could also depend on the type of rewards given. However, it also depends on the type of students that are in the course. Less competitive students might not react positively to points and leader boards. As such, intrinsic motivation through learning new ideas and concepts is important in improving student motivation. Dr. Game explained that this happens when “students know that they have learned something, and they can feel good about their new knowledge.” When students feel good about their learning, they become intrinsically motivated to learn. The goal of gamification is to introduce the students to the topic and transition them into becoming intrinsically motivated in the topic. As such, extrinsic rewards can be used to motivate students and get them interested in the course’s content.

Similar to Dr. Game, Dr. Dice held a negative view of pointification. She cited the field of Pop Psychology and Daniel Pink to stress that when you add extrinsic motivation to something that should be inherently intrinsically motivating, the studies have shown that when you add that veneer
point system to something that some people already enjoy doing then they value it less and they are not going to do it unless they get some sort of external reward. Students might be intrinsically motivated to learn, and pointification could actually lower the students’ motivation. Furthermore, this style of teaching could actually hinder student learning. Dr. Dice cited Pink to explain “that when you are giving people intrinsic motivation and rewards some of the things, they indicate is that sort of compels inside-of-the-box thinking instead of outside-of-the-box more creative thinking.” The idea is that pointification does not only stunt motivation but can actually hinder student learning. Dr. Dice explained that educators want learners that leave the school and are motivated to find solutions and learn more on their own. Educators want their students to become interested in their own learning. Pointification counteracts this by teaching students to complete activities only to gain rewards. As a result, pointification and extrinsic rewards might actually run counter to the goal of education.

**The Impact of Gamification on Student Behaviour**

This section explores the impact that gamification has on student behaviour. The participants explained how specific elements of gamification can help alter students’ behaviour. The participants believed that using game elements could help students learn beneficial behaviours. Furthermore, this section demonstrates the need for more data to be collected to identify the effectiveness of gamification when it comes to behaviour change. The participants used their own studies to explain what type of data should be collected to illustrate behaviour change. Research tools are highlighted to explain some practices that researchers can utilize to further understand the behaviour changes
occurring in their classrooms. This section suggests that more research should be conducted on gamification to identify its impact on student behaviour.

**Gamification’s Impact on Student Behaviour**

The review of literature demonstrated that research studies have suggested that gamification can affect student behaviour. The participants confirm this suggestion that gamification can affect student behaviour but stressed that more research needs to be conducted to identify its effectiveness. Dr. Game’s research focused on changing her students’ behaviour. Through gamification, she wants to improve participation by helping her students read more of the articles and go further in their research. She found through collecting qualitative data and through observation that the students did in fact participate more in the class. Dr. Game explains the behaviour change that she and her colleagues found is that the students were not doing the reading because they did not know the concepts being reviewed in class. When we did go to gamification, we did notice a definite increase in the knowledge base that we were trying to get them to acquire before they came into the class. That was the behaviour we were trying to change. It was a behaviour focused on flipped learning, where the content and background knowledge were to be learned outside of the class.

She found that gamification did affect her students’ behaviour by making them come more prepared to class and ready to talk about the material. Dr. Game utilized interviews, questionnaires, and observation to gather data that proved this behaviour change.

Dr. Who had similar comments when it came to gamification. He found through observation that participation improved when utilizing gamification. Dr. Who explained that
it was really just taking the idea of photo and memory collection and using gamification as a layer on top of it to make it more exciting for people to do and engage them in the practice that some people would consider boring or less interesting.

Dr. Who incorporated a layer of gamification that included narrative and extrinsic rewards to engage the students in activity. In the narrative, Vancouver was being destroyed by natural disasters and the students were to leave behind bits of information in the forms of pictures, video, and other artefacts. The students would gain points and unlock pieces of the story as they engaged more with the activity. The use of gamification made the activity more exciting for his students. He stressed that the activity might have been considered boring, but “gamification made it more interesting for the students.” Thus, this led the students to be more engaged in the activity. Dr. Who found that implementing gamification and its game elements improve student engagement.

Similarly, Dr. Dice believes that behaviour can be changed through implementing game elements. She stressed that “compulsive behaviour can be implicated [sic] by sort of feedback loops and stimulus from games, such as juicy feedback like sounds, animations and those sort of things.” Game elements can affect students’ behaviour by using play and creating pleasure. Dr. Dice thought it was interesting that play and pleasure as a motivator was being used to impact people’s behaviour, because governing people through their desires and pleasures is really good in terms of if you want them to do something, you should make it enjoyable for them.
She advocated that game elements can be used to positively influence people’s behaviours, but that is not always the case. Dr. Dice explained that if you make the learning activity more enjoyable, the students will want to engage in the activity more because they find it pleasurable. However, she explained that it was a fine line between motivating students and governing them.

Governing students was what Dr. Dice was critical of when it came to gamification. Dr. Dice criticized gamification and game elements especially when it comes to governing people’s behaviours for unethical purposes. She stressed that that “the best part of games promote play in everyday life rather than the worst things which are about using points and feedback loops to shape user behaviours which are most oriented to profit.” Gamification can be used to shape people’s behaviour in a negative way. She stressed that she had read studies where people use gamification to improve profit. Even though this does not tend to happen in an education context, it does demonstrate how gamification could be used to impact behaviours for profit-driven reasons. As such, it is clear that gamification and game elements can affect behaviour, but she is critical of the purpose of some implementation of gamification. She believed that some gamification implementations could produce a negative behavioural change. However, this occurs more in the business sector through using gamification to impact peoples’ purchasing habits.

**Research Tools Needed to Identify Behaviour Change**

The participants explained some of the research tools they utilized to explore the impact gamification has on student motivation. Dr. Who explained that the easiest way to explore how students felt about the class is through student evaluations. These occur at
the end of every university course. This is where professors get qualitative and quantitative data from their students. Students explain “what they think worked well and did not work well in the classroom.” Furthermore, he expressed that the students have a chance to express how gamification affected their learning and talk about how it changed their learning process. Student evaluations were seen to be an easy and convenient way to collect data from the students.

Dr. Dif also mentioned student evaluations as a way to easily gather data from their students to identify how gamification affects their learning. She explained that the “student evaluations allowed for data that explain how the implementation of gamification impacted the students’ learning.” Through the evaluations, she realized that the students felt like they improved their efforts on assignment. They also believed that their attendance improved and that they participated more in class. Furthermore, Dr. Dif expressed that she received the best rankings from her students in 20 years when she implemented gamification. She mentioned how proud she was of this accomplishment throughout the interview. The implementation of gamification improved her as an instructor and the students’ learning. Even though these student evaluations helped the professors get a good understanding of how gamification affected their students, they also implemented a variety of other research tools.

Another important tool to understand how gamification affects student behaviours is anecdotal observation. Observation occurs throughout the term and is collected through anecdotal notes. Dr. Who explained that he tried “hard to observe the class and note student behaviour throughout the term and see how they are reacting to the way I might use gamification.” This observation allowed him to better understand the impact that
gamification is having on his students. If students seem to be confused or withdraw, he knows something is wrong. He realized that “the learning experience is not quite right and that he is not conducting gamification correctly and that something needs to be altered.” Observation can be utilized to identify how gamification is affecting student learning and alter parts of the learning experience that is hindering student learning.

Dr. Game also utilized observation to identify how gamification was affecting her students’ learning. She realized that her students were “reading more of the assigned readings, participated more in class, and finished more of the online assignments.” Through her observation, she realized that gamification was having a positive impact on her students’ learning. It was clear through her observations that students changed their behaviours to be more successful in her class. Dr. Game also mentioned her students’ attendance improved when implementing gamification. She noticed that she had almost perfect attendance for each class. Furthermore, these students came to class ready to learn. It was clear to her that the students had read the assigned readings and were prepared to share their thoughts in class. Through observation, Dr. Game noticed these behavioural changes in her class and found that gamification was having a beneficial impact on her students’ behaviour.

Dr. Dif had a similar observation with her class. She realized that students would complete additional assignments to receive more stock options to improve their marks in her class. The extra assignments helped the students improve their content knowledge as well as their marks in the class. The completion of extra assignments also illustrated the impact gamification has on student participation. The students participated more in class to ensure more stock options and an improved mark in the course. Dr. Dif also stated that
“her students’ attendance was the best it has been in 20 years.” The implementation of gamification improved the students’ attendance because they were more engaged in the class. She commented on how the students did not want to miss class because then they would not have the opportunity to gain more stock options. Dr. Dif believed that observation was a great way to identify student behaviour change and to identify what was working in her gamified learning experience.

Dr. Dif and Dr. Game mentioned other research tools when it comes to understanding how gamification affected student behavioural change. As stated above, both professors are qualitative researchers and utilized research tools that focus on people’s lived experiences. As such, both professors explained the need for interviews and questionnaires. Dr. Dif implemented pre and post questionnaires in order to “identify the amount of behavioural change that occurred because of gamification.” This allowed Dr. Dif to identify what behaviour changed and to what extent because of the implementation of gamification. Dr. Game used questionnaires but focused heavily on interviews in her study. She wanted to gather in-depth data about how the students perceived the impact of gamification on their own knowledge acquisition. Dr. Dif also used interviews to improve her understanding of how the students felt about gamification and its impact on their learning. Both researchers expressed the importance of using questionnaires and interviews to gather qualitative data to better understand how gamification affects students’ behaviours.

**Difficulty of Implementing Gamification**

All of the participants mentioned some sort of difficulty when it came to implementing gamification. Gamification was difficult because unlike an actual “game”
that is meant to solely entertain, you also have to address the goal of improving student learning. As well, the curriculum of the course needs to be included in the gamified learning experience. Dr. Game expressed this concern; she explained that administrators are concern about the curriculum being covered in a course. It is this concern of not including the required curriculum that might worry administration. Dr. Dice explained that some university administrations might try to resist the implementation of gamification because it is a new teaching approach that is vastly different than the traditional practice. Another difficulty brought forth in the interviews was that the instructor has to be creative. Instructors must use their creativity to implement game elements that will improve student learning. If the instructors are not creative, they might need to get help to improve their gamified learning experience. As such, instructors might need to formulate a team to ensure the successful implementation of gamification. Another difficulty was the implementation of gamification can take more time to prepare than the traditional teaching approach because of the amount of preparation it takes to set up the gamified learning experience. In addition, the participants also explained the need to keep innovating and altering the gamified learning experience. The interviews suggested that the participants all understood that implementing gamification could take a lot of effort and time. However, they believed that it would be worth it because gamification has the potential to improve their students’ learning.

**The Extra Difficulty of Improving Student Learning**

The participants all talked about the need to make gamification fun, but also educational. Dr. Dice explained that
the challenges of deep gamification are so much greater than that because you do not only need to entertain people, but you have to also add this extra layer of getting them to do something or get them to increase their intellectual capacity. Gamification is a difficult teaching approach because it needs to be entertaining and educational. Instructors who implement gamification have to prepare a gamified learning experience that is entertaining, while incorporating curriculum and learning objectives. Dr. Dice goes on to stress that “is why it has a lot of promise, but sporadic follow-through.” Instructors try to implement gamification and then realize how difficult it is to entertain students while teaching them curriculum. This takes a lot of preparation and planning to ensure that the curriculum of the course is included into the gamified learning experience.

Dr. Game had a similar view when it comes to gamification. She stressed that gamification for an education purpose is difficult to design. Gamification in her view must “cover the curriculum, be in a specific context, and it needs to serve this purpose.” Reflecting on her study, she expressed how the implementation of curriculum, context, and the purpose of the course altered her implementation of gamification. She explained, “by the time you look at all of that you are left with a modified experience.” Dr. Game commented on the need to ensure that you teach the curriculum of the course. As an instructor, she did not want to implement a new teaching approach at the expense of curriculum. As such, Dr. Game talked about the vast preparation and continual alteration of the course that occurs because of gamification. She explained that it took longer to prepare for a gamified course, but she believed it was worth it.
Resistance from Administrators

Dr. Dice received resistance from her administrators. In her study, non-tenured instructors were forced to alter their gamified learning experience. She stressed that “some instructors in her study received resistance from administration and that they could only partially introduce gamification into their classrooms.” Administration was worried about the inclusion of all curriculum expectations. In addition, the administration was also worried about student appeals. As a result, the instructors could not gamify any of the marking and could not use XP points to calculate grades. Dr. Dif explained that her administrators were not worried about students being more motivated and coming to class. Rather they were worried only about appeals. Dr. Dif stressed that the “administration stated that they could not justify the use of gamification because of the worry of student appeals and it was too different from the conventional practice.” The implementation of gamification was hindered because the administration was worried about how instructors ensured the incorporation of curriculum into the gamified learning experience. Dr. Dif’s experience demonstrated that some administration might not agree with gamification because it is so vastly different than conventional practices.

The Need for Creativity or to Build a Team

The participants talked about the need for instructors to be creative in order to implement gamification. The participants commented that it is this lack of creativity that leads instructors to just adding points to their learning experience. Dr. Dif explained that “gamification is difficult to do. It takes a lot of creative imagination to implement.” As such, she expressed that maybe a lack of creativity is why some instructors implement just pointification into their courses. She stressed that there is a suite of easy game
elements that can be implemented into a course “such as leader boards, reward system, and badge system.” Dr. Dif goes on to state, “building games and gamified experience is a creative process. It takes imagination and creativity. I do not think that every instructor would have the creativity needed to gamify their course.” Gamification, because of its various dimensions and game elements, was difficult to implement. That is why Dr. Dif, Dr. Who, and Dr. Game all explain the need for a team approach to ensure the successful implementation of gamification.

Dr. Game explained that she is a creative person but still needs help when it comes to gamification. As such, she has assembled a team of people with a variety of skills to help ensure the success of her gamified course. She believed that “if you are not creative yourself or have the skills to implement gamification then you need a team to help.” As such, gamification researchers might need help from people who can code and build apps. In the interview, she commented on how she still needs to find another person to help her create apps for her gamified learning experience. In addition, she stressed how she needed help with other technical difficulties. Reflecting on her own study, she explained the need for help from others when she experienced technological difficulties. As such, she decided to build a multidisciplinary team that has a variety of skills to ensure the success of her gamified learning experience.

Dr. Dif had the same suggestion and expressed the importance of a multidisciplinary team. She stressed that “if you are not creative then you need to work with someone who is creative.” According to her, it is difficult to develop and create intriguing game elements and figure out how to implement them into the gamified learning experience. As a result, she expressed the need for “instructors to work with a
game designer to be creative with the implementation of gamification.” Game designers have a vast amount of experience developing games and could provide insight into how to implement game elements. Furthermore, Dr. Dif talked about the technical issues that could occur with a blended learning environment (in-class and online components). As such, she enlisted the help of someone who was familiar with D2L, which is an online learning system. However, she expressed the need to work with these new team members to improve in all the areas of gamification.

Dr. Who agreed with this perspective and talked about how he had colleagues and graduate students that helped him. He specifically talked about the delight he receives from working with graduate students. Dr. Who mentioned in his study that he had his graduate student help explore the implementation of gamification. He stressed that “you have to work with a team. So building a team is important. There are also a lot of possible technical difficulties.” Finding someone who is technologically inclined is essential to the success of gamification research. Similar to Dr. Who, Dr. Dif utilized a learning management system (LMS) to implement gamification. She received help from colleagues to actually create widgets that could be used to collect points, create a leaderboard, and incorporate a narrative story line. In the study, they also explored other implementation of gamification to understand how to prepare for a gamified learning experience. Dr. Dif and Dr. Who stressed the need to build a team and also look at previous gamified classes to gather ideas.

**The Need for Preparation Before Implementing Gamification**

Dr. Who, Dr. Dif, and Dr. Game all suggested the need for instructors to research previous research studies on gamification. This allows the instructor to gather and collect
ideas that will help their implementation of gamification be more successful. Dr. Dif talked about the research studies she read before implementing gamification in her course. She mentioned Lee Sheldon as one of the key practitioners whose writings she reviewed prior to her study. Dr. Game also mentioned some studies that she explored before gamifying her course. Cronk is a how-to paper that she mentions in the interview as a resource that she used to help her develop her gamified learning experience. Dr. Who also mentioned some previous implementations of gamification. He explored a couple of implementations of gamification with his graduate student. He found that “game elements like the freedom to fail, rapid feedback, sense of progression, and some kind of act of storytelling were predominate in the previous implementations.” He reminisced about the large amount of time it took to conduct research on gamification, set up the game elements, and include the curriculum.

The participants talked about the effort and time it took to prepare a gamified learning experience. As stated above, the participants had to research previous gamification studies to gather ideas. The previous studies allowed the professors to gather a variety of ideas that would help ensure the success of the gamified learning experience. Dr. Who actually wrote a paper on his previous gamified learning experiences, which later helped him implement his own version of gamification. Dr. Game and Dr. Dif talked about the extra effort and time put into their studies to ensure that their course’s curriculum was being met. Dr. Game stressed that the curriculum was added into her gamified learning experience. In addition, these professors utilized blended learning. They had an online component to their gamified learning experience. Dr. Who, Dr. Game, and Dr. Dif all talked about the time it took to create or set up online resources to
help students. Dr. Dif and Dr. Who talked about the widgets they had to create such as leader boards, an in-game economy, and a badge system. This would have taken a long time to create using a LMS. Their experience demonstrated the extra time and effort gamification takes to incorporate it into the classroom. However, the participants commented on how they knew this would improve student learning. It is obvious that they believed the extra time spent preparing and creating the gamified learning experience would be worth their time and effort.

The Need to Keep Altering and Innovating Gamification

As an instructor, you need to keep altering and improving your gamified learning experience. The participants explained the need to re-evaluate their classes and identify what works and what does not work. In order to complete this, Dr. Dif decided to “make changes on an annual basis and not on a weekly or short-term basis.” She made these changes on an annual basis because she has the luxury of teaching the same class every year. She also ensured that she can “stabilize one set of new game elements before introducing a new one.” She stressed the importance of taking time to ensure the game elements are incorporated correctly. She also wanted to see how the game elements affect the students. As such, she “can fix the old ones before introducing the new ones.” She explained that this is not an easy feat, but it is important to ensure her students’ success. Every year she tries to introduce a new game element to improve her implementation of gamification.

Dr. Who also continually alters his gamified learning experience. He utilized student evaluations and observation to realize what game elements were working and what were not working. He believed instructors could “implement a game element in the
first gamified term and then try another in the next term.” An example of this is when he implemented a story line into his course. He observed that “some of the students seemed to not be interested in the story line.” As such, he altered his gamified learning experience by removing the story line to improve his student learning. Dr. Who also talked about sequencing game elements and the need to check-in with the students to ensure they understand what is expected of them. He used a blended learning environment and made sure the students knew how to access and use the online features of his class. It was important to not only implement new game elements but to ensure that the ones used actually improved students learning. This took a lot of extra time and effort, but he believed it was worth it to improve his students’ learning.

Dr. Game also mentioned the need to keep altering her gamified learning experience. Over several years, she was able to implement and innovate gamification into her classroom. She explained that she “kept altering the game a little bit and changing the game a little bit to make it even more engaging.” She also stressed that she would check-in with her students to ensure they understood what was expected of them. This constant checking-in was important because she had an online component in her course. She wanted to make sure the students knew how to navigate through the LMS. She researched how other instructors implemented game elements using an LMS system. However, she found that some restrictions impeded some of the game elements she wanted to implement.

Drawing on previous research, Dr. Game would implement new game elements into her classroom. However, she explained that as of the present time she has still not implemented all the game elements she would like to implement. She stated that “many
of the features of gamification that make it extremely engaging like a narrative and a story line, those things could not be brought into the implementation unfortunately.” She explained it was because of the time restraints of the course and the need to get through the entire curriculum. She believed that these game elements will be implemented in the future. Nevertheless, as of right now, she has not figured out how to properly implement them. She expressed that this constant readjusting of the gamified learning experience takes a lot of effort and time. Just like the other participants, she believed that this continual altering would improve her students’ learning.

**Difficulties of Conducting Gamification Research**

There is a variety of difficulties that have hindered gamification research. The definition of gamification is one of the major difficulties affecting gamification research. There is no clear definition of what constitutes gamification. As such, it has been confused with pointification, which is another game-based teaching approach. Gamification and pointification have been interchanged. However, that is why there is so much criticism of gamification. It is because researchers are stressing they are conducting gamification while they are actually conducting pointification. In order to fix this confusion, the participants stressed the need to differentiate the terms. Furthermore, there is a lack of fundamental modeling. This was caused by the lack of theoretical frameworks in gamification research. The participants stressed the need to borrow from other disciplines in terms of gamification research. The field of gamification research needs to adopt or develop frameworks which would help improve the rigor within in the research field.
The Difficulty of Defining Gamification

The participants had similar ideas of what constitutes gamification. However, the participants did not believe there is an agreed-upon definition. Dr. Game stated that “there is no clear definition of gamification. I do not think that anyone has found a clear definition.” She explained that after conducting research on gamification, she did not find a conclusive or agreed-upon definition of gamification. Dr. Dif had a similar view of gamification. She believed that there were two types of gamification. She explained that “the one is to make it like a game, like a serious game for the course. The other one is like gamification as piecemeal, where you cherry pick game elements and embed it into a class.” However, this is not a common conceptualization of gamification. Dr. Dice and Dr. Who highlight a common definition of gamification. They both mentioned Sebastian Deterding in their definition of gamification. Dr. Dice explains this definition as “incorporating game-like mechanics in a nongame context.” However, it is clear through the interviews that this definition needs to be upgraded to include the multifaceted nature of gamification.

The lack of detail in the definition of gamification was another idea mentioned in the interviews. Some of the participants found Deterding’s definition (the use of game elements in a nongame context) to be short and not explain the term properly. Dr. Who commented on Deterding’s definition stating that “the quote is accurate, but not very detailed. Deterding (2012) defines gamification as the use of game elements in a nongame context. I think there are many nuances of the term and that one single sentence or definition really does not do the term gamification justice.” He believed that gamification is a complicated teaching approach that needs a more detailed definition. He
expressed that he uses “terminologies that are more associated with games.” As such, the definition should explain more of what is involved in the learning experience.

In contrast, Dr. Game believed that the term was broad. However, she sees this as a positive feature because she is a qualitative researcher. She stated that she does “definitely agree with that quote and like how it is broad because I am a qualitative researcher.” However, she actually utilized the term pointification to define gamification. This broad definition does not differentiate gamification from pointification. This allows researchers who incorporate only extrinsic rewards to call their teaching approach gamification. As noted throughout this paper, the confusion of terms has led to criticism within the field of gamification research.

Dr. Game highlights the similarities between the two game-based teaching approaches. She uses pointification to describe gamification. She explained that when I think of gamification, I think of the pointification plus the learning experience. So to me it is not just the pointification, anyone can assign points. To me it is the actual engagement of the learning experience. You want to design and develop experiences that will engage people and I believe that is the hardest part.

To her pointification and gamification are similar teaching approaches. The current broad definition of gamification could include pointification as well as gamification because both teaching approaches utilize game elements in a nongame context. It is this broad definition of gamification that has allowed researchers to conduct pointification research under the guise of gamification. This has led to a variety of criticisms in the field of gamification research. Critics have criticized gamification because in their eyes they think it is the use of extrinsic rewards to trick students into completing activities. The
participants suggest that a new, more in-depth definition could help defend gamification research from criticism.

**The Negative Impact of Pointification on Gamification**

The participants all had similar ideas as to what constitutes pointification. The participants all explained that pointification is the implementation of extrinsic rewards in the classroom. Dr. Game explained that “pointification to me is just assigning points.” It is the incorporation of a point system to reward students for completing activities. Dr. Dif stated that there is “a suite of game elements that are easy to implement, such as leader boards, reward system, and badge system.” Pointification uses these game elements to encourage students to work hard only for the extrinsic reward. Dr. Dice even goes further in her criticism of pointification. She described pointification as

- it is the idea of adding a leader board or points, or levelling-up mechanics in order to affect people. It is one of those psych hacks. You know-giving people feedback and some sort of arbitrary goal, particularly virtual rewards that do not mean all that much, in order to incite them to continue to use their product or use it in a different way.

She believed that pointification used only the most extrinsically rewarding facets of a game. According to Dr. Dice, pointification is about using points and feedback loops to shape user behaviours. Pointification does not include any intrinsic motivation. It uses only extrinsic rewards to get students to finish activities for a reward, which could be detrimental to their learning.
Dr. Game believed that extrinsic rewards can work for only a short period of time. The students will lose interest if they are not transitioned from extrinsic to intrinsic motivation. She stated that she believes that pointification is important in that it provides an immediate extrinsic reward. The intrinsic motivation is what you try to build through the engaged learning experience. I think that if you build it with just one or the other, such as only pointification, you do not get as much buy in.

Dr. Game explained that students will lose interest in the long run and that extrinsic rewards should be used only to get students to buy into the teaching approach. This was a sentiment that all the participants mentioned when talking about gamification: that the main focus of a gamified learning experience should be the best parts of games, which focus on intrinsic motivation. All the participants were critical of pointification and believe that some of the criticism occurring in the field could be solely the fault of pointification.

Dr. Who was the only participant who stated that the two terms do not need to be differentiated. He thought that people try to make new terms to get recognized or get a publication. He does not believe that it is important that “someone created a new term for it known as pointification.” In his perspective, people do this all the time. They try to coin a term to get recognition. He supposed the field could “have just said that one type of gamification only uses extrinsic and the other uses all sorts of elements.” Dr. Who did believe there should be some clarification to differentiate the two teachings approaches. The differentiation should be used within one term. There should be one term known as gamification with two approaches; one uses only external motivation, while the other
uses all types. He stated, “no matter what, people will continually redefine gamification and they will continually come up with new terms for variations of it.” As such, he believed it would be sufficient to use one term for the two teaching approaches.

Gamification has received a lot of criticism from researchers because it has been confused with pointification. Dr. Dice explains this problem, suggesting that “gamification which has collapsed into mere pointification.” There is no differentiation of terms in the field of research. This has led to researchers implementing only extrinsic rewards and still claiming to be conducting gamification. Dr. Dice comments on this stating, “if a teacher is talking at a conference about gamification practices, people could interpret her as she is just giving her students points according to how they are doing in tests.” She explained that teachers and researchers present studies as gamification even though they are just adding points to their class. She goes on to stress that this is one of the reasons why she and other researchers who have investigated gamification have left the field of research. Dr. Dice perceived that confusions like this have tainted gamification. As such, she explained that she looks at a different type of game-based learning. She elaborates on her transition away from gamification stating, “there is too much baggage and taint associated with the term gamification and what we want to do is take some of that power back and talk about gameful play or gameful engagement.” It is clear that the confusion of terms has led to criticism and some conflict with the gamification research.

Dr. Dif’s concerns mirrored Dr. Dice’s as she believed that the terms need to be differentiated. Dr. Dif stated that “there needs to be a distinction.” She stressed the need for instructors to include both extrinsic and intrinsic motivators into gamification. This
demonstrates the need for the definition to include some inclusion of intrinsic motivators. As such, gamification needs to be separated from pointification because gamification promotes internal motivation. She suggested that gamification should also include extrinsic rewards because it helps “transition into internal motivation, so that they want to do things themselves because it is interesting to them, not because it earns them grades.”

Dr. Dif advocated for the differentiation of terms in order to ensure student success. She proposed that the inclusion of the intrinsic motivators will “promote student learning in a different way.” According to her, the definition of gamification should include some explanation and incorporation of intrinsic motivation.

Dr. Game held a similar view when it came to gamification. However, she believed “the two terms are starting to be differentiated.” She connected this belief to a technology conference that she just got back from. She realized in that conference that researchers started to notice a difference between the two terms. She stated that “I like the differentiation of the two terms. I think it is important that they are differentiated. So that we are able to describe more accurately the different types of teaching strategies that we are working with.” It is clear that she supported the new wave of thinking that differentiates the two terms and she believes that is important because gamification is much more than just assigning points. She argued that to me gamification is much larger. Pointification is a small teaching strategy. We all do it because it is easy. However, the engagement in the learning experience and tying it to the pointification that is the bigger piece and it is much more difficult. So that is connected to gamification and game design.
All of those types are connected. It is like an umbrella and gamification fits in there. She believed the two gamified teaching approaches are similar. However, she advocated that the two terms should be differentiated because both gamified teaching approaches have key differences.

**Lack of Foundational Modeling**

The lack of fundamental modeling was brought forth in the interviews. The participants express that this lack is because the field of gamification does not have any theoretical frameworks. The belief is that this lack of fundamental modeling negatively impacts gamification research. Dr. Dif argues that “there is a lack of foundational modeling and that takes a lot of study to build.” Currently, she believed that there are no frameworks in the field of gamification research. As such, gamification researchers borrow frameworks from a variety of disciplines to conduct research. In her study, she “used psychology to look at motivational aspects.” She borrowed her theoretical framework from psychology and adapted it for gamification research. Dr. Dif would like to see frameworks being developed within the field of gamification research. The development of theoretical frameworks and fundamental modeling could improve the rigor within the field of gamification research.

Dr. Game also used a similar tactic in her study. Her study looked at improving student acquisition of content knowledge. As such, she decided to adopt and implement a framework from education. Being a professor in the faculty of education, this adoption of a framework made sense. Furthermore, the framework fit the purpose of her study. Dr. Game stated that this “framework worked perfectly with the purpose of my study.”
According to Dr. Game, it is important to identify and implement a framework that connects with your study. The research question and the framework must work off of each other to ensure the success of the study. Again, this goes to the multidisciplinary nature of gamification. Researchers with different research backgrounds will try to implement frameworks that they are comfortable with. As a result, gamification researchers have implemented a variety of frameworks from the fields of education, psychology, and sociology.

The field of gamification research is a relatively new field of research. Lee Sheldon in 2010 had not even heard of the term. Instead, he called his teaching approach the Multi-Player classroom (Sheldon, 2010). The participants all commented on the infancy of the gamification research. One suggestion is that gamification has not been around long enough to develop frameworks. Dr. Dice mentions psychology to explain this fundamental modeling problem. She stated that

if you are thinking about psychology researchers and the people who are looking at audience effect and does viewing or interacting with media actually create violent behaviours, they have been doing it for 50 years and they still have not figured out a really good way to measure motivation.

This statement demonstrates how long it takes to generate and develop foundational modeling and frameworks. Most of the disciplines that the participants come from have theoretical frameworks that have been tested for more than 50 years.

Dr. Dif affirmed this belief in her interview. She stressed that most of the frameworks she uses have been validated and tested. These frameworks come from the field of psychology. However, she stressed that with the gamification study she “used a
motivational framework that has not had enough validity testing to it. It is not 100% valid.” Dr. Dif decided to utilize a newer framework that has not been proven to be a 100% valid. Even though the framework was not 100% valid, it fit the purpose of her study. However, this framework came from the field of psychology as well. She expressed that there were no frameworks that have been developed specifically for gamification. Reflecting on her study, Dr. Dif advocated for the need for the development of frameworks to occur within the field of gamification research.

**Improving Gamification Research**

All of the participants have recommendations as to how to improve gamification research. The suggestions focus on how to improve rigor within the field of gamification research. Each participant expresses specific research measures that need to be present in a study in order to ensure rigor. In addition, the participants provide a variety of recommendations on how future studies need to be conducted. One suggestion focuses on the need to include intrinsic game elements into the learning experience to ensure student success. Another suggestion concerns the researcher and the need for the researchers to improve themselves as instructors by using gamification. Another suggestion focuses on the need for criticism to improve the field of research. The last suggestions concern the type of data needed to improve research. The participants all expressed the need for specific types of data to be compiled to ensure rigor. All of the participants had suggestions of how to improve rigor and overcome the criticisms occurring in the field of gamification research.
Recommendations to Improve Rigor

All of the participants had their own recommendations for how to improve rigor within the field of gamification research. Dr. Dice stressed it is difficult to provide overarching recommendations. She does not believe you “could have a broad sweeping set of recommendations that would be a one-size-fits-all.” She expressed the difficulty of providing suggestions because of the multidisciplinary nature of gamification research. However, she stated,

making sure you have ethics and transparency about what sort of behaviours you are trying to invoke, and what type of data you are trying to collect from users, and how you are using that data, and what you are rewarding and not rewarding—so giving people agency over the data that you are collecting—is important.

She expressed that these suggestions are important in any type of research. As such, gamification researchers should also include these research measures into their studies.

She talked about the need for transparency in research studies. As a researcher, you are trying to get the essence of the participants’ beliefs. She stressed researchers should allow participants to “explain their own goals rather than let someone define their goals for them.” The participants should not be led to any conclusions. Instead, the researcher should allow them to discuss their beliefs about a certain topic. According to Dr. Dice, these are some measures that should be present to improve rigor in gamification research.

Dr. Who also had recommendations that would improve the rigor of gamification research. Transparency was an important factor to Dr. Who. He explains that studies “need to obviously include details about the class and about the situation, the topics covered, and the number of students.” This would allow the audience to know vital
information about the study. He also stated that the research “would also mention the
typical teaching approach the students are used to and the amount of time the students
have been exposed to the gamified approach, and the type of game elements that are
included.” This would provide researchers information need to validate the researchers’
findings. However, he does defend that most journals have only a limited word count and
that researchers have to decide on what they want to include into their article. Even with
the limited paper space, he believed that it is essential for researchers to explain their
methods. He stated that the “researcher must build the test and methods being used in
order to assess the contribution of the work and the validity of the work.” By explaining
your methods, you are validating your work. The last suggestion he had was the need to
include how the behaviours were observed or understood. He explained the importance of
“the specifics of how you applied the methods and the analysis procedures.” These
recommendations suggest that gamification researchers need to explain their studies in
more detail including their gamified learning experience, their students, and the game
elements they implemented.

Dr. Dif reflected on her own research studies to provide recommendations to
improve rigor. One of the main research measures she utilized in her studies was pre and
post questionnaires. The pre and post questionnaires allowed her to compare data from
the students before and after her implementation of gamification. She believed that pre
and post questionnaires allow the researcher to run a more controlled quasi-experimental
study. She suggested that the researchers must compare the gamified class to another
more traditional class to identify how it impacts students. She stressed as “a researcher
you need to run a really controlled situation where you can compare the grades of one
cohort that used gamification modules or course to another that used a traditional course.”

She utilized these questionnaires before and after to identify how gamification impacts student learning. She believed that this improved the validity of the study. Furthermore, she also presumed it is important for researchers to explain the research tools they use in their study. Another feature that improves rigor is the use of validated frameworks and tools. In her study, she utilized motivational frameworks that have been found to be valid. She suggested that “someone has spent a lot of time and effort to create these tools. So using these tools would be useful.” This adds validity to the study and increases its rigor.

Dr. Dif focused heavily on the need to for researchers to incorporate and explain their methods.

Unlike the other participants, Dr. Game actually perceived that gamification research was actually becoming more rigorous. She stated that gamification has moved into a more rigorous field. It has a more rigorous look of what the affordances are in gamification. I think for me and the research that I have been reading and the information that I was exposed to at this conference demonstrates that it is out of its infancy stage, which is where you would have gotten no learning outcomes and those other criticisms.

She noticed the change at the last technology conference she attended. Even though she perceived that gamification is becoming more rigorous, she still believed that researchers must include specific research tools. She used her own study to explain some of the methods and tools researchers should incorporate. She explained that she implemented interviews, artefacts, questionnaires and you need to get people involved in using them. Have the people use teaching strategies and have a valid research question.
Make sure there is a purpose for your research. It cannot be a how to article; you need to have a purpose. You are going to state your learning outcomes. If you follow the rigor within your research, then you will have some rigorous findings. These are the research tools and methods that will help future gamification research become more rigorous. Furthermore, the implementation of these measures will help stop the negative criticism that is currently affecting gamification research.

**Improvements for the Future**

The participants reflected on their own studies to suggest improvements for the future. Dr. Who expressed many improvements that could help gamification research. The first improvement focused on the need for observation. He would like researchers to “go observe gamification classes to understand how the students participated in the class.” Observation was a common theme throughout Dr. Who’s interview. Dr. Who suggested the need for gamification researchers to observe other classes in order to develop ideas for their own class. In addition, gamification researchers need to also observe their own class to identify what works and what does not work with their students. Another suggestion is for gamification researchers to develop and test new game elements. Dr. Who would like to see “the creativity of people and how they include different types of elements.” He believes that there are more game elements that could be incorporated into gamification. Gamification researchers should focus on being creative and improving gamification research and not on critiquing the research. He advocated for more researchers to try to implement new game elements and in different ways. He believed “it is really compelling to try new ways to include gamification and rather than
trying to critique that and say it is wrong or right.” This would allow for more inspiration and would positively impact the field of gamification research.

In addition, Dr. Who proposed the idea that he would like to see gamification researchers make gamification seem more realistic. He believed gamification was the “most interesting is when people try to blend together game elements and real life.” This is where you attempt to make the classroom feel like a game. He explained that “the fact that people are trying to make it feel like you are actually in a game and that it is interwoven with your everyday practices.” Making gamification more realistic would make it more engaging. However, to do this you need to take a holistic perspective to gamification. He stressed that “from a holistic perspective when you do try to isolate and add game elements, this is when it could be possible.” Furthermore, this approach would allow you to compare across classes. He stated that this would allow research to “compare across classes and could get more engagement between researchers.” He believed that this would be a great way to compare different styles of gamification and also the optimal way to incorporate some game elements. This way the research “could see the differences in the classes, except you cannot draw clear cause and effect because the students are different.” His last suggestion focused on the class population. Dr. Who, reflecting on his own studies, stated that “gamification is better suited for a smaller class.” He found that gamification worked well in small class of around 30 students. These improvements would help future gamification research studies.

Dr. Dif had a set of improvements for the future. The number one improvement that she commented on and talked about throughout her interview is the inclusion of validated tools such as validated theoretical frameworks. She believed that gamification
research “needs more of these validated type of tools.” As such, she suggested that until these tools are developed and tested, gamification researchers should borrow from other disciplines. Gamification researchers need to develop frameworks that can be implemented in gamification studies. She stressed that “it is a new topic area so there are not a whole lot of frameworks around. There needs to be some effort put into the development of frameworks that can be used.” Gamification researchers should develop these frameworks to be compatible with gamification research. Until that is complete, she believed “researchers need to use either frameworks or psychological frameworks. They need to implement psychological frameworks into the research. The development of tools and frameworks to use in the educational sector needs to be developed.” The development of frameworks would help the field of research immensely and also counteract a variety of criticism.

The last two improvements for the future focused on measures Dr. Dif implemented into her own study. Throughout the interview, she mentioned the need for longitudinal studies. She stressed that gamification researchers need to “develop ways to iterate in the short term or more likely you will have to invest in the long term over multiple implementation in order to look at patterns.” A longitudinal study allows for more in-depth data. It also allows for a more in-depth comparison. Longitudinal studies permit researchers to incorporate new game elements annually. Gamification researchers do not need to cram game elements into the gamified learning experience. Gamification researchers can identify the impact of specific game elements over the course of a year. A longitudinal study would address one of her own criticisms of gamification. Her major criticism of gamification is that a lot of researchers do “one-offs.” The researcher
conducts a short experiment and then moves on to another topic. Dr. Dif stressed that research should investigate long-term effects of gamification to identify how it impacts students.

The last improvement focused on the instructors themselves. Similar to other participants’ beliefs, Dr. Dif stressed the need to include the instructors and their perspectives into the study. This allows the study to explore the overall impact of gamification on both the instructor and the students. Throughout the interview, she continually stressed that “the instructors’ perspective should be collected.” The instructors can provide a beneficial perspective that explains the effort, time, and planning that goes into implementing gamification. In her study, she expressed a wonderful feeling of joy because she received the highest compliments from her students in 20 years. Including the instructor’s perspective could provide data and results that encourage other instructors to implement gamification.

Dr. Game’s suggested improvements mirrored Dr. Dif recommendations. She believed that gamification research should be longitudinal. She explained that a longitudinal study “reflects the changes in the feedback over that time.” This type of study allows for more in-depth responses from the participants. A longitudinal study also permits the research to incorporate new game elements on an annual basis. Furthermore, a longitudinal study allows the researcher the time to observe the class and decide to take out any game elements that negatively impact student learning. By implementing a longitudinal study, the researcher could constantly keep improving her/his gamified learning experience.
In addition, Dr. Game also stressed the need to collect the perspectives of the instructors. Dr. Game had a group of instructors that help teach the technology course at her university. In her study, Dr. Game took the feedback from other instructors to alter and improve her implementation of gamification. She also better understands how gamification impacts her instructors. This extra perspective provides another layer of data that improves her understanding of gamification. Another improvement that she had connects to technology and new game elements. She believed that “whenever the technologies finally become much more available then we are able to make more use of different elements.” Technological innovation will help gamification. She stressed that gamification “could change as the technology changes and the abilities that we have to manipulate those technologies.” The innovation of gamification will be impacted by the innovation of technology. As technology changes and improves, so will gamification through new abilities and game elements.

**The Need to Include Certain Game Elements**

The need to include certain game elements was a crucial theme in the interviews. The participants reflected on their own studies to explain the need to include a variety of game elements. Dr. Who explained that in his paper he utilized “the freedom to fail, rapid feedback, sense of progression, and some kind of act of storytelling.” These were the game elements he implemented into his study. However, he found that storytelling was the weakest part of gamification. Reviewing his study, he “thinks the other three components are important and I think the other three are important in education and teaching in general.” The freedom to fail, rapid feedback, and a sense of progression were all important game elements in improving student learning. He also explains the need to
use gamified language. He stated, “by changing the course to be more gamified, you can call these scores XP and maybe the final XP total creates levels for them, where they can accomplish something in the class.” In order to immerse your students in the gamified learning experience it is important for instructors to use gamified language. These are the game elements that Dr. Who advocates for and utilized in his implementation of gamification.

However, he expressed that researchers cannot look at these game elements separately. Dr. Who believed researchers “need approaches that explore gamification more as a whole and it is true that you might not be able to isolate factors.” He perceived gamification as a pragmatic approach that needs to be explored as a complete gamified learning experience. He stated that gamification “is a pragmatic concern so you have to look at a holistic approach that can explain the whole experience.” As such, he takes a holistic approach in his classes. However, he does “try to look at the specific components and see how that is affecting things, but it is hard to draw a clear cause and effect.” This allowed him to add game elements into the classroom to explore how it impacts students’ learning. In order to ensure that the game element is improving student learning, the instructor must observe the class. Dr. Who believed that taking a holistic approach is important, but an instructor should keep improving her/his gamified learning approach by including new game elements.

Dr. Dif also had suggestions about what game elements should be included into a gamified learning experience. She reflected on her own study to provide insight into what game elements should be included into a gamified learning experience. However, she also expressed the difficulty of implementing game elements. She explained that she had
to develop a lot of apps and widgets to incorporate game elements in her class. She stated that she had to implement “game elements manually first and then implement them in the Learning Management System.” She utilized a LMS to implement game elements. Her study had “gadgets for leader boards, avatars, and images, names that we've added to the D2L.” Furthermore, she included an in-game economy into her course. This in-game economy took a lot of effort to implement because she “manually populates the earnings in the in-game economy.” She had to upload assignments and assign stock options for the assignments in the in-game economy. It is difficult to implement a variety of game elements because it “takes a lot of creative imagination to implement.” It is clear that gamification is not a simple task. Rather she stated, “building games and gamified experience is a creative process. It takes imagination and creativity.” Gamification takes a lot of time, effort, and creativity to incorporate. However, the time and effort seem worth it to improve her students’ learning.

In addition, Dr. Dif viewed gamification as being a pragmatic teaching approach. As a result, she believed that instructors must use a holistic approach to gamification. She stated that “if you want to do it game element by game element then try to do that in the field could be problematic.” Researchers should implement new game elements to improve their gamified learning experience. However, she did perceive the benefit in exploring single game elements. She stressed researchers “cannot use a leader board one week and then use another game element another week because this would break the continuity of the course.” As such, she implemented only game elements annually. This allowed her to continually improve her gamified learning experience while ensuring her students’ success within the classroom.
Besides continually implementing game elements into her classroom, Dr. Game also advocated the need to implement only certain game elements. She stressed “that there needs to be engaging tasks that promote learning goals.” However, her implementation focused heavily on extrinsic rewards mixed with the learning experience. She suggested the need “to design and develop experiences that will engage people and I believe that is the hardest part.” Narrative was used to introduce gamification into the course. She “used a modified narrative to introduce the gamified learning experience.” In addition to narrative, she also recommends the use of a badge system. Dr. Game “implemented the pointification scheme such as the use of badges.” She was going to implement a leader board but decided not to include it. She explained that she does “not like the leadership board because it promotes competition.” Dr. Game did not want too much competition in her class and decided not to include it. However, she does believe gamification researchers must include both intrinsic and extrinsic game elements into the course.

Unlike the other participants, Dr. Game stressed that researchers could investigate game elements either holistically or separately. She explained that making the decision “depends on the question you are trying to answer.” Researchers should identify the best way to answer their research question. She reflected on her study to explain that she utilized a holistic approach because she was interested in the knowledge the students gained through gamification. She explained that she was “more interested in the knowledge they develop from being engaged in these elements.” However, she does believe that researchers could investigate the impact of one single game element. Dr. Game expressed that “if you are really interested in knowing how a particular story line
or a narrative of a game actually influences learning then you are looking at that specific element.” The researcher could implement a single game element and identify how it impacted their students’ learning. Dr. Game explained the need for researchers to identify the purpose of their study to decide whether to use a holistic approach or not.

**The Need for Improvement as an Instructor**

The participants commented on the need to use gamification to improve themselves as instructors. Gamification was seen as a teaching approach that would help them develop as instructors while improving their students’ motivation. Dr. Who expressed that gamification “does really make me question my teaching practices and that is good because I think everybody should continually question the way they teach if they want to be an effective teacher.” This statement illustrates the need for instructors to question their own teaching practices to become more effective instructors. Gamification allows for self-reflection and questions the way in which the instructor teaches.

In addition, Dr. Who explained the need for instructors to try new teaching approaches to evolve as an instructor. Dr. Who found it “frustrating when people are teaching and people think that the same teaching approach is going to work year after year and 20 years into their teaching career they are still using the same teaching approach.” He believed instructors need to adapt as instructors and implement new teaching approaches. Instructors who do not change with the times might be hindering their students’ learning. He criticized instructors who do not try to evolve their teaching practices. He found it “frustrating because students are continually changing as technology evolves and as material evolves.” As such, he advocated the need for instructors to constantly be adapting to the changing times and technological innovation.
In order to improve, Dr. Who studied “his own approach, not formally with an empirical study, but with my own observations.” Gamification instructors should review their own implementation of gamification to improve their teaching skills and ensure students’ success.

Similar to Dr. Who, Dr. Dif commented on the need to improve as an instructor. She reflected on how she implemented gamification to improve student engagement and become a better instructor. She commented on how she implemented gamification because she is “not an entertainer and I was looking for ways to improve my student engagement.” This new approach was seen as a way to evolve as an instructor. As such, she “wanted to be a better instructor, without learning actress skills.” Dr. Dif believed that gamification would improve her teaching abilities. Furthermore, she continued to improve her implementation of gamification by constantly adapting and innovating her gamified learning experience. She expressed how she “continues modifying it in order to improve the implementation of gamification.” As an instructor she wanted to make sure the gamified learning approach works for her students. Dr. Dif explained that “implementing gamification truly has improved my instructor skills.” The students in her class proved this to her through their evaluations of the course. She received “the best results as an instructor that I ever had, and I have been teaching for 20 years”. By implementing gamification, she has received high grades from her students. The student evaluations provided her with the proof she needed to continually use gamification in her course.

Dr. Game had an interesting view when it comes to improving teaching practices through gamification. She reflected on her study to explain the importance of not just
utilizing gamification, but also teaching prospective teachers how to implement

gamification. Dr. Game chose gamification because it “was a perfect strategy to bring

into the classroom because it does model a different way to incorporate tech-enhanced

learning.” Besides improving her students teaching practices, she also implemented
gamification to evolve as an instructor. Dr. Game believed that gamification helped her
improve her own teaching style. She “accomplished several things practically in the

classroom as it can present a more engaging way of flipped learning, blended learning,

and those types of things with the right types of supports.” Gamification allowed her to

adapt her own teaching style while using other approaches to improve her students’

learning. Gamification worked well with the other instruction strategies she had already

implemented into the classroom. Dr. Game found that gamification flawlessly integrated

with blended learning and flipped learning. As a result, Dr. Game improved her own

teaching practice while teaching her students how to use gamification within a classroom.

The Need for Criticism to Improve Gamification Research

The participants expressed the need for criticism to improve gamification

research. Criticism was seen as positively impacting gamification research through

identifying faults and working on fixing these faults. Dr. Who believed that criticism

helped improve research. He explained that “critics are making people question the

approach of gamification.” Reflecting on his literature review, he realized that some of

the gamification studies did not actually implement gamification, but rather

pointification. He commented that “people may start to feel slightly embarrassed if they

are using a gamified approach that has been shown to be less than satisfactory.” He

perceived that criticism will make researchers review their own studies before publishing
them. Criticism impacts researchers and “perhaps for good reason because it makes
people reflect on what they do and that’s how people improve.” He reflected on
gamification research and had his own criticisms of the teaching approach.

Dr. Who criticized the teaching approach because the field of gamification
research does not actually provide in-depth data that prove its effectiveness. He criticized
gamification because it “might not actually be improving the educational learning
outcome.” Throughout his literature review, he mentioned some studies that did not
conclusively explain the impact that gamification had on student learning. However, he
elaborated on this issue and stated that some of these papers are for practical purposes
and do not collect empirical evidence. He explained that “these claims are probably valid,
but it is not to say that we are not learning stuff from people by using these different
techniques.” Some of these more practical papers that are being criticized could actually
be useful to gamification researchers. These papers help develop ideas to improve the
implementation of gamification. Dr. Who reflected on his own criticism to ensure that his
studies benefit the field of gamification research.

Dr. Who was the only participant to express how criticisms could negatively
impact gamification. He suggested that researchers should “look at what people do and
instead of judging them we could allow that to create new ideas in ourselves and inspire
us to do things differently.” Dr. Who advocated for the need for gamification researchers
to spend more time and effort constructively innovating practices. He explained that “it is
sad that there is so much critique of gamification as a way to critique people’s creativity
and pedagogy.” This negativity could stop other gamification researchers from
performing gamified learning experience because they are worried that they might be
criticized by others. Dr. Who stressed that this criticism could discourage novice researchers from conducting gamification because their work could be criticized for not incorporating the correct research tools.

This criticism could be caused by publishers who enforce strict criteria that researchers must follow in order to be published. Dr. Who explains that it is “the way us researchers are trained to publish and come up with new ideas.” Researchers are trained to identify gaps and faults in the research and explain how to improve on it. He stressed that he is “going to get the publication by saying that the person did not do something right and instead we should do this.” In order to get published, researchers look to improve on other people’s mistakes. He stated that he “thinks unfortunately because of this structure of research it means that people will always be critiquing others as a way to get published.” Publishers might be increasing the criticisms that are occurring in the field of gamification. The limitation publishers set on articles might actually be at fault for some of the criticism impacting gamification research.

Unlike Dr. Who, Dr. Dif viewed the criticism occurring in the field of gamification in a positive light. She was very critical of gamification research. While conducting her research she realized that “a lot of reports are here is what we did, and we had a good time and that is the end of it.” These research studies negatively impacted the rigor of gamification research. She “thinks that the state of gamification research is still superficial.” Some of the papers that she has read talk only about the good time they had incorporating gamification. She calls these papers “one-offs.” She explained that she “just read a paper from 2016 which essentially was we did this, and we had a good time.” These papers do not take a long-term exploration of gamification. As such, she used this
criticism to advocate for research to explore the long-term impact of gamification research. She expressed that “there was a problem with the literature, which I believe a lot of the gamification studies are one-offs.” Gamification researchers need to design long-term studies that look at the impact of gamification over time. She suggested “that the design cycle could take 10 years because the maturation cycle is so long.” Researchers in the field of gamification need to take the time to develop their gamified learning experience through cycles. Dr. Dif believed that this maturation would improve the rigor in the field.

Dr. Game reflected on her own study to explain how criticism is good for the field of gamification research. She has received critiques about her own studies. She stated that the critiques and the criticisms around the idea of this is just a pointification scheme, I get that a lot on the articles that I write as well. I have to be careful to include some of the other game design elements and point that out. I have to make sure that it is included.

Criticism has helped her improve her own implementation of gamification. She realized the importance of investigating her own implementation of gamification to ensure that it is developed properly. Dr. Game made sure she incorporated more than just extrinsic rewards because she does not want her study to be mistaken for pointification. She recognized the importance of evaluating her own course to ensure her students’ learning. Gamification researchers should utilize criticism to explore their own gamified learning experience.
The constant reflection and altering of the gamified learning experience takes time and effort. However, some instructors might not have the time needed to incorporate gamification properly. Dr. Game explained that some of the criticism could come from the lack of time instructors have to implement gamification. She stated that “the validity of gamification as a teaching strategy in an era where teachers have limited time is another criticism.” Some instructors might be hindered by the lack of time they have to develop and implement gamification. In addition, some instructors might not have the skills needed to implement gamification. Dr. Game expressed that “the other issue is the skill required for a teacher to pull off a gamified learning environment.” She commented that some instructors might not have the skill to implement gamification and might need others to help them build and implement a gamified learning experience. Dr. Game reflected on her literature review to explain that gamification researchers are making improvements that are counteracting certain criticisms.

Gamification research might actually be maturing and becoming more rigorous. Dr. Game explained that “the research around gamification is now coming into its own.” Gamification researchers are conducting more rigorous studies and have utilized the criticism to improve the field. Dr. Game stressed that “gamification has moved into a more rigorous field.” The research studies that she has read lately demonstrate to her that the field is becoming more rigorous. She commented that

the research that I have been reading and the information that I was exposed to at this conference demonstrates that it is out of its infancy stage, which is where you would have gotten no learning outcomes and those other criticisms.
Dr. Game, reflecting on her own experiences, expressed that the research conferences and papers she has read demonstrate that gamification is becoming more rigorous. Furthermore, researchers are improving their studies, and these past criticisms are not as relevant anymore.

**Type of Data That Needs to Be Collected**

The participants commented on the need for certain data to be collected. Certain types of data collection were believed to improve gamification research. Dr. Who reflected on his studies to explain the need for certain types of data that should be collected. He advocated for questionnaires at the beginning of the course to gather data prior to the gamified learning experience. Dr. Who believed “it would be important to get the students’ perceptions in the beginning.” The students’ perspective is important to identify how the students feel going into the gamified learning experience. Furthermore, he stressed that “observational is important.” He expressed that observation is important for results, but also to improve the implementation of gamification. Instructors should observe their students to ensure the gamified learning experience is positively impacting their learning. However, gamification research studies should also collect other types of data.

Dr. Who believed that research should collect both qualitative and quantitative data. However, this all depends on the purpose of the research. He advocated for researchers to “include mixed method data which includes both quantitative and qualitative data.” He explained that the data helped describe how gamification impacts student learning. Dr. Who used “quantitative data to assess the learning experience such as student learning, how much do they feel motivated, what kind of motivations are
happening.” Quantitative data collected empirical evidence that proves gamification effectiveness. He stressed that he used “quantitative more so because researchers and publications want to see numerical data.” In addition, he collected qualitative data to learn about the students’ experience. Dr. Who expressed that he thinks “it more interesting to see the details of the people’s experience through qualitative data.”

Gamification researchers should collect both qualitative and quantitative data. Qualitative data allow for more in-depth data about the participants’ experience, and quantitative data allow for numerical data.

Similar to Dr. Who, Dr. Dif expressed the need to utilize mixed method methodology. She supported the need to collect both qualitative and quantitative data. Dr. Dif stated that she “collected both qualitative and quantitative data.” Qualitative data were collected through interviews and written commentary, while quantitative data were collected through surveys using Likert scales to quantify the students’ beliefs about gamification. She also converted qualitative data to quantitative. She stressed she had “a strong analysis which then converts the qualitative data in to quantitative data, where we can then apply statistical methods to analyze that data along with an analysis of what people have said.” These data allowed her to explore the impact that gamification has on her class. However, she also stressed the need to collect data prior to and after the course.

In order to identify the impact that gamification has on students, it is important to collect data prior to the study and after the completion. She explained that researchers “need to collect pre and post data.” The information collected prior to her study allowed her to better understand her students. Furthermore, the data collected prior to the study can be compared to other data collected during and after the study. To complete this, she
implemented “pre and post questionnaire.” These questionnaires collected data from her students. In addition to data collected prior to the study, researchers also need to collect data throughout the study. She stated that researchers “should collect data throughout the stages of the study in some capacity.” This allow researchers to learn more about gamification and its impact on students. It also allows researchers to identify what works in their class and change what does not work. Even though the collection of data is important, Dr. Dif explains that you do not want to overburden your students. She stressed that “this needs to be balanced with the students’ work load.” As such, researchers should collect data throughout the study from their students but should make sure they are not overwhelming their students.

Dr. Game, as stated before, is a qualitative researcher. As such, she promoted the use of qualitative methods. Reflecting on her own studies, she explained the need for questionnaires, interviews, and the collection of student artefacts. As a qualitative researcher, she “used questionnaires, not validated surveys.” Dr. Game utilized questionnaires to understand how her students experienced gamification. These questionnaires gathered qualitative data that allowed the students to explain in more detail the way gamification impacted their learning. Furthermore, she also utilized “email interviews… and a few face-to-face interviews.” These interviews allowed for more qualitative data to be gathered that helped to identify how gamification impacted the students’ content knowledge. In addition, she also “used focus groups and instructor interviews.” This allowed the students and instructors to discuss with each other their feelings towards gamification. The last set of data she collected was student artefacts. Dr. Game explained that she “looked at the students’ digital portfolios and those were our
artefacts.” She believed it was important to collect data at every stage of the study to identify how gamification affects student learning.

**Advice for Novice Gamification Researchers**

Each participant had advice to give to a novice gamification researcher. Dr. Dice’s advice focused on the need to not get bogged down in all the different websites, such as blogger sites. She suggested that novice researchers “not read too many websites.” She explained that there is a lot of strong discourse surrounding gamification. However, there is a lot of differing opinions when it comes to gamification. As a result, a lot of the founders of gamification have moved on to different practices. Another suggestion is the need to work in a lab or as a research team. She recommended that “as a grad student you should be working in labs or in research teams where other folks are creating those applications.” Similar to other participants, Dr. Dice stressed the need to create a team to ensure the successful implementation of gamification. Working in a team allows for people who have a variety of different skills to work together. In addition, it is important to work in a lab with a control and experimental group. This allows researchers to gauge the success of gamification compared to other more traditional teaching approaches. These suggestions would allow novice gamification researchers to improve the rigor within the field of gamification research.

Dr. Who had similar advice for novice gamification researchers. He warned novice researchers about getting caught up in the criticisms. He stated it is “very easy for a novice researcher to get caught up in the rhetoric of this is right and this is wrong.” According to Dr. Who, criticisms can actually hinder the field of research by overwhelming researchers. Novice gamification researchers should not be overwhelmed
by the criticism. He explained that it is “more efficient for people to understand that people have different perspectives and that people will value different things and that is completely okay.” Since gamification research is multidisciplinary, he stressed that different researchers will have different ideas of what constitutes rigorous research. Furthermore, he also argued against some criticisms of different gamification approaches. He stated “that does not mean that one approach is right and the other is wrong.” Dr. Who argued that pointification might work with some university students who only want to improve their marks. As such, Dr. Who advised novice researchers not to be negatively impacted by gamification’s criticisms. Rather, conduct your own investigation of gamification and conduct the research study that works for your students.

Dr. Dif had advice for novice gamification researchers. Reminiscing on her own research studies, she explained some of the problems that researchers might incur. Dr. Dif stated that “curriculum committees, administration, and chairs of departments will not let you do it.” Administration might try to halt the implementation of gamification. This “resistance could impact the novice gamification researcher’s work.” Administrators are worried about appeals, and this could occur especially when conducting an experimental study with a control and experimental group. She stressed that this resistance could occur when you are doing control group studies. Therefore, you have one course gamified and the other one is not gamified. You could see the possibility of problems occurring. Students do talk to each other and students could think they are getting an advantage in the gamified section. This could result in complaints from the control group receiving the traditional instruction. As a researcher you have to be quite careful about that.
Novice researchers need to understand that they might face some restrictions from their administrators. Furthermore, researchers might need to explain to their superiors the benefits of implementing gamification.

Another piece of advice that Dr. Dif had was for researchers to learn how to code and build their own web tools. She explained, “it would be a positive to be good at building web tools. You must be able to make apps.” Most of the LMS that she has used does not have the tools to implement gamification. As such, Dr. Dif had to create her own tools and widgets to implement gamification. She created her own in-game economy, avatar maker, and other gamification tools. She believed the researchers need some skills in game design. However, if you do not possess those skills, she suggested that researchers should build a team. She stresses “researchers probably need to gain those skills or build a team that knows how to do that.” These skills take time to learn, and she believed building a team might be a more viable option for educators. In addition, researchers need to be creative. She stressed that “creativity is an important skill and I do not think you can learn that skill.” Dr. Dif recommended that novice researchers need to learn game designer skills or should build a team that could help in the implementation of gamification.

Dr. Game’s advice focused more on suggestions to improve research practices. She suggested that novice gamification researchers must ensure their research is rigorous. These researchers need to “make sure you have a rigorous research question.” Novice researchers need to begin with a rigorous research question and then move forward. In addition, researchers should start with a small implementation with specific outcomes. She stressed that novice researchers should “not make it huge, make it a small gamified
learning environment, but have specific learning outcomes for that environment.” Novice researchers need to ensure that they can successfully implement their gamification. As such, a smaller, more manageable group of students was suggested for novice researchers. A smaller population would be more manageable for novice researchers. Novice researchers also need to ensure they have specific learning outcomes for the environment. Dr. Game explained that researchers “need to research how effective the learning environment is and explore the elements that you put into the gamified learning environment.” Gamification research is a pragmatic teaching approach. Researchers need to understand that they also have to teach students as well. As a result, gamification researchers must continually explore and improve their implementation of gamification.

However, Dr. Game explained that novice researchers might not have the opportunity or means to implement gamification. Novice gamification researchers might not have the class to implement gamification. As such, she suggested that they might need “to try to piggyback off of someone.” If this is to happen, the researcher must find someone that is willing to allow them to conduct this study in her/his course. She stated that “the thing with gamification is that you need to have access to a learning environment.” In order to get this learning environment, the researcher might need to render her/his services or include the other person in the publication. Dr. Game explained that “you might have to offer your services as a research assistant and then write the paper with someone if you plan on piggybacking on someone else’s study.” This advice demonstrated the difficulty novice researchers might have finding an environment to conduct research. As a result, novice gamification researchers must be willing to work with others to gain access to an environment in order to conduct a study.
CHAPTER FIVE: SUMMARY, DISCUSSION, AND IMPLICATIONS

This chapter begins with a summary of the study before moving into a discussion of the findings. The summary highlights the reasoning behind the study and its aspirations. The discussion will follow the summary, and it will address the five major themes found within the data collection. The summary endeavours to provide answers to the key research questions. The discussion then turns its focus to Hamari et al.’s (2014) conceptual framework to explore the participants' major criticisms of the gamification research field. The chapter then explores the implications for future research. The chapter concludes with some final suggestions as to how to improve rigor within the field of gamification research.

Summary of the Study

This research study explored the current state of gamification research by investigating the major criticisms to explore the current state of gamification research. The field of gamification research is facing criticism because of its lack of rigor and structure (Connolly et al., 2012; de-Marcos et al., 2014; Dominguez et al., 2013; Hamari, 2015; Hamari et al., 2014; Seaborn & Fels, 2015; Zuckermann & Gal-Oz, 2014). This study looked to utilize these criticisms as a means for exploring gamification research in order to gather suggestions for improvement from gamification researchers. These suggestions attempted to improve rigor within the field of gamification research. The participants in the study reflected on their own practice, research studies, and the literature in the field in order to identify faults and provide solutions for the problems negatively affecting gamification research. In order to explore this topic, this study looked to answer these research questions:
1. What are the current trends in gamification research?

2. How do researchers distinguish between pointification and gamification?

3. What should be the standards for rigor in gamification research?

4. What criteria should future studies follow in order to improve the rigor of research conducted in the field of gamification?

5. What are the researchers’ experiences with implementing gamification?

To explore the current state of gamification research, this study used qualitative collective case study methodology. The study implemented interviews that follow a semi-structured format. The qualitative collective case study allowed for an in-depth exploration of the participants’ experience (Baxter & Jack, 2008). The collective case study found commonalities among the participants’ perspectives. This study used purposeful sampling to select four participants. Each participant went through a semi-structured interview. The participants all met the study’s criteria. They are tenured professors at Canadian university who have conducted gamification research within the last five years. The participants’ research studies all explored the impact of gamification research. In order to learn more about the effectiveness of gamification, this study implemented unstructured field notes. These unstructured field notes helped to collect inductive themes during the data collection process. The collection of these themes improved the picture as to how gamification affects student learning.

**Discussion**

This section explores the study’s findings in connection to the five major themes, as well as the major criticisms impacting the field of gamification research. The study implements Hamari et al.’s (2014) conceptual framework in investigating the major
criticisms, also exploring the need to improve the rigor within the field. After exploring Hamari et al.’s conceptual framework, the first section of this discussion offers an analysis of the need for a gamification study to explore either the psychological or the behavioural impacts that a gamification approach has on students. This section explores two themes from the interviews including the impact of gamification on motivation and behaviour, while addressing the criticism about studies not providing psychological or behavioural outcomes. This section concludes with an explanation as to the current state of gamification. The following section focuses on the difficulty of conducting gamification as a teaching approach and as a field of research. This section focuses on a number of gamification criticisms in suggesting the need for peer-reviewed studies, empirical evidence, a better explanation of research methods, the inclusion of motivational affordances, and studies which focus squarely on gamification. The second section of this discussion concludes with answers to the second and third research questions (i.e., How do researchers distinguish between pointification and gamification? and What should be the standards for rigor in gamification research?). The last section of this discussion focuses on the theme/suggestions for improving gamification research. This section concludes the study by answering the fourth research question (what criteria should future studies follow in order to improve the rigor of research conducted in the field of gamification?) and the last research question (what are researchers’ experiences with implementing gamification?).

**Hamari et al.’s Perception on Gamification and Its Lack of Rigor**

Hamari et al.’s (2014) *Does Gamification Work? – A Literature Review of Empirical Studies on Gamification* brings forth the idea that gamification research lacks
rigor and suggests the need for a paradigm shift in the way researchers conduct research. The study highlights the lack of empirical data within the field of gamification research to prove its effectiveness as a teaching approach. Hamari et al. utilize a conceptual framework to gauge the rigor of the research within the field of gamification. These academics consulted and reviewed over 8,000 papers and found that only 24 of these studies collected empirical evidence (Hamari et al., 2014). As such, the researchers consulted the 8,000 papers and select important research measures that should be present within a study to ensure rigor. The implementation of these measures would improve the rigor within the field of gamification research. As stated in Chapter One, Hamari et al. developed a conceptual framework to gauge the rigor of research within the field of gamification. The conceptual framework develops and identifies the following areas:

1. The Study is peer reviewed
2. Empirical evidence is included
3. Research methods are explicated
4. The study identifies motivational affordances
5. The study provided an outcome (psychological or behavioural)
6. The study is on gamification

Hamari and his colleagues’ study explored the field of gamification research and they found research measures that should be present in a study to ensure rigor. Hamari et al. (2014) recommended that these six measures need to be present within a gamification research study to ensure rigor. These researchers conducted a large literature review to highlight their criticism within the field of gamification. This major research paper relies on Hamari’s study as a starting framework and voyages into the field to gather the
perspectives of professors who have conducted gamification research. Utilizing a collective case study methodology, this study explores the current state of gamification. In this research paper, the professors have the responsibility of making suggestions that would improve rigor within the field of gamification research. The following discussion will combine the themes from the interviews and the major criticisms from Hamari et al. to answer the research questions posed by this study.

**The Impact of Gamification on Student Motivation and Behaviour**

This section explores the impact that gamification has on student motivation and behaviour. These two aspects are the focus of the participants’ research studies. Furthermore, this theme connects to one of Hamari’s major criticisms, which states that gamification studies do not necessarily lead to an outcome that is either psychological or behavioural. The participants’ responses illustrate the importance of having a desired outcome for a gamified learning experience. The participants reflected on their studies and their desired outcomes to shed light on the current state of gamification research.

**Impact of Gamification on Motivation**

Gamification researchers suggest that gamification as a teaching approach improves student motivation. Gee (2005) stresses that by implementing game elements into instruction, instructors can invoke the motivational impact of video games in the classroom. As such, utilizing game elements in an educational context relies on the motivational aspects of games to improve student learning. Gamification researchers such as Sheldon (2010) replicate the motivational impact that video games have on players, but with the intention of improving student learning. As a result, gamification researchers have attempted to investigate the motivational impact of gamification on students. This
section discusses the perspectives of the participants when it comes to how gamification impacts student motivation. It highlights the current state of gamification through one of the major focuses and outcomes that gamification researchers are investigating.

All participants commented on the motivational impact of gamification on students. The consensus was that due to the use of game elements, gamification positively affects student motivation. However, there seem to be two different views when it comes to the motivational impact of gamification. Dr. Who, Dr. Dif, and Dr. Game all commented on how the use of game elements through gamification improves their students’ motivation. This was evident through the improved attendance, participation, and overall grading of the course, as well as the student evaluations. These participants viewed gamification in a positive light because it is evident to them that gamification improves their students’ motivation. However, Dr. Dice has an opposing view of the way gamification affects students’ learning. She believes that leveraging something in a gameful way should be voluntary and that the whole game-like aspect falls apart when you force someone to act. As such, the use of gamification to promote motivation in something compulsory like education goes against the reasoning behind games. She criticizes gamification for using too many extrinsic game elements to train students to complete tasks for rewards. Dr. Dice believes that gamification could actually hinder student motivation, especially if the researchers focus too heavily on extrinsic rewards.

The use of extrinsic rewards to improve motivation was another significant topic in the interviews. All participants mentioned the use of extrinsic rewards within their studies. The participants commented on how extrinsic rewards have the ability to affect
student motivation positively when used in combination with intrinsic rewards. However, gamification researchers criticized the excessive use of extrinsic rewards that condition students to complete tasks for external rewards (Domínguez et al, 2013; Kapp, 2012; B. Kim, 2015). The participants commented on this fact; they stressed the need to combine both extrinsic and intrinsic game elements. As such, gamification researchers need to develop a plan to use extrinsic rewards to transition students into responding more to intrinsic motivation. The major consensus in the interviews was the need to utilize extrinsic game elements to interest the students in the content of the course. After evoking the interest in the content presented, the participants believed that the students will be intrinsically motivated through the learning experience. However, the use of only extrinsic rewards can negatively affect student motivation. As such, the researchers view pointification as a teaching approach that would negatively affect student motivation. The participants all stressed the negative impact that using only extrinsic rewards through pointification could have on student motivation.

All participants viewed pointification in a negative manner because this teaching approach focuses only on extrinsic rewards. The participants believed that extrinsic rewards would actually make students less interested in the content and complete tasks only for rewards. This connects with other gamification researchers’ beliefs about extrinsic game elements, which highlights the common belief that extrinsic rewards reduce motivation in the long run (Kim, 2015; Nicholson, 2012; Zuckermann & Gal-Oz, 2014). Dr. Dice expressed the negative impact of extrinsic rewards. She stated that to add extrinsic motivation to something that should be inherently intrinsically motivating, the studies have shown that when you add that veneer
point system to something that some people already enjoy doing, then they value it less and they are not going to do it unless they get some sort of external reward. (Interview data, March 2017)

The consensus from the participants and literature review was that using only extrinsic rewards through pointification would negatively affect student motivation in the long term (Kapp, 2012; B. Kim, 2015; Nicholson, 2012; Robertson, 2010; Zuckermann & Gal-Oz, 2014). All participants commented on how pointification and extrinsic rewards run counter to the purpose of education, which is to promote self-regulated learners. This belief mirrors concerns from the literature that stress that pointification takes away the students’ desire to learn and makes them want to only complete educational tasks for extrinsic rewards (Kapp, 2012; B. Kim, 2015; Nicholson, 2012; Zuckermann & Gal-Oz, 2014). As such, pointification can hinder the students’ desire to learn.

Impact of Gamification on Behaviour

Gamification researchers advocate for the implementation of gamification because it positively affects student behaviour. Literature on gamification research highlights how gamification improved students’ attendance and participation (de-Marcos et al., 2014; Figg & Jaipal-Jamani, 2015; Sheldon, 2010). The participants in the current study mirror the findings in the literature. All participants perceived the positive impact gamification could have on student behaviours. Dr. Dice advocated for gamification because it has improved her students’ behaviours. She expressed that “governing people through their desires and pleasures is really good in terms of if you want them to do something, you should make it enjoyable for them.” She perceived that gamification utilized game elements to interest students in the learning experience and produces
pleasure to invoke a desired behaviour. One of the most prolific game-based researchers, James Gee, echoes this belief about the use of game elements. Gee (2005) promoted the use of game elements and stressed that good game principles were supported by cognitive sciences that proved these principles improve student engagement. This engagement can come in many forms in the classroom including an improvement in attendance, participation, and completion of more assignments.

Researchers in the field of gamification pointed to the positive effect that gamification can have on student attendance. Gamification research advocates for the use of gamification to improve attendance (Figg & Jaipal-Jamani, 2015; Kapp, 2012; B. Kim, 2015; Sheldon, 2010). The participants mirrored the findings in the literature. They reflected on their own studies to highlight the behaviours that gamification invoke. Dr. Dif and Dr. Game stressed that attendance in their classes improved after implementing gamification. Furthermore, the participants indicated that gamification improved students’ participation in the classes. Dr. Dif, Dr. Game, and Dr. Who stressed that gamification improved students’ participation within the gamified learning experience. The participants reflected on their own courses to explain how gamification improved their students’ engagement. The students engaged more in the courses through reading more course readings, going further in activities, and answering more questions in class.

The last example of how gamification affected student behaviour was through the completion of more assignments. Dr. Game and Dr. Dif reflected on their classes to explain how gamification enticed their students to complete more assignments. Both professors remarked about how the extrinsic rewards in gamification compelled their students to complete more assignments. In Dr. Dif’s course, students completed extra
mastery assignments to gain more experience points (XP). Similarly, in Dr. Game’s course, students came to class prepared and completed more activities and assignments. These participants pointed to the positive impact that gamification had on their students. Furthermore, the participants, by reflecting on their studies, expressed the need for gamification researchers to look for a specific outcome -either psychological or behavioural.

**The Need to Provide an Outcome**

One of the major criticisms that negatively affects the field of gamification research is the lack of outcomes elucidated by research studies. Hamari et al. (2014) stressed that the impact of gamification on motivation and behaviour were the two most investigated topics in the field of gamification research. Only 33 of the 8,050 studies explored in their literature review actually had expressed outcomes provided (Hamari et al, 2014). This lack of stated outcomes has negatively affected rigor within the field of gamification research. The participants utilized their own studies to express the need for studies to have a desired outcome. Furthermore, some of the participants explained that gamification is evolving as a field and that this criticism might not be as prevalent in new gamification studies.

The participants commented on the need for gamification researchers to identify and state the outcomes of their studies (either psychological or behavioural). Dr. Game, Dr. Who, and Dr. Dif expressed how their own studies focus on changing either behaviours or motivation within their courses. Dr. Game implemented gamification to increase her students’ participation in course readings and improve her students’ content knowledge. As such, the students’ participation in the course improved as evidenced
through an increase in the completion of assignments. Similarly, Dr. Who implemented gamification to investigate how it affected his students’ learning. His findings found that gamification affected students’ behaviours in his class by improving their engagement. This finding mirrors literature in the field that suggests the positive impact that gamification has on student behaviours (Banfield & Wilkerson, 2014; Figg & Jaipal-Jamani, 2015; Sheldon, 2010). In addition, Dr. Dif implemented gamification to improve herself as an instructor in order to improve her students’ learning. Her exploration of gamification focused on motivation and behaviour. She found that students were more motivated in the class and participated more by completing extra assignments to improve their status in her course.

The findings from this study clearly illustrate the need for gamification researchers to have a desired outcome, either psychological or behavioural. Furthermore, these outcomes need to be stated explicitly in study write-ups. The participants commented on this need in the interviews and suggested that some of the gamification research studies that they have read focus heavily on the actual course and not as much on the findings. All of the participants suggested the need for gamification researchers to explain their methodologies, methods, and go more in depth with their findings. These suggestions mirror some of the major critics of gamification research who expressed that the field of gamification lacks structure (Dominguez et al, 2013; Hamari, 2015; Hamari & Koivisto, 2015; Hamari et al., 2014; Mekler et al., 2015; Seaborn & Fels, 2015). As a result, gamification researchers need to try to include as much detail as possible about their populations, methodology, methods, observations, and findings in their research study write-ups.
Dr. Who and Dr. Game indicated that the field of gamification research is still evolving and becoming more rigorous. Dr. Game suggested that gamification is coming out of its infancy stage and becoming more rigorous. According to this participant, gamification research has developed into a style of research that is much more rigorous. Dr. Who commented on the idea that the rigor in the field is impacted negatively because the research is both practice based and research based. Dr. Who and Dr. Game advocated for the field of research by stressing that most of the gamification studies they read were rigorous. However, not all of the participants perceived gamification research as being rigorous. In contrast, Dr. Dice viewed gamification research as hitting a sort of demise. She stressed that some predominately gamification researchers have moved on from the approach. These researchers left the field of research because of the same problems highlighted in the criticisms. In addition, Dr. Dif pointed out that not all of the gamification studies she read were rigorous. She commented on some studies that she called the “we did this and had a great time studies.” These studies do not have any benefit to the field. Dr. Dif explained that the researchers in these “one-offs” would attempt to complete one gamified study. They would then comment on what they did and not provide any empirical evidence about gamification. As a result, Dr. Dif believed that gamification research still needed to evolve. She placed most of the blame on a lack of fundamental modeling and structure. Dr. Dif commented on the need for researchers to incorporate theoretical frameworks to improve the rigor of the field (Hamari et al., 2014; Mora, Riera, and Gonzalez, 2015; Mora, Riera, Gonzalez, & Arnedo-Moreno, 2015). As such, changes need to occur within the field to help ensure its rigor.
Current State of Gamification Research

The current state of gamification research is at a pivotal point. The participants in this study expressed different views when it came to the field of gamification research.

Dr. Dice had the most critical view of gamification research. In her perspective, gamification has hit some sort of demise. She believed that gamification is at the “bottom of the hype cycle.” As such, some of her colleagues that were prolific gamification researchers are moving on to gameful design and other game-based approaches. She stressed that there are “all sorts of failures in the intellectual-based world and people believe they need to move on.” According to Dr. Dice, gamification has gone away from its original form and some researchers have moved on to other approaches to take some of the power back. She explained that there is “too much baggage and taint associated with the term gamification and what we want to do is take some of that power back and talk about gameful play or gameful engagement.” As a result, she perceived that the current state of gamification is at the end of its hype cycle. As such, she forecasts a decrease in gamification research studies because some of the prolific gamification researchers have chosen to move to other approaches.

Similar to Dr. Dice, Dr. Dif also criticized the current state of gamification research. She explained that there are too many “one-offs.” She expressed that too many researchers conduct only one gamification study and then move on to other types of research. In these studies, these researchers explain what they did and state that they had a good time doing it. Dr. Dif stressed that these studies are to blame for most of the criticisms relating to the lack of structure. As a result, she suggested the need for more fundamental modeling. Major gamification critics agree with Dr. Dif and comment on
this practice. These major critics stress that some gamification researchers focus too heavily on the practical nature of gamification and do not conduct thorough research (Dominguez et al., 2013; Hamari et al., 2014). Dr. Dif mirrored these beliefs. As a result, she stressed the need for the field of gamification to start to develop its own frameworks in order to improve the rigor of the field. Nicholson (2012) exemplified this through his study in which he developed a user-centered theoretical framework that aimed to promote meaningful gamification. He borrowed ideas from other disciplines to develop this framework. Dr. Dif commented on the need to borrow from other disciplines. According to her, researchers need to borrow theoretical frameworks from other disciplines and use them to improve the research practices within gamification research. As such, the current state of gamification research is still in a developmental state. Dr. Dif believed that gamification research is becoming more rigorous. She promotes the need for researchers to utilize other disciplines’ theoretical frameworks and for gamification researchers to develop new frameworks.

Dr. Who perceived the current state of gamification as being both practice based and research based. In the practical sense, he identified gamification as being a teaching approach that improved oneself as an instructor, while improving one’s students’ learning. Dr. Who believed he could “learn lot by simply using it in [his] classroom and [he] can study [his] own approach, not formally with an empirical study, but with my own observations.” This perspective connects to a variety of gamification researchers who believe that gamification can improve their teaching ability (Kapp, 2012; B. Kim, 2015; Sheldon, 2010). Dr. Game commented on this style of gamification studies. She calls them “how to” studies. These “how to” papers focus more on how to gamify a
classroom and less on empirical evidence. Dr. Who and Dr. Game advocate for these types of studies to promote creativity within the field of gamification research. Dr. Who stated he “finds it really compelling to try new ways to include gamification.” Even though he advocated for practice-based studies of gamification, he also believed that there is a need for more research-focused studies. Research-focused studies explore the impact and effectiveness of gamification research. He explained that “gamification might not actually be improving the educational learning outcome.” A variety of gamification researchers hold the same belief as Dr. Who. These gamification researchers were critical of the actual effectiveness of gamification when it comes to improving students’ learning (Dominguez et al., 2013; de-Marcos et al., 2014; Hamari et al, 2014). As a result, these gamification researchers expressed the need for more rigorous research that collects empirical evidence to demonstrate that gamification positively affects student learning. This belief mirrors Dr. Who’s suggestion that researchers must “build the test and methods being used in order to assess the contribution of the work and the validity of the work.” Dr. Who advocated for the need for the field of gamification research to conduct more rigorous research studies that explore the effectiveness of gamification.

Dr. Game was the most enthusiastic about the current state of gamification research. She was excited about the direction of gamification research. Dr. Game stressed that the field of gamification research is becoming more rigorous. She stated that gamification has a more rigorous look of what the affordances are in gamification… the information that I was exposed to at this conference demonstrates that it is out of its infancy stage, which is where you would have gotten no learning outcomes and those other criticisms.
She stressed that the current state of gamification is becoming a more robust research area that utilizes criticism to improve its research practices. Other gamification researchers have similar perspectives as Dr. Game. Nacke and Deterding (2017) wrote an article expressing their beliefs that the field of gamification research is becoming more rigorous through collecting evidence that is more empirical. The researchers commented on the five-year progression of gamification. Nacke and Deterding explained this progression from a field that lacked a sufficient theoretical foundation to a more mature mode of scholarship that includes empirical evidence. However, the researchers expressed that there are still problems in the field and believe that these problems still need to be resolved. Dr. Game mirrors these researchers’ beliefs and stressed the need for the improvement of gamification through the innovation of technology.

Technological advancements were another important aspect that the participants talked about affecting the current state of gamification. Literature on gamification suggests that new technologies can allow for more options and new implementations of gamification (Hamari et al, 2014; Hofacker, De Ruyter, Lurie, Manchanda, & Donaldson, 2016; Korn, Funk, & Schmidt, 2015). New technologies allow for the increase in game elements in the gamified learning experience. Dr. Who, Dr. Dif, and Dr. Game all created their own widgets and apps to improve their implementations of gamification. The participants explained how technological innovation allowed them to improve their own gamified learning experiences. Dr. Game expressed that “whenever the technologies finally become much more available, then we are able to make more use of different elements.” The participants commented that the current state of gamification is improving
because of technological innovation, which allows researchers to implement and conduct research on more game elements.

The ideology behind gamification, game-based learning, game design, and mindful learning with games is being reconceptualised. The current state of gamification research is going through a growing process and includes game-based learning, game design, serious games, and mindful learning with games. This sort of thinking conceptualizes game-based learning as a macro teaching approach that encompasses other game approaches such as serious games, pointification, and gamification (Hutchison, 2007; Tobias et al, 2014). Dr. Who and Dr. Game both expressed the need for the term to be redefined because of how closely connected gamification is to other game-based teaching approaches. Dr. Game explained that “the whole process of game design, mindful learning with games, and game-based learning, it is now encompassing gamification as well.” Dr. Game stressed that the current state of gamification is beginning to be reconceptualised as a whole. This condensing of terms is bringing together the various types of game-based teaching approaches.

However, this conceptualization could also be hindering gamification because of the confusion occurring in the field. This belief highlights the predominate beliefs in the gamification literature that suggests that the current state of gamification is being hindered because of confusion of terms within game-based learning (Hamari et al., 2014; Kapp, 2012; B. Kim, 2015; Robertson, 2010). The participants in this study mirror this concern and express how this confusion could be hindering the current state of gamification research. Researchers are confusing gamification with pointification and conducting studies that implement only extrinsic rewards. As a result, the field of
gamification needs to reconceptualise the definition of gamification research to include a more in-depth explanation of what this teaching approach includes. S. Kim, Song, Lockee and Burton (2018) are still attempting to define gamification because it is constantly changing. These researchers stress that as technology changes and the gamification teaching approach enters more disciplines, the ideas behind gamification continue to progress. The participants and literature in the field suggest that gamification is difficult to define because, as technology progresses, so does the implementation and research of gamification.

**The Difficulty of Conducting Gamification and Gamification Research**

This section explores the difficulties that researchers have when implementing gamification and conducting gamification research. The section highlights the main difficulties researchers face when conducting gamification research. The participants commented on the difficulties they experience when implementing gamification as a teaching approach and the difficulties of conducting gamification research. In addition, this section explores the main criticism incurred by gamification research. The criticism focuses on the need for peer-reviewed studies, empirical evidence, research methods to be explicated, the inclusion of motivational affordances, and for studies to focus on gamification (Hamari et al., 2014). This section will conclude by exploring and answering two research questions. The first is how do researchers distinguish between pointification and gamification, and the second is what should be the standards for rigor in gamification research? The participants’ responses and literature on gamification will help explore the criticisms and research questions.
The Difficulties of Implementing Gamification

All participants agreed that gamification was difficult to implement. The difficulty arises from the need to make the gamified learning experience both entertaining and educational. All participants expressed the need to interest the students through gamification, while ensuring the successful implementation of a course’s curriculum. The course curriculum was what the administrators were worried most about when it came to implementing gamification. These perspectives connect to other gamification research studies that express the difficulty and extra effort instructors must put forth to design a gamified learning experience (Kapp, 2012; B. Kim, 2015; S. Kim et al., 2018; Seaborn & Fels, 2015; Stott & Neustaedter, 2013). Researchers who implement gamification need to realize the extra effort and difficulties that arise because gamification is not only for entertainment but also needs to educate students. The participants commented on the need to prepare for the gamified learning experience by deciding on what game elements were going to be implemented and have a plan to improve their implementation.

Another layer of difficulty involves the selection of game elements. In addition, there is an extra difficulty of continually improving the gamified learning experience by introducing new game elements. Dr. Who, Dr. Game, and Dr. Dif commented on the need for researchers to prepare and identify which game elements will improve their students’ learning. This mirrors concerns in the literature which highlights the need for researchers to select game elements (Hamari et al., 2014; Kapp, 2012; S. Kim et al., 2018). This becomes even more difficult when the researchers have to implement or develop game elements for their application. Dr. Who, Dr. Dif, and Dr. Game had to create their own apps and widgets to implement some game elements in their courses.
This is a common concern experienced by gamification researchers (de-Marcos et al., 2014; Dominguez et al, 2013; Hanus & Fox, 2015). Literature on gamification highlights the need for researchers to create their own gamified apps or widgets to implement gamification into their courses (de-Marcos et al., 2014; Dominguez et al, 2013; Hanus & Fox, 2015). The participants and the literature suggest the need for gamification researchers to design their own gamified apps and widgets to implement gamification successfully.

In addition, the participants commented on the need to innovate their gamified learning experiences. The participants expressed the need to introduce new game elements to an already existing application. Dr. Who advocated for the need for researchers to observe their own classes and audit their implementation of gamification to improve their courses. Dr. Who, Dr. Dif, and Dr. Game all mentioned the need to implement and assess game elements and continually improve their gamified learning experience. This connects to longitudinal studies that continually implement new game elements (de-Marcos et al., 2014; Dominguez et al., 2013; Figg & Jaipal-Jamani, 2015; Sheldon, 2010). The participants reflected on their own experiences and the literature on gamification to express the extra effort needed to implement gamification. The participants and the literature in the field highlight the need for researchers to continually evaluate their gamified learning experience.

The Difficulties of Conducting Gamification Research

The participants all commented on the difficulties that they have had while conducting gamification research. One of the most prevalent difficulties in the field of gamification is the multidisciplinary nature of the research. Hamari et al (2014) in their
literature review made remarks about the variety of disciplines that gamification research is occurring in, from nursing to business to education. However, the multidisciplinary nature of gamification is affecting the way in which researchers perceive gamification. The participants commented on the difficulty of having standard research practices for gamification because different disciplines have different views of knowledge and what constitutes rigorous research. Dr. Dice was the most animated participant when it came to this topic. She expressed that in the social sciences “your sort of metric for what is knowledge is a journal article that is published, but if you are coming from computer science or human computer interaction your gold standard is one of these conference presentations.” This fact demonstrated how the multidisciplinary nature of gamification could be leading to difficulties and criticism occurring in the gamification research (S. Kim et al, 2018; Mora et al, 2015; Mora et al., 2017).

Another difficulty connects to the definition of gamification. The participants pointed to the difficulty of defining gamification. Some of the participants believed that the definition was not clear and needs to go more in depth in explaining gamification. Both Dr. Dice and Dr. Who cited Deterding to define gamification. These participants utilized the most commonly accepted definition of gamification, which is the use of game design elements in nongame contexts (Deterding, 2012; Hamari, 2015; Seaborn & Fels, 2015; Whitson, 2015). However, some of the participants believed that the definition needs to expand to explain gamification in more detail. This belief connects to current literature that believes that there might need to be a variety of definitions of gamification because of the multidisciplinary nature of gamification and the innovation of technology (S. Kim et al, 2018). It seems that the definition of gamification is still under
investigation and no clear definition is present in the field. The participants in this study have a similar perspective and believe there needs to be a reconceptualization of the term. Dr. Who, Dr. Dif, and Dr. Game believed that the definition of gamification should be reconceptualised to include more detail about what gamification encompasses. Dr. Game suggested that the term is too broad, and Dr. Who believed that the definition is not that detailed. The participants suggested the need for a more in-depth definition of gamification research. Further, a more in-depth definition might help address some of the criticisms and bring clarity to the confusion of game-based terms.

The confusion of game-based terms was one of the main topics discussed in each interview. The participants all perceived a difference between pointification (only extrinsic game elements) and gamification (incorporating both intrinsic and extrinsic game elements). The confusion of terms is a major issue within the field of game-based learning (Kapp, 2012; B. Kim, 2015; Robertson, 2010). Dr. Dif and Dr. Game both perceived the benefit of differentiating the terms to ensure that researchers who implement only extrinsic rewards do not state that their research study is exploring gamification. Dr. Who believed that there should be differentiation but does not see a point for multiple terms. Instead, he recommended combining the two terms (pointification and gamification) and explaining the teaching approach in more detail in the study. The suggestions demonstrated that there is a need for a shift in the current conceptualization of both gamification and pointification in order to differentiate the terms. The shift would help guard against criticisms that are hindering the perception of gamification.
The participants expressed the difficulty surrounding gamification research because of the lack of foundation modeling. The concern was that gamification researchers were not developing frameworks within the field of gamification research. Instead, researchers were borrowing frameworks from other disciplines and making them work for their studies. Looking at the literature review for this study, only one gamification researcher (Nicholson, 2012) had developed a specific framework for gamification research. As a result, gamification researchers utilized frameworks from other disciplines such as sociology, psychology, and education. The participants explained that some of these frameworks have been around for 50 years and that the frameworks were all validated. Dr. Dif stressed how she would like to see some frameworks come out of the field of gamification research. However, she suggested that using validated frameworks from other disciplines is also acceptable. Dr. Dif and Dr. Game utilized frameworks from other disciplines. The researchers used their research questions and the purpose of the study to determine what framework to incorporate into their studies. The participants commented on the need for gamification researchers to incorporate a framework in order to improve rigor within the field.

The Need for Peer-Reviewed Studies

The participants did not recognize the lack of peer review as a major criticism of gamification. However, this perception possibly occurred because of the need for most journal articles to be peer reviewed by the journal as part of a set of criteria. Although Hamari et al. (2014) criticized gamification research because of the lack of peer review, Dr. Who was the only participant who mentioned the term in his interview. He noted that one of his works was a tech report and was not peer reviewed. However, Dr. Who
commented on his own study and believed that a peer review could have improved his study. He wrote the study with his assistant at the time who was an undergraduate researcher in his final term. He stated it was an initial cursory study into gamification for educational purposes. As a result, Dr. Who suggested that if he and his undergraduate student had more time he would have conducted his study differently. Dr. Who’s experience demonstrates that not all articles are written for journals and that sometimes these articles are not peer reviewed due to specific circumstances.

**The Need for Empirical Evidence**

The participants commented on the need for gamification research to collect empirical evidence to identify the impact of gamification research. This mirrors a common perception in gamification research that advocates for more evidence that is empirical to prove the effectiveness of the teaching approach (de-Marcos et al., 2014; Dominguez et al., 2013; Hamari, 2015; Hamari et al, 2014). Major critics of gamification believe that there is still a need for more evidence that helps demonstrate the effectiveness of gamification (Dominguez et al., 2013; Hamari et al, 2014). Two studies that collected empirical evidence through a quasi-experimental design found no real improvement between the traditional and experimental groups (de-Marcos et al., 2014; Dominguez et al., 2013). As such, critics of gamification stress the need for more empirical evidence to demonstrate how gamification affects student learning. Dr. Who, Dr. Dif, and Dr. Game all expressed a similar belief. They perceived the need for a change in gamification research that is taking this lack of empirical evidence seriously. As a result, gamification researchers are attempting to conduct rigorous research studies that incorporate both quantitative and qualitative methods to collect empirical evidence.
The Need for Research Methods to Be Explicated

One of the most predominate criticisms occurring in the field of gamification research is the need for a better explanation when it comes to research methods. Literature on gamification suggests the need for more explanation and analysis of research methods when it comes to research studies (Dominguez et al., 2013; Hamari, 2015; Hamari & Koivisto, 2015; Hamari et al., 2014; Mekler et al., 2015; Seaborn & Fels, 2015). Gamification researchers need to focus more on their explanation, development, and analysis of research methods. These critics expressed how the lack of explanation when it comes to research methods and methodology hinders the rigor of the research (Dominguez et al., 2013; Hamari, 2015; Hamari et al., 2014; Mekler et al., 2015). The participants in this study advocated for the need for explanation of research methods within studies to ensure the rigor within the field.

All of the participants expressed the need for more explication when it comes to research methods and methodologies. The participants explained how the inclusion of research methods and methodologies would improve rigor within the field. Dr. Who stated that researchers “focus more on the results rather than the methods.” He explained that it is less important than the results, but still should be included to ensure transparency. Similar to Dr. Who, Dr. Dice expressed the need for transparency within research papers. She suggested that researchers should attempt to explain as much of the study as possible. She recommended that researchers explain their methods, what type of data they are collecting, and the behaviours they are investigating. Dr. Game and Dr. Dif both reflected on previous studies to express the need to include the explanation of methods within studies. The two researchers went on to explain the methods and
methodologies in their studies in order to stress the importance of including this information in gamification studies with the goal of improving rigor. Dr. Game went on to explain that this explanation of methods and methodology was even more crucial in qualitative studies. The participants all commented on the need for gamification researchers to include and explain the methods and methodology they use in order to ensure rigor.

The Need to include Motivational Affordances

This criticism expressed the importance of stating what game elements were included in the research study. Hamari et al. (2014) in his literature review found that only 25 of the 8,000 studies that he explored actually stated the motivation affordances used in the study. The gamification researchers in these studies took a holistic approach and did not state the individual game elements. Hamari et al. (2014) believed that the holistic approach fails to explain how gamification actually affects the learner. As such, gamification researchers advocated for the investigation of specific game elements (Hamari et al., 2014; Seaborn & Fels, 2015). These findings suggest the need for researchers to state their game elements they are focusing on and to look at how each specific game element affects their students. The participants advocated for the need to state and explain the chosen game elements. However, they also stressed that taking a holistic view might be more productive depending on the study’s focus.

The participants in this study did not support the idea of investigating specific game elements. Hamari et al. (2014) suggested the need for gamification researchers to explore only specific game elements and not look at gamification holistically. This suggestion would allow gamification researchers to identify the effectiveness of specific
game elements. However, the participants contradicted this belief by stressing the need for a holistic approach. Dr. Who, Dr. Dif, and Dr. Game stressed that looking at only one game element would not be practical because of the pragmatic nature of gamification. However, Dr. Game believed that researchers could use either a specific or a holistic approach. While she supported a holistic approach, she explained that it depends on the study’s focus and purpose. She suggested that both options are viable, but that researchers need to consider the aspirations of their study. In addition, the participants recommended incorporating specific game elements every semester. This integration allowed them to identify how the game element affects the overall application of gamification. This would allow researchers to examine a game element and decide if the game element positively impacts student learning. Dr. Game, Dr. Dif, and Dr. Who all utilized this practice to ensure that the new game element improved the overall learning experience. If the game element did not improve learning, they would eliminate it from their gamified learning experience. While reflecting on their studies, the participants recommended that gamification researchers implement a holistic approach while incorporating new game elements to attempt to improve student learning.

**Is the Study Gamification**

The confusion of game-based terms was the factor of most concern in gamification research. Gamification researchers have denounced the negative impact that has occurred in the field of gamification research because researchers are confusing gamification with pointification (Connolly et al., 2014; de-Marcos et al., 2014; Dominguez et al., 2013; Hamari, 2015; Hamari et al., 2014; Kapp, 2012; B. Kim, 2015; Zuckermann & Gal-Oz, 2014). These researchers expressed how the confusion of terms
damages the way in which academics perceive gamification research. Pointification is a teaching approach that utilizes only extrinsic rewards to motivate students to complete tasks. In comparison, gamification utilizes both intrinsic and extrinsic game elements. The literature indicates that some of the confusion could be a result of the definition of gamification, which could include pointification as well (Hamari, 2015; Kapp, 2012; B. Kim, 2015). The participants mirrored these concerns in their interviews and suggested the need for a reconceptualization of gamification in order to counteract this confusion.

The participants commented on the similarities between pointification and gamification. Dr. Game stated that when she “started with this there was no differentiation, gamification was pointification.” Researchers did not differentiate between gamification and pointification. She went on to express that most researchers are actually conducting pointification. However, she is optimistic that the terms are beginning to be differentiated. This differentiation should help guard against the criticism occurring in the field of gamification research. Similarly, Dr. Dice commented on how researchers could mistake gamification research for pointification research. She expressed that “if a teacher is talking at a conference about gamification practices, people [at the conference] could interpret her as just giving her students points according to how they are doing in tests.” It is clear that there is a need for the differentiation of terms in order to ensure researchers are actually implementing gamification and not pointification.

Both Dr. Dif and Dr. Who indicated that the confusion that occurs in the field of research is based on the similarities between pointification and gamification. As a result, some of the participants recommended the need to reconceptualise the definitions in order to differentiate gamification and pointification.
The definition that is used most commonly in gamification research comes from Deterding. Deterding (2012) defined gamification as the use of game elements in a nongame context. Both Dr. Dice and Dr. Who cite Deterding in their definition of gamification. In comparison, Dr. Dif had two definitions of gamification. The first is a serious game and the other is one where instructors cherry-pick game elements. Dr. Game actually mentioned pointification in her definition and suggested gamification is “pointification plus the learning experience.” The participants’ responses pointed to the broad nature of gamification and the broad definition used in the field of research. The participants in their responses suggested the need to reconceptualise the two teaching approaches. Again, this mirrors current beliefs in the gamification literature that point to the need for a new definition (Kapp, 2012; S. Kim et al., 2018).

The participants stressed how the definition of gamification is too broad and not detailed. As such, the participants suggested the need for a new, more in-depth definition of gamification research. This more in-depth definition would help differentiate between gamification and pointification. The idea is that this more in-depth definition would differentiate pointification and gamification. Dr. Who recommended combining the two teaching approaches. He placed the emphasis on the need for researchers to explain the differences of the terms in their papers. As such, there would be one term that embodies the two teaching approaches. It would then be the researcher’s responsibility to explain her/his approach. As a result, researchers would have to state if they implemented more than just extrinsic rewards. In addition, Dr. Game expressed the need to look at these game-based teaching approaches as an umbrella -that pointification was just a simplified version of gamification. This umbrella would differentiate the two teaching approaches.
while illustrating their similarities. S. Kim et al. (2018) exemplified this struggle in their study explaining how gamification researchers have a variety of ways through which to perceive gamification. The participants mirrored the current literature in the field by suggesting the need to reconceptualise gamification by developing a more detailed definition that would help clarify the confusion.

**The Difference Between Gamification and Pointification**

One of the research questions from this study explored the differences between gamification and pointification. Furthermore, a research question investigated how these terms are different. The literature on gamification explains that gamification is the use of both intrinsically (story line, narrative) and extrinsically (points, badges) motivating game elements (Kapp, 2012; B. Kim, 2015; Koivisto & Hamari, 2014; Prince, 2013), whereas, pointification is a simplified version of gamification that only focuses on extrinsic rewards such as points, badges and leader boards (Bogost, 2011; Deterding et al., 2013; Kapp, 2012; Robertson, 2010). The literature differentiates the two gamified teaching approaches through the types of game elements the approaches implement into the learning experience. All of the participants commented on the difference between gamification and pointification, while expressing the need for the separation of the two terms to ensure no further confusion occurs within the field of research.

All participants expressed their views on both gamification and pointification. As stated above, pointification is a simpler version of gamification. Dr. Dice holds a similar definition to the most common definition (Deterding) for pointification and gamification, but argued that gamification has collapsed into mere pointification. She expressed that there is a “distinct difference between gameful approaches to design and gamification
which has collapsed into mere pointification.” According to her, researchers are implementing only the easier game elements into their teaching approach and still considering it gamification. This has tarnished the teaching approach known as gamification. As a result, she and other colleagues have shifted their focus to gameful design in an attempt to take back some of the power. She stated, “but there is too much baggage and taint associated with the term gamification and what we want to do is take some of that power back and talk about gameful play or gameful engagement.” Dr. Dice’s beliefs mirrored some of the concerns from the literature by stressing that researchers are adapting only a pointification scheme and that the use of pointification has tainted the way academics perceive gamification (Kapp, 2012; B. Kim, 2015; Robertson, 2010). Dr. Dice provided insight into a major concern in the field of gamification. This concern connects to the confusion of terms and the taint associated with gamification because of this confusion of terms.

Dr. Dif also perceived the difference of terms in a similar way. In her perspective, gamification is the cherry-picking of a variety of game elements and implementing them into the classroom. These game elements are both intrinsically and extrinsically motivating. Similar to other researchers, she believes that pointification is a simplified teaching approach that uses only extrinsic rewards (Kapp, 2012; Robertson, 2010). She stated that “there is a suite of game elements that are easy to implement, such as leader boards, reward system, and badge system.” Dr. Dif believed researchers implement these game elements because they are easy to incorporate and do not require a lot of creativity. Furthermore, she explained that “game elements like leader boards are the game elements instructors can wrap their heads around and understand better because these types of
game elements do not take a lot of creativity to implement.” In order to implement gamification, researchers need to be creative. She expressed that these researchers need to be creative or find a colleague who is creative in order to implement game elements that are internal motivators. According to Dr. Dif, the difference is that gamification relies on creativity from the instructor, who in turn needs to include a variety of game elements, while pointification is an easier teaching approach that includes only extrinsic rewards.

Unlike the rest of the participants, Dr. Who was not familiar with the term pointification. However, after explanation, he believed pointification to be a less rigid gamified approach. He stressed that researchers who implement pointification “are not incorporating all elements of a game, so they may be missing out on things that might excite students like a story line.” As such, he perceived the lack of intrinsically motivating game elements as a possible negative. However, he did express that pointification might work in certain course where the students just want the material and a different way to improve their marks. Dr. Who used Deterding’s definition to define gamification. According to Dr. Who, this definition does not have enough detail. As such, he recommends that the field develop a more in-depth explanation of the approach. When it comes to comparing the two teaching approaches, Dr. Who advocated for the use of only one term because he believes that gamification is a spectrum. He recommended that gamification should be “thought of as being a spectrum of approaches where you might fall at one end or the other depending on what researchers include or do not.” Dr. Who’s suggestion was unlike any other in the current field of research. It provided another perspective into how gamification could be conceptualized as a teaching approach.
The Standard of Rigor in Gamification Research

Literature on gamification expressed the need for gamification researchers to identify standards of rigor to improve the field of research (Hamari et al., 2014; Mora et al., 2015; Mora et al., 2017). Hamari is one of the most vocal proponents of this need. He has advocated for a major change in gamification research. His research brings to light a variety of criticisms of gamification research and suggests the need for researchers to include standards in their studies to ensure rigor. Hamari et al. (2014) expressed the need for gamification research to be peer reviewed in order to ensure that other academics have reviewed the research. Dr. Dice and Dr. Dif agreed with this standard and stressed the need for other academics to review gamification studies. Through peer review, other academic researchers are able to revise the research and improve the overall study. Another recommendation was the need for empirical evidence to demonstrate the effectiveness of gamification (de-Marcos et al., 2014; Dominguez et al., 2013; Hamari et al., 2014). The participants mirrored this concern through their remarks, which expressed the need for more empirical evidence to identify the effectiveness of gamification. The participants believed that this empirical evidence should come in the form of more quantitative and qualitative data.

Another standard that needs to be present in research studies is the inclusion of research methods (Hamari et al., 2014; B. Kim, 2015). All the participants in this study stressed the need for researchers to spend more time explaining their research methods and methodology. This allows for credibility, transferability, dependability, and confirmability, which improves the overall rigor of the research. Another standard in the literature is the need to identify game elements/ motivation affordances (Hamari et al.,
This is an interesting topic because the participants disagree with this suggestion. Dr. Game, Dr. Who, and Dr. Dif expressed the need to research gamification as a whole. However, the participants also suggested that researchers should introduce new game elements to the already existing gamified classroom and then judge how the game elements affect the students. The last standard connects to the study’s outcomes. Literature on gamification recommends that researchers should provide an outcome that is either psychological or behavioural (Banfield & Wilkerson, 2014; Hamari et al., 2014; Nicholson, 2012). In this study, Dr. Dif and Dr. Game specifically mentioned the need for studies to thoroughly explain the desired outcomes. Dr. Dif goes one step further by stressing the need for studies to implement theoretical frameworks that help explain the behavioural or psychological outcomes. The participants as well as other gamification researchers advocate the need for standards in order to improve rigor in the field of gamification research.

Implementation for Future Gamification Research

This section explores the recommendations from the participants and connects these recommendations to gamification literature. Recommendations are made as to how to improve the field of gamification research. All participants had suggestions for improving the future of gamification research, with a focus on innovation. This innovation intends on improving student learning while increasing rigor in the field. The first recommendation connects to the need to build cross-curricular teams in order to ensure the successful implementation of a gamified learning experience. This suggestion connects to the need for cross-curricular teams. Cross-curricular teams could be teams of
teachers, researchers, and/or graduate students. The incorporation of cross-curricular teams can help provide a collaborative environment. In this environment, a group of researchers can creatively develop gamified learning experiences. The second recommendation is to conduct more arm’s-length research. In the review of literature, most of the studies on gamification happen within a researcher’s own classroom. This suggestion calls for a shift in research practices, where researchers go to other classrooms to conduct their research. The third recommendation connects to the need for gamification researchers to develop psychological measures to explore the impact of gamification research. The participants in this study stressed that literature in the field of gamification still has not developed its own research tools. Instead, researchers borrow from other disciplines. As a result, the field of gamification could improve its rigor by developing or adapting psychological research tools to improve the field of gamification research. This last recommendation connects to the need for longitudinal data. The literature in the field criticizes gamification research for its lack of longitudinal studies. Some gamification researchers criticize other gamification research for implementing only studies that investigate one implementation of gamification over a term or year (Connolly et al., 2012; Hamari et al., 2014, Kapp, 2012; Zuckermann & Gal-Oz, 2014).

This section utilizes the beliefs of the participants in connection with literature from the field of gamification to identify criteria that future studies should implement to improve the rigor within the field of gamification research.

**The Need for Cross-Curricular Teams**

Gamification researchers criticized the simplistic implementation of gamification. The researchers disapproved of these studies because they implement only a simplistic
style of gamification that does not demonstrate the full extent of gamification (Hamari et al., 2014; Kapp, 2012; B. Kim 2015; Mekler et al., 2015). The participants in this study acknowledged the need to improve the implementation of gamification and suggested the need to build cross-curricular teams. Dr. Who, Dr. Game, and Dr. Dif advocated for researchers to work in teams that have a variety of skills. According to the participants, such teams would allow for the development of creative ideas and collaborations that could improve the implementation of gamification. Dr. Game believed that it would be crucial for gamification researchers to work with game designers to ensure the successful implementation of the gamified learning experience. Game developers allow for a unique insight that can foster new ideas. This recommendation connects to a variety of studies in gamification, where researchers come together to develop a research study on gamification (de-Marcos et al., 2014; Dominguez et al., 2013). These innovative ideas can help push gamification to new heights by developing innovative game elements. In addition, the participants listed other benefits that come with a team-based approach to gamification.

Another rationale for having a team of researchers is the ability to conduct more research that is rigorous. Some gamification researchers criticize gamification research for not implementing quasi-experimental designs (de-Marcos et al., 2014; Dominguez et al., 2013; Zuckermann & Gal-Oz, 2014). In quasi-experimental design, the researcher attempts to make the control and experimental groups as similar as possible. The participants commented on the need for teams to incorporate the gamified learning experience in a variety of courses. Dr. Dif expressed that her research included other instructors who incorporated gamification into their courses. The researchers were then
able to compare their findings between classes and identify the effectiveness of the gamified learning experience. Similarly, Dr. Game also worked in a team with a group of instructors to implement a variety of gamified learning experiences. Again, these researchers had the ability to compare the effectiveness of gamification between classes. However, the participants and their teams investigated only their own courses and did not conduct research in other practitioners’ courses.

Literature in the field of gamification research illustrates the dominant trend occurring in the field. In this trend, researchers investigate their own practice. Only a few studies explored in this paper investigated other practitioners’ implementation of gamification (Sheldon, 2010; Stott & Neustaedter, 2013). These studies explored previously conducted research completed by other researchers. No participant in this study mentioned the need for gamification researchers to conduct research on other practitioners. Only Dr. Game alluded to the need for some novice researchers to work with other academics to gain access to a population of participants. In essence, all of the participants in this study researched their own practice. It is interesting to note that most of the participants in this study indicated that they implemented gamification to improve themselves as instructors. Dr. Game, Dr. Who, and Dr. Dif explained that they started to conduct gamification research in an attempt to improve their abilities as instructors, which in turn would improve their students’ learning. Gamification researchers highlight the use of gamification research as a way to improve instructors’ ability to teach (Figg & Jaipal-Jamani, 2015; Kapp, 2012; B. Kim, 2015). This paper recommends that gamification researchers attempt to conduct research in other practitioners’ courses in order to determine arm’s length if it affects student learning.
The Need for Arm’s-Length Studies

Gamification researchers focus heavily on conducting research in their own classes. One interesting topic that came up through an analysis of the data from this study is the lack of arm’s-length studies. An arm’s-length study occurs when gamification researchers conduct research in another practitioner’s class, preferably not a close colleague. As stated above, none of the literature reviewed in this study comprised arm’s-length studies. Instead, the major focus in gamification research is conducting research within one’s own classes and on one’s own students. This is a common theme in gamification research, where researchers conduct studies only in their own classes. Hamari et al. (2014) found that the studies he investigated were either statistical analyses from existing studies or implementations designed by the researchers. Hamari et al.’s study explored over 6,000 gamification studies and found that all of the studies fell under one of those two categories. In his review, gamification studies were either an analysis of a previous study or implementations designed by the instructor. Hamari et al. commented on the lack of arm’s-length research in the field of gamification research. He advocates for researchers to research other practitioners.

Future gamification studies need to consider this fact and explore how effective gamification is when the instructor is not the one conducting the research. This study recommends that future studies explore other practitioners’ implementation of gamification. This would be interesting to investigate and identify whether arm’s-length studies would have a different outcome in terms of research results. This could result in different findings because the researcher does not have a direct teacher-learner relationship with the participants. As a result, there is less chance of a conflict of interest.
As such, this study suggests more research that explores other practitioners’ gamified experiences in order to explore at arm’s length the effectiveness of gamification as a teaching approach.

The Need for the Development of Psychological Frameworks

The participants in this study commented on the need to develop theoretical frameworks for the field of gamification research. Mora et al. (2015) conducted a literature review on theoretical frameworks in connection to gamification research and found that there were 18 theoretical frameworks used in gamification research. This suggests that there was an assortment of theoretical frameworks available within the field of gamification research. However, these researchers found that only six of the theoretical frameworks focused on psychology (Mora et al., 2015). As such, there might be a need for more psychologically focused theoretical frameworks. One interesting note in this review of theoretical frameworks shows the predominant use of self-determination theory in gamification studies that have a psychological outcome (Mora et al., 2015; Mora et al., 2017). These researchers’ findings suggest that gamification researchers adapt frameworks from other disciplines to conduct gamification research (Mora et al., 2015; Mora et al., 2017). However, it is these suggestions that have led gamification researchers to attempt to develop more frameworks for the field of gamification research.

In conducting a new review of theoretical frameworks, Mora et al. (2017) commented on the developing frameworks that are coming from the field of gamification research. The researchers identify 40 theoretical frameworks that were in use in the field of gamification research (Mora et al., 2017). This is an increase of 12 theoretical frameworks in two years that were in use in the field of gamification research. The
review demonstrated that gamification researchers are attempting to develop theoretical frameworks and adapt theoretical frameworks for the purpose of gamification research. However, the 2017 review did not explain how many of the theoretical frameworks focused on psychological outcomes. As such, the suggestions from the participants in this study are a relevant topic right now in the field of gamification research. This suggests the need for more research to explore the theoretical frameworks available to gamification researchers and the need for more gamification researchers to develop and adapt theoretical frameworks to explore the effects of gamification on student learning.

**The Need for Longitudinal Studies**

The last suggestion from this study concerns the need for more longitudinal studies in the field of gamification research. Gamification researchers expressed the need for longitudinal studies to explore the long-term impact of gamification (Hamari & Koivisto, 2013; Hanus & Fox, 2015). There is definitely a need for gamification researchers to conduct longitudinal research to explore the long-term effect of gamification. However, not all of the longitudinal studies found that gamification positively affects their students’ learning. Hanus and Fox (2015) found that the long-term use of gamification could negatively affect student motivation, satisfaction, and final mark. These findings suggest the need for more longitudinal studies. As a result, more longitudinal studies are needed to ensure that the gamification teaching approach positively affects student learning.

Two participants in this study advocated for longitudinal studies. Dr. Dif and Dr. Game were major proponents of longitudinal studies. As such, the participants suggested the need to explore the long-term psychological effects of gamification. In addition, Dr.
Dif recommended the evaluation of game elements during these longitudinal studies as a way to improve implementation of gamification. Instructors need to implement new and innovative game elements into their gamified learning experience in order to explore how the game elements impact student learning. As a result, this study recommends that future research explore and evaluate the long-term effectiveness of gamification in order to ensure that the teaching approach positively affects students learning.

**Concluding Remarks**

The field of gamification is still evolving and becoming more rigorous as researchers attempt to counteract the criticisms occurring in the field. This study explored the current state of gamification by interviewing four Canadian university professors who have experience with gamification research. (Three of the four participants are currently conducting research, while the other has moved on to other research.) The study made a connection between the participants’ perspectives and the current research in the field to suggest the continual need to innovate gamification research in order to improve this field of research. The participants’ suggestions of working in cross-curricular teams, the need for longitudinal data, and the need for psychological frameworks are all currently under exploration by gamification research studies. Researchers in the field of gamification know there are faults in the field and are actively working towards improving the field.

However, gamification researchers still need to explore the differences between self-studies and arm’s-length studies. Future studies should investigate this issue in order to identify the effectiveness of gamification research. Researchers should take advantage of opportunities to conduct research in another practitioner’s course in order to explore how effective gamification is when the researcher is not the instructor. This comparison
between self-studies and arm’s-length studies will improve the field’s understanding of how gamification affects student learning.

Another recommendation focuses on the need to reconceptualise gamification and pointification. Future research should attempt to redefine gamification closer to the variety of emerging game-based teaching approaches. The participants in this study highlighted this need for change and a more detailed definition. Furthermore, the technological innovation is also affecting the conceptualization of gamification because gamification is often progressing with each new technological innovation. The participants in this study expressed the need for gamification researchers to stay current with new technologies in order to improve their implementation of gamification. Even though there was some confusion about different gamified teaching approaches, it seems as if the current state of gamification is still moving forward as researchers endeavour to innovate the field of research.
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Appendix A

Glossary of Game-Based Terms

**Avatar:** It is an online representation of a participant in a game or social network. The avatar can be used anonymously on the leader board to show how students are doing in relationship to the rest of the class.

**Back Story:** The back story represents a character’s life up until the moment the game begins. It is a way to get the students to enter this second world of gaming. It allows the students to also spark their creativity and realize that this class is going to utilize game mechanics and elements to transmit knowledge.

**Badges:** Players or students gain badges for completing specific activities. This is a reward that recognizes students for completing specific activities or tasks. It is an emblem created by the design to recognize achievement.

**Combat:** There are two types of combat (PVE: Player vs. Environment and PVP Player vs. Player. PVE is a gameplay where players fight against mobs (quiz/tests) controlled by artificial intelligences. PVP is a gameplay where players are pitted against one another (debate).

**Easter egg:** It is a hidden feature of the game. These may be simple as text messages, hidden information or an elaborate as entire level unlocked by a secret keystroke. These hidden hints could be places in the additional readings.

**Experience Points (XP):** These are points students receive for completing activities, tasks, and assignments. Students attempt to complete as many activities as possible to gain more XP. These XPs can be demonstrated on a bar or leaderboard.
**Experience Bar:** This is sort of like the Level Chart as in the students can check their progression within the class. This also shows students how close they’re to levelling up to the next level and allows them to see how important XP points are in their attempts to improve their marks.

**Final Boss:** This is a gamified slang for a major test or assignment. The instruction calls these assignments a final boss to improve the narrative of the learning experience.

**Grade by XP points:** Use an XP point system to mark students. All students start off with an F and level one. You must make sure that you explain the system to the students. You could always use a dual system to explain what their current mark is. The XP system might hinder students that are attempting to apply for graduate school with a midterm mark. However, it worked for Lee Sheldon and does add a game-like feature to the classroom.

**Guilds:** This is a way to create teams and use gamer jargon. Students are put into guilds which become their group for the remainder on the semester. I like this because it creates a game-like atmosphere for the class and allows students to collaborate with their fellow classmates.

**Leaderboard:** It is a board that ranks players or students based on their collection of points. The leaderboard challenges students to collect as many points as possible. It signifies a rank for the students and puts students into a competition.

**L33t Speak:** As a teacher you need to utilize l33t speak in your syllabus and also in the class. Try to recreate an online chat room which adds to the environment in your classroom. Examples of this is using fighting monsters for Quizzes and exams, completing quests for presentations and research, and crafting for projects, assignments,
and essays. This will submerse the students into a gamer atmosphere which will add to
the environment in your classroom.

**Level Chart:** This is used to allow students to follow their level progression and compare
it with the rest of the class. This invokes competition between the students but keeps it
anonymous. Students can check their standings and XP points on a regular basis.

**Mini-Quest:** These are optional tasks that players and students can complete to gain
extra points.

**Narrative:** This is the storyline found in the game or learning experience. It is the events
found in the game or learning experience.

**Role Play:** Students role-play the person they are researching or talking about. This
would work for their avatar as well. Shifting their voice, appearance, and personality to
mimic the character they are attempting demonstrate. This is a good way to get the
students into gamer mode.

**Quest:** A quest also known as a mission is a task that players or students must complete
to gain a reward or points.

**Quest Chain:** Quests need not all be isolated from one another. Quest chains are a series
of quests, one leading to the next. Quest suites are a group of quests related in some way,
such as a single quest giver or geography. This is a good way to connect topics or
subjects from one quest to another.

**Zones:** This is a good way to separate your guilds in the classroom. It also allows you to
differentiate your physical classroom, having students sit in different sections of the
classroom every day. This means that students switch from the front to middle to back.
The zones are named and given a back store to accompany them.
### Appendix B

**Examples of Coding**

<table>
<thead>
<tr>
<th>Axial Code</th>
<th>Examples</th>
</tr>
</thead>
<tbody>
<tr>
<td>1) Impact people/ student motivation</td>
<td>He talked about how these types of mechanics that are seen in Farmville (like appointment-based mechanics) can leverage psych hacks (Dr. DICE).</td>
</tr>
<tr>
<td></td>
<td>...Web analytics and entrepreneurs such as Gabe Zichermann. They promised everyday companies that knew nothing about games - such as insurance websites and stuff like that - they could increase user engagement by putting a game layer on top of existing web services and using data that these services were already collecting as people were using the websites (Dr. DICE).</td>
</tr>
<tr>
<td></td>
<td>If you are leveraging something in a gameful way then it automatically needs to be voluntary. I think that is sort of important. So, you cannot be doing it as sort of your employment or education and be forced to participate because this whole game-like aspect falls away once you are forced to join in (Dr. DICE).</td>
</tr>
<tr>
<td></td>
<td>We were looking at gamification initially to explore motivation. All the literature focused on motivation. We were looking to increase student engagement in the learning process. I was personally looking for new teaching methods. I'm not an entertainer and I was looking for ways to improve my student engagement. I wanted to be a better instructor, without learning actress skills (Dr. DIF).</td>
</tr>
<tr>
<td></td>
<td>Everyone knows that grades are a motivator. So gamification tries to allow you to use other motivational tools. Game elements like leader boards, allow you to take the points and manipulate them (Dr.DIF).</td>
</tr>
</tbody>
</table>
Appendix C

Interview Questions

General/Introductory Questions:

1. Tell me a little bit about yourself and your experience with gamification?
   Probe Questions:
   How many gamification research studies have you conducted?
   What was the focus of these gamification studies and how has this focus evolved over time? (i.e. behaviour, motivation, teaching strategies)

2. Tell me a little bit about your epistemological beliefs (i.e., how knowledge is created) when it comes to conducting gamification research?
   Probe Questions:
   What type of methodology/methodologies do you utilize in your gamification studies?
   What type of epistemology do you associate yourself with?
   What type of data do you typically collect? (i.e. Qualitative, Quantitative, Mixed, and/or conceptual).

Gamification Specific Questions:

3. How would you define the teaching approach known as gamification?
   Probe Questions:
   Read Deterding quote: Gamification is the use of game elements in a non-game context.
   Do you consider this quote to be accurate in explaining the teaching approach known as gamification?
   What type of game dynamics/elements do you believe need to be present in order for a teaching experience to be considered gamification?

4. Tell me a little bit about any studies that you have conducted which focus on gamification?
   Probe Questions:
   What game elements have you utilized in your own gamification research studies?
   What has been the focus of your gamification research?
   What major studies do you cite in your research? What studies do you identify as being central to the field of gamification in your studies?
   What outcomes have you investigated? (e.g., psychological, behavioural, and/or other outcomes)

Pointification Specific Questions:

5. How would you define the teaching approach known as pointification?
   Probing Questions:
What are your beliefs about a game-based teaching approach that focuses on the integration of extrinsic rewards through pointification?
How do you feel a pointification teaching approach impacts student learning / motivation?

**Comparison of Gamification and Pointification Questions:**

6. Do you believe that there is a distinct difference between gamification and pointification?
   Probing Questions:
   And if so, what is the difference between gamification and pointification? Is it important to differentiate between these two terms? If so, why? If not, why not?

7. Do you perceive any confusion within the gamification literature as to the differences between gamification and pointification?
   Probing Questions:
   If so, how do you think that this confusion has impacted the perception of gamification as a teaching approach? And as a research approach?

8. Do you believe that the field of gamification research needs to reconceptualise the definitions of gamification and pointification?
   Probing Questions:
   If so, how should these terms be reconceptualised?
   If not, why not?

**Gamification Research Questions:**

9. Are you familiar with any major criticisms of gamification research?
   Probing Questions:
   What were these criticisms? How do these criticisms impact the way you perceive gamification research? Do you believe that these criticisms have impacted the current state of gamification research?

10. Provide the researcher with some of the criticisms. (Hamari)
    Hamari criticizes gamification research because of its lack of empirical evidence, confusion of terms, the lack of provided outcome either psychological / behavioural, no explicated methods, not peer reviewed, and study does not identify motivational affordances.
    Probing Questions:
    What do you think about some of these major criticisms of gamification?
    What is your reaction to the argument that gamification lacks empirical evidence?
    What is your reaction to the argument that gamification research has methodology limitations?
    What is your reaction to the argument that gamification research lacks rigour?

11. What factors should be considered in conducting gamification research in order to ensure a high standard of rigour?
Rigorous research in this context is research that applies the appropriate research tools to meet the stated objectives of the investigation.

12. In your opinion, should gamification research have a holistic focus or focus on the impact of specific game elements?
   Probing Questions:
   Why do you believe this?
   In relationship to this question, how did you conduct your gamification research?

13. What major trends have you observed in recent years in gamification research?
   Probing Question:
   Have you seen a shift in focus? (e.g. Motivation, Behaviour, psychological, etc.)
   Have you noticed a major shift in the focus on specific game elements?
   Has this shift focused on more intrinsically motivating game elements or extrinsically motivating game elements?
   Have you noticed any major innovations in gamification research?
   What teaching platforms have you used in your research studies? (Online, in class, blended).

**Future Gamification Research Studies:**

14. What suggestion would you have for a researcher thinking about conducting gamification research in the future?

15. Probing Questions:
   What should be included in the research?
   What type of data should be collected?
   What population(s) should be researched? (I.e. elementary, secondary or higher education).

16. What advice would you give to a novice gamification researcher?
   Probing Questions:
   What difficulties might a novice researcher expect when conducting gamification research?

17. Is there anything else you would like to say about the field of gamification research or any other ideas that you did not have a chance to talk about in this interview?