The Perceptions of College Faculty Toward Gamification: Opportunities and Challenges

Olugbenga Dosunmu

University of St. Thomas, MN, ofdosunmu@yahoo.com

Follow this and additional works at: https://ir.stthomas.edu/caps_ed_lead_docdiss

Part of the Education Commons

Recommended Citation
https://ir.stthomas.edu/caps_ed_lead_docdiss/136

This Dissertation is brought to you for free and open access by the School of Education at UST Research Online. It has been accepted for inclusion in Education Doctoral Dissertations in Leadership by an authorized administrator of UST Research Online. For more information, please contact libadmin@stthomas.edu.
The Perceptions of College Faculty Toward Gamification:
Opportunities and Challenges

A DISSERTATION SUBMITTED TO THE FACULTY OF THE
SCHOOL OF EDUCATION OF THE UNIVERSITY OF ST. THOMAS
ST. PAUL, MINNESOTA

By
Olugbenga F. Dosunmu.

IN PARTIAL FULFILLMENT OF THE REQUIREMENTS
FOR THE DEGREE OF
DOCTOR OF EDUCATION

DECEMBER 2019
UNIVERISTY OF ST. THOMAS, MINNESOTA

The Perceptions of College Faculty Toward Gamification:

Opportunities and Challenges

We certify that we have read this dissertation and approved it as adequate in scope and quality. We have found that it is complete and satisfactory in all respects, and that any and all revisions required by the final examining committee have been made.

Dissertation Committee

Chien-Tzu C. Chou, Ph.D., Committee Chair

Jayne Sommers, Ph.D., Committee Member

Glori Hinck, Ed.D., Committee Member

7 March 2020

Final Approval Date
ABSTRACT

Gamification is the use of game elements (storytelling, leaderboard, badges, points, and progress bars), mechanics (rules, objectives and challenges), and game designs in non-game contexts (Deterding, 2012; Kapp, 2012; Wiggins, 2016). The use of gamification in learning environments has been on a steady increase since 2010 (Deterding, 2017). This may be due to the limitations of game-based learning, and the need for specialized instructors (Simoes, Redondo, & Vilas, 2013). However, researchers such as Boer (2014) believe the effects of gamification on students’ engagement and motivation appear lower than expected. This is because studies such as Dichev and Dicheva (2017) indicated that its effect on motivation was lower than anticipated and argued that the design of a successful gamified learning experience that could motivate learning and change behaviors remained a guessing practice.

This study used the collective case study method for data analysis and the syntheses of studies from gamification researchers to investigate and understand faculty members’ perceptions of the opportunities and challenges inherent in the use of gamification in adult students’ learning. The study then developed a robust framework for scientifically designing successful gamification learning experiences using Keller’s (1979, 1987) attention, relevance, confidence and satisfaction (ARCS) model of motivation, and Freire’s (2013) critical thinking concept as guiding lenses.

Among other findings, the study found that a well-designed gamified learning experience engenders the following opportunities: (a) reduces the barriers to learning through the use of meaningful storytelling, which enables the opportunity to inject humor and experiential learning; (b) stimulates intrinsic motivation through the use of the game element of teamwork or group work, which induces good student-to-student and students-to-faculty relationships; and (c)
creates the feelings of autonomy in students with the use of the game design principle of repetition.
Acknowledgements

I would like to start by thanking God almighty who gave the special grace that this dissertation required. My family who gave the support needed to keep me moving, even when all seemed impossible. Thank you, Prof. Sarah Noonan, for your endless supply of motivation. Thank you, Jacqueline Grossklaus for being so caring from the beginning to this very end. I also would like to specially acknowledge the efforts of my dissertation chair, Prof. Chien-Tzu C. Chou, and the other members of my committee, Dr. Jayne Sommers and Dr. Glory Hinck, thank you for your patience and understanding. Thank you, Dr. Aura Wharton-Beck for your motherly support and love.

I would like to thank my beautiful wife, Omolabake, for her dedication and unflinching love, my daughter for her interest in the dissertation, my sons—Daniel for always providing the much needed humor, and baby Enoch for his attempts at saying, “gami-fi-ca-tion.” My deeply felt gratitude goes to Daddy Michael Ojo and his family for their unflinching support, all former members of cohort 30, now cohort 1. My gratitude goes to Pastor Abraham Akanni, Deacon Bariture Kpuinen, and the church for their persistent support and prayers. Finally, I like to thank all participating faculty members, all members of my second home—the “Department of Public Safety,” for their contributions in making this dissertation a success, and those I couldn’t mention for lack of space.

Thank you all.
Table of Contents

Abstract ............................................................................................................................... iii
Acknowledgements.......................................................................................................... v
Table of Tables and Figures .............................................................................................. ix
Chapter 1: Introduction .................................................................................................... 1
  Problem Statement .......................................................................................................... 3
  Research Purpose ........................................................................................................... 5
  Significance of the research .......................................................................................... 5
  Research Question ......................................................................................................... 6
  Definition of Terms ....................................................................................................... 6
Chapter 2: Review of the Literature ................................................................................ 9
  Games ............................................................................................................................. 10
    Games and Motivation ................................................................................................. 11
    Games and learning .................................................................................................... 12
  Gamification ................................................................................................................ 19
    Gamification and the fulfilments of the Learners’ Psychological Needs ..................... 21
    Gamification and the Learning Contexts ....................................................................... 22
    Gamification and Motivation ....................................................................................... 24
    Gamification and Students’ Performance ..................................................................... 25
    Gamification and Social Justice Educational Leadership ........................................... 26
Analytical Theories .................................................................29
Critical Learning.................................................................29
The ARCS Model of Motivation .............................................32
Summary, Gaps, and Tensions in the Literature .......................34
Chapter 3: Methodology .............................................................37
Research Approach/Methods ..................................................38
Institutional Review Board ......................................................40
Role of the Researcher .............................................................40
Recruitment and Selection of Participants ...............................42
Pilot Interview ........................................................................43
Data Collection: Interviews ..................................................44
Data Analysis ........................................................................47
Reliability and Validity .............................................................49
Ethical Considerations ............................................................50
Chapter 4: Findings .................................................................51
The Participants .......................................................................51
Findings by Interview Questions ............................................55
Findings by Categories ............................................................61
Summary ................................................................................71
Chapter 5: Data Analysis .................................................................73

Opportunities of Gamification..........................................................73

How Gamification Creates Immersion for Adult Learners ..................79

Challenges of Gamification.............................................................80

Summary.........................................................................................81

Chapter 6: Conclusion and Recommendations ......................................83

Opportunities of Gamification..........................................................83

Challenges of Gamification.............................................................86

Implications.....................................................................................86

Recommendations ...........................................................................87

Contribution to Knowledge and Literature in the Field .......................88

Research Limitations........................................................................89

Suggestions for Future Research.......................................................89

Conclusion.......................................................................................89

Appendix A: Interview questions .......................................................90

Appendix B: Demographics .............................................................92

Appendix C: Consent form .............................................................93

Appendix D: Tables for Textual Analysis ..........................................97

References......................................................................................105
Table of Tables and Figures

*Table 1.* Gallup students’ poll 2015 ................................................................. 4

*Figure 1.* A design pattern for the analysis and synthesis of gamification ............. 49

*Table 2.* Demographics of participants ................................................................ 52

*Table 3.* Descriptions of game elements ............................................................. 54

*Figure 2.* A Gamification Framework with considerations for the learning contexts ......................................................................................................................... 88

*Table 4.* Table of textual analysis ........................................................................ 97

Table 5. Game elements, motives, motivational triggers by participants............... 100

Table 6. Challenges of gamification ....................................................................... 103
Chapter 1

Introduction

Gamification uses game elements (meaningful storytelling, leaderboard, badges, points, avatars, and progress bar), mechanics (rules, objectives and challenges), and game design thinking or principles (repetitions, and competitions) in non-game contexts to advance learning (Deterding, 2012; Gené, Núñez, & Blanco, 2014; Kapp, 2012; Wiggins, 2016). According to Gee (2014), game design principles include: (1) the possession of new virtual identities; (2) input amplification; (3) self-knowledge; (4) committed learning; and (5) psychosocial moratorium—freedom to take risks due to reduced consequences.

Gamification has received a wide acceptance in K-12 and STEM based education as a pedagogical tool of engagement (Cheong et al, 2014; Jen-Wei & Hung-Yu, 2016; Orwin, Kist, Maxwell & Maiti, 2015). However, few studies have paid attention to the effects of gamification on adult learners in liberal arts or professional schools in higher education. This study aims to examine the perceived pedagogical applications and effectiveness of gamification by college instructors in low-tech learning contexts.

The use of gamification has been on a steady rise since 2010 with no signs of slowing down (Gené, Núñez, & Blanco, 2014; Nacke & Deterding, 2017; Simoes, Redondo, & Vilas, 2013). This may be due to the limitations of game-based learning (GBL). In other words, gamification may compensate for the shortcomings of GBL. In order to understand the efficacy of gamification, you need to know the difference between gamification and GBL.

GBL uses fully developed games while gamification uses game elements, principles and mechanics to motivate engagement in the learning process (Cheong et al., 2014; Van Eck, 2015). Kapp, Blair, and Mesch (2014) defined games as problem-solving spaces with beginnings,
middles, and rewarding ends meant to engage players. Gamification has utilized new strategies, different from GBL, by applying game elements, principles and mechanics in attracting people’s attention, engaging people in targeted activities, and influencing their behaviors (Kim, 2015). GBL had been a popular topic of discussion and studies in education before now for its application of games in learning (Kim, 2015). It suffers from five major limitations:


2. Games have limited contents and have often failed to meet curriculum demands for student learning (Fotaris, Mastoras, Leinfellner, & Rosunally, 2016).

3. There are not enough faculty members with expertise in game design technology as faculty members’ preparation and professional developments programs have failed across the board to adequately prepare teachers and faculty for the effective use of technology in education (Simoes, Redondo, & Vilas, 2013; Office of Educational Technology, 2017).

4. Games tend to be addictive with some learners spending too much time on game playing (McGonigal, 2011; Scutti, 2018).

5. Some learners’ homes have limited internet connectivity (Office of Educational Technology, 2016).

Based on the stated limitations of game-based learning, faculty may prefer gamification to games in their quest to motivate and engage the new generation of learners, who grew up playing computer games (Gené et al., 2014). Prensky (2013) called the new generation of learners, born in the late 1990s through the present, the digital natives, while Merriam and Bierema (2014) described the new generation of learners as the “net generation” (p. 6). Some
researchers such as Boer (2014) believe that the effects of gamification on students’ engagement and motivation appeared lower than expectations. However, Steinkuehler, Squire, and Barab (2012) believed the exploitative nature of poorly designed gamification angered game designers, while Deterding (2012) argued that most implementation of gamification had failed because the designers did not consider ways in which individuals and the learning contexts differ. Therefore, the design of an effective gamified learning experience that can motivate learning and change learners’ behaviors has remained guessing practice (Dichev & Dicheva, 2017).

This study adds to the scholarly literature through a qualitative case study of the use of gamification in adult learning environments with considerations for the learning contexts. It investigated faculty members’ perception of gamification regarding the afforded opportunities and challenges in different learning contexts that motivated adult students’ engagement and learning. The applied method included the process of interviewing instructors who embedded gamification in their classroom learning instruction, and the analysis of the interview data. The knowledge gained from the workings of gamification in different learning contexts produced a model for embedding gamification in adult learners’ curricula.

**Problem Statement**

The principles of learning in video games appeared more in line with learning advancements in the 21\textsuperscript{st} century technological global world compared to learning in traditional classes (Gee, 2003; Gené et al., 2014; Wiggins, 2016). This may be the reason for the dwindling level of interest and engagement in traditional learning contexts (Brenneman, 2016). The new generation of learners grew up playing video and computer games that promoted much needed 21\textsuperscript{st} century skills (Van Eck, 2015). Therefore, traditional schools are becoming unattractive to the digital natives because of their outside-of-school exposures to game learning principles,
which make otherwise difficult work interesting (Gee, 2003; Gené et al., 2014). According to Brenneman (2016), the result of the Gallup Student Poll of 2015 proved that students’ engagement (Table 1), decreased with progressive grade levels due to the impacts of the learning environments, adult relationships, and the educators’ perceptions of the students’ values. Gee (2003), Prensky (2013) and Gené et al. (2014) argued for a change from the dominant traditional school teaching style, termed the “instruction paradigm” by Barr and John (1995), to the game-based learning paradigm, also called the digital game-based learning (DGBL) paradigm when it includes the use of digital technology.

Table 1

<table>
<thead>
<tr>
<th>Grade</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
<th>10</th>
<th>11</th>
<th>12</th>
</tr>
</thead>
<tbody>
<tr>
<td>Engage level</td>
<td>75%</td>
<td>67%</td>
<td>55%</td>
<td>45%</td>
<td>41%</td>
<td>33%</td>
<td>32%</td>
<td>34%</td>
</tr>
</tbody>
</table>

*Note. Adapted from Brenneman (2016).*

Students’ lack of engagement in school ultimately led to the introduction of GBL in schools (Van Eck, 2015). Digital GBL combines digital games such as kahoot.com and digital tools such as leaderboard to assess students’ real time academic progress and offers opportunities as well as disadvantages in students’ learning (Schmitz, Klemke, & Specht, 2014). Games engender immersive learning experiences (Codish & Ravid, 2015). In addition, game learning principles are engaging, motivating, and pleasurable (Gee, 2003; Keener, 2017). However, digital game-based learning includes video and non-video games that suffer from the following: (a) content limitations, (b) dearth of specialized teachers, (c) cost constraints, and (d) the argument that games are addictive (McGonigal, 2011, p. 28; Cappellini, Maggiorini, & Ripamonti, 2017). These GBL’s limitations may have made gamification a popular pedagogical tool of motivation and engagement in recent times.
The majority of current studies on gamification are found in the field of computer sciences or programs with strong infusion and focus with technology (Johnson, Deterding, Kuhn, Staneva, Stoyanov, & Hides, 2016). However, many of the elements and mechanism of gamification are applicable in courses with low or no-tech learning contexts.

Despite the rising popularity of gamification, there are ongoing arguments in the research community about the effectiveness of gamification as a pedagogical tool of motivation and engagement in the learning environment. In addition, there appears to be limited empirical proof in support of gamification as an effective pedagogical tool of motivation that may engage students long enough to motivate learning. Despite this, gamification has continued to grow in popularity and the current designers of gamified learning experiences still largely base their designs on guessing practice, rather than on empirical research (Dichev & Dicheva, 2017).

**Research Purpose**

This study aimed to determine the effectiveness of gamification as a pedagogical tool of motivation in different learning contexts through a qualitative interview of instructors who use gamification as motivational tools in designing their classroom learning experiences. The interview aimed to determine instructors’ approaches to gamification, and the perceived benefits and challenges posed by using such game elements in different learning contexts.

**Significance of the Research**

Current gamification strategies appeared to be a repacking of traditional instructional strategies (Wiggins, 2016). Dichev and Dicheva (2017) claimed current studies made it difficult to identify effective game elements in promoting learners’ motivation and engagement in a given context for a given group of learners. The study is significant to instructors and society because the analysis and synthesis of data collected from instructors would help reduce the level of
guessing practice now prevalent in educational gamification. In addition, the findings of this study may help develop predictable models for gamifying adult learning environments based on learning contexts as considered by the research questions.

**Research Questions**

The current research study investigated the main research question: What do instructors perceive as the opportunities and challenges in implementing gamification in adult students’ learning? The following related question supported the main research question: According to faculty’s perception, how does gamification create the immersion needed for adult students’ engagement and critical learning?

Interviewing the faculty members created an opportunity to gain a firsthand understanding of their perceptions of the effects of gamification on students’ motivation and engagement. The interview helped with the understanding of the research context. According to Patton (2015), “sensitivity to context is central in qualitative inquiry and analysis” (p. 9). In addition, a full understanding of the research context helped with the generalization of the research findings and their applications in other adult students’ programs with similar contexts.

**Definition of Terms**

*Self-efficacy:* The belief in one’s capability to succeed at a given task or in a situation or in a domain (Bandura, 1997). Gee (2014) described it as the ability to take on new virtual identities that can help people see themselves as persons who can learn and use information in a given domain. According to Gee (2003), “without such an identity commitment no deep learning can occur” (p. 59).

*Critical learning:* Freire (2013) termed critical learning as critical transitivity and defined it as the acquisition of depth in the interpretation of problems. Gee (2014) defined critical
learning as learning to think of semiotic domains as design spaces that manipulate learners in certain ways and which learners can also manipulate in certain ways. Gee (2003) believed “semiotic systems are human cultural and historical creations that are designed to engage and manipulate people in certain ways” (p. 43).

Knowledge transfer: The application of knowledge from one or more domains to another domain of interest with similar design structures (Gee, 2014). It can also be described as the application of an old experience to a similar situation. This agrees with the theory of connectionism, which emphasizes the potency of pattern-recognition in humans (Nevin, 1999). Transfer depends largely on a deep understanding of the similarities between the inherent patterns and designs of the domains of interest.

Games: Problem-solving spaces with beginnings, middles, and rewarding ends designed to engage players (Steinkuehler, Squire, & Barab, 2012).

Gamification: The use of game elements such as leaderboards and progress bars, game mechanics (rules, objectives and challenges), and game design in non-game context (Deterding, 2012; Kapp, 2012; Wiggins, 2016).

Game-based learning (GBL): Game-based learning uses complete games such as kahoot.com to assess students’ real time academic progress and offers opportunities in students’ learning (Schmitz, Klemke, & Specht, 2014).

Game dynamics: The highest conceptual level in a gamified experience that includes storytelling, progression, relationships, affinity groups and emotions (Werbach, & Hunter, 2012).

Game mechanisms: The set of rules, activities, rewards, competitions, chances, feedbacks, acquisitions and challenges that move the gamified experience forward (Wiggins, 2016).
Gamification elements: Game components that include leaderboard, badges, avatars, levels, and progress bars (Wiggins, 2016).
Chapter 2

Review of the Literature

The review is structured around the use of gamification elements, mechanisms and dynamics in different learning contexts with an emphasis on the effectiveness of gamification on the achievement of learning outcomes. The current study investigated the perceptions of instructors who used game elements in their learning environments to motivate students’ learning, and it became important as the knowledge to gamify a learning experience with consideration for the learning context remained a guessing practice (Dichev & Dicheva, 2017).

Dicheva and Dichev (2015) reviewed 34 empirical studies on the use of gamification in education. The review spanned a period of four years, January 2010 to June 2014, with the aim of identifying the trends and patterns of gamification in learning environments. The results showed that the level of understanding of how to create the immersion necessary for students’ engagement remained questionable, and that a need for a substantial empirical research to determine whether gamification can influence both extrinsic and intrinsic learners’ motivation still existed.

Three years later, Dichev and Dicheva (2017) found that the knowledge of how to gamify a learning environment with the right gaming elements and with considerations for learning contexts is still questionable. They concluded there is a need for more studies to add to the body of knowledge of how game elements influence behavioral and motivational learning outcomes and how game elements function in different learning contexts. They also noted that the research focus had mainly been on empirical research with very little attention given to any theoretical considerations. This informed the current study to theoretically consider the impact of gamification on learning outcomes through a collective case study research method that
interviews instructors who use gamification in their learning environments. Based on the gap in the literature, this study strived to investigate faculty members’ perceptions with the aim of discovering patterns that would reveal the opportunities afforded by gamification according to learners’ motivation, learners’ satisfaction, and the level of autonomy or competence enjoyed.

Gamification makes use of game elements and game designs to make content game-like (Kapp et al., 2014). The current review of literature provides insights into the arguments and counter arguments about the usefulness of gamification as a pedagogical tool of motivation and engagement in learning environments. To accomplish the goal of this research, the analysis grouped the review into two main themes (games and gamification), and two analytical theories (learning and motivation). The discourse around gamification has aroused much public interest in games (Andrews et al., 2015; Gené et al., 2014). Therefore, the current literature review started with a review of games.

Games

Previous research concluded that games were effective classroom learning tools (Keller, 1997; Van Eck, 2015). Kapp et al. (2014) described games as self-contained units with clearly defined beginnings, middles, and ends with winning states. Gibson and Prensky (2007) defined a game as an enjoyable competitive activity that is bounded by certain rules of play, which requires a certain level of skill. According to McGonigal (2011), games are classified into two basic types: (a) finite, played to win; and (b) infinite, played for continuity (e.g. Tetris). In addition, there are games that challenge the brain, and those that challenge the body. However, both types shared common traits that include voluntary participation, rules, goal, and feedback systems that induce the motivation in players to keep playing (McGonigal, 2011). The following sections discuss the influence of games on motivation, learning, and gender preferences.
Games and Motivation

Games, in contrast to work, are unnecessary obstacles that provoke our interests, unleash our creativity, increase our self-motivation, and make us perform at the very edge of our abilities (Andrews et al., 2015). Alshaiji (2015) conducted a study with a group of Saudi children to investigate the roles of a video game in the comprehension and retention of English language vocabulary. The researcher placed a random sample of 30 children into the control group and another 30 into the experimental group and found video games-based instruction to be a useful motivational learning tool. McGonigal (2011) claimed games intrinsically motivated learners to take responsibility for their own learning and cited four motivational game characteristics: challenge, fantasy, curiosity, and control. According to Gibson and Prensky (2007), challenges in games help fight student boredom; fantasy increases enthusiasm through appealing imaginaries; curiosity engenders interest; and control produces the feeling of self-determination. Gamification employs game learning principles to make otherwise difficult work interesting (Gee, 2003; Gené et al., 2014).

McGonigal (2011) analyzed games from the perspective of work and motivation, and described the concept of game-work to include the following: (a) busywork—monotonous and predictable games, which include games such as “harvesting virtual crops”; (b) mental work—cognitive intensive games such as chess; (c) physical work—games such as “Dance Dance Revolution” or “Wii Boxing;” (d) discovery work—which are exploration games, (f) team work—which are games that emphasize team collaboration; and (g) creative work—which are games that emphasize domain design and critical learning (Gee, 2014). These works have in common starting goals, next steps and reinforcing feedbacks that feeds the gamer’s strength and the motivation to keep playing.
Andrews et al. (2015) claimed that we produce our own happiness when we focus on activities that produce desired results. According to the researchers, reward-providing activities give intrinsic motivation. Therefore, good games generate intrinsic rewards that engender (a) personal strength, (b) satisfying work that gives direct feedback on efforts, (c) social connection and (d) positive emotion. Due to this, the game design technique (advocated by McGonigal (2011)), structures work like games, making the experience and content intrinsically rewarding.

Game design technique aligns well with the “Self Determination Theory” (SDT) of intrinsic motivation (Kapp et al., 2014). Self Determination Theory emphasizes autonomy, self-efficacy, and sense of relationship (Gené et al, 2014). Therefore, learning contents become intrinsically rewarding by starting out with clear goals. In this regard, instructors or course designers may create easily identifiable and understandable next steps that allow for multiple entries, based on learners’ capacities. In addition, the steps should enable a sense of community through planned group interactions by using a collaborative game element such as the discussion board and the leaderboard. Nelson (2012) described game-work design technique as another subtle form of content gamification: “The application of game elements and game thinking to alter content to make it more game-like” (Kapp et al., 2014, p. 55). In other words, content gamification uses any or a combination of game elements, game thinking and game design to induce the motivation for learning.

Games and Learning

Games intrinsically motivate learners to take responsibility for their own learning (Gibson & Prensky, 2007). Simoes, Redondo, and Vilas (2013) as well as Ulicsak, and Wright (2010) described the concept of using games to enhance learning in schools as game-based
learning. According to them, GBL includes: (a) commercial off-the-shelf videogames; (b) student-developed games; and (c) serious games, video games with learning objectives.

Learning results in changes in the brain and identity, not just a change of practice (Gee, 2003; Keener, 2017; Merriam & Bierema, 2014). Therefore, the effectiveness of video games for learning resides in their capacity to influence the learner’s motivation, activity level, engagement and interactivity (Gee, 2014; Pappas, 2016). Two things lead to active and critical learning in games: (a) the internal design of the game; and (b) the affinity group, or other players and non-players (metagame) that may influence the game (Gee, 2014; Gee, 2017, Steinkuehler & Barab, 2012). Salen and Zimmerman (2003) as well as Gee (2017) described affinity space or metagame as any aspect of a game, derived not from the rules of the game, that may influence a game, or spaces surrounding a game within which gamers can move back and forth and develop different identities.

Gee (2003) illustrated the potency of game playing in learning and knowledge transfer by using the 32 learning principles of video games which relate to three areas of research: (a) situated cognition, (b) literacy studies, and (c) connectionism. According to Gee (2014), good games have good learning principles built into them, and require players to learn and think in ways in which they are never adept. This led to the consideration of the theory of situated cognition.

**Situated cognition.** Situated cognition recognizes human learning as a function of the material, social and cultural world. It draws from a variety of perspectives, including procedural knowledge and semiotic domains. It places an emphasis on psychology, practice effect, and knowledge transfer (Gee, 2014). The two kinds of knowledge are (a) knowledge in the world (situated knowledge), and (b) knowledge in the head (Norman, 2002). According to Clancey
(1997) and Norman (2002), situated cognition is learning that comes into existence within a context or a domain. It is knowledge embedded in a process or knowledge embedded in an ongoing activity in a social or a cultural world. In other words, situated cognition produces meaningful learning only within a context or a domain. It is therefore termed knowledge in the world. However, situated knowledge does not transfer well across contexts. For example, declarative knowledge which may include knowledge required for game playing. In contrast, knowledge in the head is knowledge gained through learning and experience. An example of knowledge in the head is procedural knowledge.

**Procedural knowledge.** Norman (2002) classified knowledge that is best taught through demonstration and best learned through practice as procedural knowledge. According to Norman (2002), procedural knowledge is subconscious in nature, and the best teachers often find it difficult to teach. Procedural knowledge can be classified as the type of knowledge required in driving an automobile or riding a bicycle.

Knowledge transfer occurs when a gamer integrates procedural knowledge (knowledge in the head) with knowledge in the world (situated cognition) by learning to think at the design level, by understanding how two different semiotic domains or games may be related based on previous learning experiences (Jugo, Braidwood, Long, John, & Stringer, 2019). This requires active learning and critical thinking. Critical thinking produces the capability to manipulate semiotic domains (Gee, 2014).

**Semiotic domains.** Semiotic domains are sign producing systems such as symbols and images (Rose, 2016). Therefore, a game environment can be considered as a semiotic domain. Semiotic principle involves the learning and appreciation of the relationships and the interrelationship within and across sign systems that includes images, symbols, and words.
It also includes the signified (the content or message) and the signifier (images and symbols) that signifies the content. The content can also become a signifier that can create unlimited links termed the unlimited semiosis by Mai (2001). Mai (2001) applied the semiotic concepts in a subject indexing process, where a document produced a sign (the subject), and the subject produced another sign (the subject description) that can be indexed. In addition, Jason (2015) treated the computer display screen as a semiotic resource which models human-computer interaction (HCI) by providing affordances and limitations in forms of signs and related concepts.

Gee (2003) claimed learning in all semiotic domains requires the taking on of new identities which include: the virtual (that give new powers); the real (the true identity of the learner); and the projective (the identity the learner desires). According to Gee (2014), the learner picks up a virtual identity of interest in the semiotic domains, an identity different from their real identity, and projects his/her values and desires into a projective identity. Gee (2014) claimed game designs create flows by making the virtual identity and the semiotic domains compelling to the learners through working on learners’ inherent interests to result in a ‘practice effect’ — the need for humans to practice whatever they want to learn many times before they master it. Steinkuehler, Squire, and Barab (2012) explained practice effect in game contexts: “All good games have good game mechanics (the actions players take to solve problems) and engender in players a desire to persist past failure, thereby engaging in a good deal of practice and time on task” (p. 130). This implies that games are great tools for the mastering of psychomotor or procedural knowledge, an intersection of the cognitive and physical skill (Bloom, 1953).

Gibson and Prensky (2007) as well as Linehan, Kirman, Lawson, and Chan (2011) concluded computer games are powerful tools for increased learning, but there are no known
well-designed research studies and comprehensive design paradigms for computer games in learning. However, the theory of connectionism may shed more light on the link between games and learning.

**Connectionism.** Connectionism emphasizes the potency of pattern-recognition in humans (Gee, 2003, 2007, 2017; Plaut, 2000). It implies that the connection and association that people make based on their experiences are crucial to learning, thinking, and problem solving. According to Plaut (2000), connectionist systems with similar patterns have similar consequences. Connectionism theory claims people do not learn anything in general, and that learning is always connected, and relies on previous experiences (Gee, 2017). Gee (2014) termed this as ‘transfer.’ In addition, Gee (2017) believed video games are never a waste of time as thinking and reasoning are inherently social and distributed. Gee (2017) saw the social and distributed nature of knowledge as a form of new literacy.

**New literacy.** New literacy theory focuses on the nature of literacy as the culture of the dominant race or class in a society, rather than on the social practice of skill acquisition (Gee, 1996; Street, 2002). The analysis of video games through the lens of new literacy theory may expose a content limitation problem. Gee (2003) defined content as “information rooted in, or, at least, related to, intellectual domains or academic disciplines like physics, history, art, or literature” (p. 21). Gee (2014) as well as Simoes, Redondo, and Vilas (2013) claimed that off-the-shelf video games suffer from content limitation challenges. In support of this claim, Fotaris, Mastoras, Leinfellner, and Rosunally (2016) studied the effects of games in a computer programing class of 52 students from the School of Computing and Technology, University of West London. The study reviewed that the limited number of the multiple-choice questions and answers in “who wants to be a millionaire” and the “Kahoot” games made content authoring a
challenge for the teaching staff that were involved in the study. However, the findings indicated that most of the students displayed higher levels of self-confidence, commitment to attendance, and engagement due to the use of the game (Fotaris et al., 2016).

Steinkuehler, Squire, and Barab (2012) argued that there were no scientific data indicating that lessons learnt by playing games were transferable to other domains of applicability, and learning occurs as side effects. Moreover, video games production requires large budgets (Johnson, Smith, Willis, Levine, & Haywood, 2011). Therefore, Steinkuehler, Squire, and Barab (2012) challenged educational game developers to develop a robust ecology for the purposes of designing, developing, and maintaining new kinds of quality games. However, games may not equally appeal to boys and girls (Lenhart & Kahne, 2008).

**Games and gender preferences.** Robertson (2012) conducted a field study to evaluate an ‘Adventure Author’ software in a naturalistic setting to investigate the level of game making skills developed by learners in a grade seven class made up of both boys and girls. The ‘Adventure Author’ software used a role-play genre game-making activity that applied a toolkit from the commercially available Neverwinter Nights 2 game. The researcher found no gender differences in learning gains and interests. However, the researcher found noticeable gender differences in the frequency of boys’ game-play sessions compared to the girls’ play session. These findings agreed with Lenhart and Kahne’s (2008) findings that 39% of boys play games daily in comparison to 22% of girls, and that 34% of boys play for two hours or more compared to 18% of girls.

Robertson (2012) and Prensky (2013) believed that games are integral parts of the new generation of children’s lives. Robertson (2012) further claimed that children acquired ‘game literacy’ when allowed to create their own games, and that the process of game making includes
peer review and critical reading of games. Buckingham and Burn (2007) described game literacy as the meaning generated by a game’s language, acquired and taught as any other language. According to Kafai (1995):

Just as fluency in language means much more than knowing facts about the language, technological fluency involves not only knowing how to use new technological tools but also knowing how to make things of significance with those tools and most important, develop new ways of thinking based on use of those tools. (p. 39)

Therefore, Robertson’s (2012) study of the hypothesis that girls might not be as proficient in game building as boys resonated with a warning by Jenkins and Cassells (2008) that games may not equally appeal to boys and girls. Their study prompted the following questions: (a) will the introduction of game literacy disadvantage girls in the learning environment, (b) could lack of game playing experience have a negative impact on girls’ academic performance in the class, (c) will young children demonstrate skill in the areas of peer review of games, and (d) can children capitalize on the advice and recommendations from their peers? Robertson (2012) also found that young children could demonstrate skill in the area of peer game review, and that the girls capitalized more on the advice and recommendations from peer reviews than the boys. The girls also had a higher quality of dialogue.

The game making activity was based on storytelling or narrative, which according to the researcher has been found to interest girls. Robertson (2012) claimed that the combination of narrative and technology in game design can help address gender gap in the poor writing habits discovered in the boys and the lack of interest in technology in the girls. However, Van Eck (2015) claimed that the “digital natives” as described by Prensky (2013) do not actually exist.
Van Eck (2015) based his claim on the surprising discovery that a significant number of players (about 23%) play video games for less than an hour a week. Therefore, the digital generations are not as interested in game playing as initially thought, and it was wrong to have called them the digital natives; there was no need to argue for the inclusion of games in learning if there exists no evidence of their effectiveness (Van Eck, 2015). In addition, games are addictive in nature (McGonigal, 2011).

In summary, Robertson’s (2012) findings reinforced the need for games in the learning environment and indicated that games would not disadvantage girls in the learning process. In addition, Keener (2017) confirmed that findings such as Robertson (2012) and Van Eck (2015) apply to learners of all ages. However, Van Eck (2015) argued that the digital natives do not exist, and McGonigal (2011) acknowledged the addictive nature of games, and stated, “gamer addiction is a subject the industry takes seriously” (p. 43). With this, gamification appeared the safest and best option left for the instructors as the combination of narrative (content) and technology results in content gamification (Kapp et al., 2014). However, many consider the use of games in non-game contexts as gamification; the use of games as complete entities on their own is not gamification (Andrews et al., 2015).

Gamification

In general, instructors and instructional designers have two implementations for gamification: (a) content gamification, and (b) structural gamification (Kapp et al., 2014). Content gamification directly applies game thinking to instructional contents by embedding the following in instructional contents: (a) meaningful story-telling, (b) repeated trials that reduce the risk of failure, (c) group work assignments that solidify the sense of relatedness, and (d) the breaking of complex tasks into smaller modules to allow for different levels of instructions.
Structural gamification places game elements of leaderboards, scoreboards, and electronic badges on contents. In other words, content and structural gamification may eliminate the problem of content limitations posed with the use of game as pedagogical tools of motivation (Kapp et al., 2014).

According to Gené et al. (2014), gamification uses the advantages of game elements in non-game contexts, while eliminating the concomitant disadvantages of games. The increasing trend in the use of game elements in non-game contexts for their afforded advantages led to the emergence of gamification in 2010 (Gené et al., 2014; Simoes, Redondo, & Vilas, 2013). This makes gamification a prime candidate for a pedagogical tool of motivation and engagement in this study.

Kapp et al. (2014) described gamification as “using game-based mechanics, aesthetics and game thinking to engage people, motivate actions, promote learning, and solve problems” (p. 54). Therefore, gamification is not games, though the discourse around gamification focused public interests on games (Deterding, 2015). Content gamification includes storytelling. It applies game thinking and game elements to content to make them more game-like (Kapp et al., 2014). Clegg, Ahn, Yip, Bonsignore, and Pauw (2016) applied storytelling in their “Kitchen Chemistry” learning environment, and found storytelling acted as a natural scaffold and guide that supported learners’ inquiry practices. Structural gamification applies game elements to contents to engage and propel learners through contents with no alteration to them. Examples include the use of leaderboard and electronic badges. Both content and structural gamification have the ultimate goal of satisfying learners’ psychological needs for competence, autonomy and relatedness (Sailer, Hense, Mayr, & Mandl, 2017).
Gamification and the Fulfilment of the Learners’ Psychological Needs

Students have the desire to satisfy the psychological needs for relatedness and competency (Keller, 1987). Sailer et al. (2017) claimed that the learners’ psychological needs for competence or self-efficacy, autonomy and relatedness may be satisfied by modifying the learning environments. The claim was based on the findings from their experimental research which included a total of 419 participants of which 204 were women and 215 were men. The population had an average age of 22 years. Their research tested the assumption that game design elements can be used in creating learning environments that can satisfy learners’ psychological needs for competence, relatedness and autonomy, which may also influence learners’ motivation and engagement. In their experiment, Sailer et al. (2017) tested three assumptions: (a) the psychological need for competence and self-efficacy can be satisfied with the use of badges, points, performance graphs and leaderboards; (b) the psychological need for autonomy can be addressed with the use of avatars; (c) meaningful storytelling may satisfy the psychological need for social relatedness (Groh, 2012; Bandura, 1997). The following section explains their findings.

The provision of shared goals through meaningful storytelling and group work, which can evoke a sense of relevance, may satisfy the psychological need for social relatedness (Groh, 2012; Bandura, 1997). In addition, Rigby and Ryan (2011) claimed meaningful storytelling may produce meaningful learning experiences or task meaningfulness. It may also satisfy the psychological need for autonomy (Rigby & Ryan, 2011). The psychological need for autonomy may be addressed with the use of avatars, which offer the players or learners the freedom of choice and may lessen the impact of the effects of failure (Peng, Lin, Pfeiffer, & Winn, 2012). The psychological need for competence may be satisfied with the use of badges, points,
performance graphs and leaderboards. The psychological need for social relatedness may be satisfied with shared goals or teamwork. The outcomes of social relationships can be more powerful than the value of any intelligence quotient (Stibel et al., 2009).

These findings align with Bandura’s (1997) social cognitive model, which posited that the more value a student attached to the learning of a material due to its relationship to his/her other life’s needs, the more motivated the student would be. Similarly, Kasurinen, and Knutas (2018) carried out a systematic mapping study of 1164 gamification studies that were classified according to research topics and focus areas to determine the research trend in gamification. A systematic mapping study categorizes publications and analyze publication trends by structuring and classifying a field of interest (Kasurinen & Knutas, 2018). The results showed that the development of proof-of-concepts prototypes in the domains of computer science education, motivational tools, papers discussing eLearning concepts, and sustainability as well as lifestyles were the trendiest areas of gamification studies.

In general, the findings from Sailer et al. (2017) as well as Kasurinen and Knutas (2018) indicated a high appeal for the use of gamification in education since before 2015. This necessitated the need to investigate the perceptions of instructors who use gamification in their learning instructions. In addition, little has been said about the impact of learning contexts on educational gamification. Therefore, this study focuses on investigating the perceptions of instructors who use gamification in their instructions with considerations for learning contexts.

**Gamification and the Learning Contexts**

Dichev and Dicheva (2017) claimed that current studies arbitrarily mixed points, leaderboard, badges, progress bar, avatars and status. Applying no discernable experimental approach made it difficult to identify effective game elements in promoting learners’ motivation
and engagement in a given context for a given group of learners. In addition, the fundamental differences in educational contexts hampered the transfer of experimented practices from one learning environment to another.

Kapp (2012) claimed gamification can effectively motivate learners’ engagement, change behaviors, and create desired learning outcomes, if applied to the right contexts. Kapp (2012) described gamification as “a careful and considered application of game thinking to solving problems and encouraging learning using all the elements of games that are appropriate” (Kapp, 2012, p. 15). The author believed that “a single element or even one or two elements alone cannot make an engaging, immersive, learning environment,” (p, 26). However, Dichev and Dicheva (2017) claimed that the use of a single game element appeared more effective in a gamified learning experience. Dichev and Dicheva (2017) attempted to answer the following research questions: (1) if more game elements produce better results than less, and (2) if it’s feasible to identify the right combination of game elements with respect to a given context and a user group. They concluded that current studies mixed points, leaderboard, badges, progress bar, avatars and status without any discernable experimental approach and made it difficult to identify effective game elements in promoting learners’ motivation and engagement in a given context for a given group of learners.

In terms of contexts, Kapp (2012) claimed storytelling and content repetition function well with declarative knowledge or factual knowledge acquisition. Kapp (2012) also made the following relevant claims: (1) immersing learners in the concepts by asking decision making questions helps with the gamifying of conceptual knowledge; (2) asking questions that model the if/then or cause/effect situations best gamifies rule-based knowledge acquisition learning environment; (3) social simulation gamification works best with the learning of soft skills, which
are non-sequential principles, like leadership, for dealing with social interactions; and (4) short
celebrity appearances best gamify the affective knowledge domains, dealing with attitudes,
values, interest, emotions and beliefs (Bloom, 1953). In other words, contexts imply instructional
types and game elements imply game thinking or game components.

In terms of game elements, Stott and Neustaedter (2013) conducted a series of three case
studies on post-secondary applications of gamification to determine which game design elements
were effective for inclusion in educational curriculums. They found that four elements in game
design consistently led to success: (a) rapid feedback, (b) storytelling, (c) freedom to fail, and (d)
progression. Fotaris et al. (2016) found that adding these game elements in their empirical study
of gamification in a computer programing class of 52 students gave the learners a sense of
agency.

Gamification and Motivation

Deterding (2012) agreed with other researchers such as Nacke and Deterding (2017) that
gamification uses elements of games in non-game contexts and believed the exploitative nature
of poorly designed gamification angered game designers. Deterding (2012) viewed gamification
as a process that identifies and facilitates the intrinsic motivations behind desired activities by
using game design as the guiding lens. Sailer et al. (2017) claimed that gamification can reward
participants through psycho-social processes (which include group identification, self-efficacy
and social approval).

According to Deterding (2012), most gamification designs are poor in their
implementation of the reward system because they do not consider ways in which individuals
and contexts differ. In other words, participants should have intrinsic reasons to engage with a
gamified experience. Deterding (2012) strongly believed gamification would work if it included
game design and reasons for users’ engagement and not just games’ components. Deterding (2012) wished researchers would someday produce a gamification model that used psycho-social processes, and included deliberate considerations for contexts, individual differences, and meanings—the reasons for user’s engagement with the gamified experience.

Kapp, Blair, and Mesch (2014) also argued gamification can intrinsically and extrinsically motivate learning and described how it can intrinsically motivate learning through the application of self-determination theory (SDT), which addresses the three elements of human motivation:

1. Autonomy, a feeling of being able to direct one’s action, or having a sense of control;
2. Self-efficacy, a sense of competency and capability of mastering a situation; and
3. Relatedness, a sense of relationship to others.

They further argued intrinsic and extrinsic motivations are two sides of the same coin and therefore described both as “mutually independent constructs rather than opposite ends of a single dimension” (Kapp et al., 2014, p. 223). This prompts an interest in the study of gamification as a pedagogical tool of motivation for students’ performance.

**Gamification and Students’ Performance**

Motivation produces the actual driving force which makes individuals want to do something and help them continue doing it (Dichev & Dicheva, 2017). Using performance as a measurement of motivation level in gamification may not be perfect. Dichev and Dicheva (2017) claimed that motivation can only be measured indirectly through performance as performance may be influenced by many non-motivational factors such as ability, prior knowledge, and quality of instruction. Therefore, it is beneficial to understand the motivational triggers that engage learners. This suggests the need for studies that utilize more reliable measures of
motivation. Dichev and Dicheva (2017) suggested that the focus should be on the research question, whether game design elements (G) are effective for learners of type (L) participating in activity of type (A). However, Broer (2014) as well as Dichev and Dicheva (2017) feared that the effects of gamification on motivation and engagement may be lower than the ones created by the current hype on gamification. However, gamification may help instructors model socially just learning environments.

**Gamification and Social Justice Educational Leadership**

Ratts, Anthony, and Santos (2010) believed social justice leadership emphasized the belief that all students can and will attain proficiency, without exceptions or excuses and must therefore be provided with equitable learning environments. Instructors provide equitable learning environments when they model respectful behaviors to learners and enforce equitable ground rules of discussion (Abdullah & McCormack, 2008; Kohl, 2016). Respectful behaviors include the habit of patiently listening with the heart with genuine concerns to the contributions of others (Klein, 2016). Gamification may help instructors in their effort to model socially just learning environments with the introduction of game elements such as the gamified or rule-based online discussion board, meaningful stories, and teamwork.

**Gamified online discussion boards.** Online discussion boards support the constructivist approach to teaching that fosters a sense of community, encourages students’ engagement with the course contents and the instructor, creates virtual learning environments that support reflective discussions, and enables the possibility of real time and critical appraisals (Osborne, Byrne, Massey, & Johnston, 2018). According to Gee (2017), learners have the desire to satisfy their psychological needs of relatedness, and reflective discussions can help satisfy these needs. Therefore, a discussion board may engender critical thinking as students provide open
clarifications to assumptions while responding to critical questions. Though a growing body of literature supports the use of the discussion board, it remains unclear how best to support learners with the use of the discussion board as a pedagogical tool of engagement and critical reasoning in a learning environment (Osborne, et al., 2018). Gené et al. (2014) described how the discussion board may engage and support critical learning when gamified.

Gené et al. (2014) described the number of “likes” attached to a post on a social network as a game element of motivation for the contributor. As a result, faculty gamify the discussion board when they request learners to agree/like or disagree/dislike their classmates’ postings on the discussion board. Faculty often do this by asking the students to read and respond to posts (pertaining to the topic of discussion) from their colleagues on the discussion board. Participating students often feel encouraged and motivated to contribute more to the discussion when they receive some likes for their postings (Gené et al., 2014). It is gamification when faculty embed elements of meaningful storytelling in online discussions (Wiggins, 2016). Meaningful storytelling is a game design element (Sailer et al., 2017). Faculty may use meaningful storytelling to adapt topics of discussion to individual student’s background experience or culture by requesting posts that relate to students’ learning experiences or cultures. Moreover, Kraft (2007) claimed students become more critically conscious when teachers model critical questioning through meaningful storytelling.

**Meaningful storytelling and teamwork.** Meaningful stories may be difficult to construct and apply in a learning environment, but instructors use storytelling for the following reasons: (a) meaningful storytelling helps simplify the teaching of difficult core principles; (b) meaningful storytelling enables knowledge transfer when learners shared learning experiences in meaningful ways, this also engenders the development of good relationships among learners; and
(c) it engenders knowledge retention when core principles are anchored on memorable learning experiences (Kendall & Kendall, 2017). The introduction of meaningful stories can help develop the team spirit necessary for the attainment of a shared goal among a group of learners. In addition, the psychological needs for relatedness get satisfied (Sailer et al., 2017). According to Sailer et al. (2017), the need for social relatedness can be satisfied using teamwork. This implies that teamwork can also help generate a feeling of self-belonging to some significant others. Therefore, the use of storytelling and teamwork may help faculty members transition from the teaching paradigm to the learning paradigm (Barr & Tagg, 1995).

The traditional mode of learning that applied the teaching paradigm has become unattractive to the new generations of learners. Therefore, various attempts have been made to motivate learning at all costs and at all levels of education to make a shift to the learning paradigm, which produces learning by using whatever means that work best (Barr & Tagg, 1995). The necessary means have included the use of games and gamification in the classrooms. However, games have been found to be addictive, content restrictive, and requiring the need for instructors with expertise in the use of games for learning (McGonigal, 2011; Scutti, 2018; Steinkuehler, Squire, & Barab, 2012; Van Eck, 2015). Due to this, a few faculty members may have embraced a concept termed gamification (that makes use of game elements or principles as opposed to the use of complete games in the learning environments) to circumvent the shortcomings of games (Dichev & Dicheva, 2017). The following section describes the guiding analytical theories.
Analytical Theories

The study of the current research topics in gamification has consistently shown high interest in researchers, educators and instructional designers in arousing learners’ motivation with the sole aim of sustaining their engagements and engendering active learning and critical thinking. According to Dichev and Dicheva (2017), current studies continue to mix points, leaderboards, badges, progress bars, avatars and status without any discernable experimental or standard approach. This has made it difficult to identify effective game elements in promoting learners’ motivation and engagement in a given context for a group of learners. For these reasons, this research applies the theories of learning and motivation in the current analysis.

Critical Learning

Gee (2017) argued that learning includes a cyclic process of probing the world, thinking reflectively, forming hypotheses, and testing hypotheses to either accept or reject them. There are two types of learning: (a) active learning, and (b) critical learning. Critical learning is critical transitivity and the acquisition of depth in the interpretation of problems (Freire, 2013). Active learning involves “experiencing the world in new ways, forming new affiliations, and a preparation for future learning” (Gee, 2003, p. 23). Rassuli and Manzer (2005) found students became empowered, felt more engaged and performed better when actively learning. With active learning, “students must (a) have a deep foundation of factual knowledge, (b) understand facts and ideas in the context of a conceptual framework, and (c) organize knowledge in ways that facilitate retrieval and application” (Bransford et al., 2000, p. 16). Organizing knowledge into familiar patterns enhances short-term memories (Miller, 1994).

Critical learning includes active learning combined with creative thinking at the design level to produce domain-specific meanings combined with in depth interpretations of problems
(Freire, 2013). Gee (2017) described meaning making as both situational and domain specific. Norman (2002) termed domain-specific meanings as external knowledge (information relevant in a particular context or environment). According to Norman (2002), external knowledge is knowledge stored in the world, which includes skills used in operating machinery. This research defines domain-specific meanings as the connections people make in their experiences that are vital to thinking, learning, and problem solving.

According to Gee (2017), humans are always learning new things that are connected to past experiences or some semiotic domains. Semiotic relates to things that can take on different meanings in different contexts such as symbols and representations. It could also be any set of practices that initiates one or more modalities such as gestures, equations, and languages—which communicate distinctive meanings (Gee, 2004).

**Learning and gamification.** Content gamification that embraces the learning theories of prompt feedback and practice effect may motivate learning. Prompt feedback that signals learning states have been identified to aid learning (Thorndike, 1913). Some learning requires plenty of practice and therefore cannot be rushed (Gee, 2017). Bransford et al. (2000) explained that “the complex cognitive activity of information integration requires time” (p. 58). Moreover, Gee (2004) claimed “one can learn actively without much critical learning, but one cannot really learn much critically without a good deal of active learning in a semiotic domain” (p. 47). Therefore, without critical learning, transfer may be impossible (Bransford, 2000). In this instance, active learning implies initial learning and critical learning implies learning transfer.

**Learning transfer.** Byrnes (2008) defined transfer as the ability to apply acquired knowledge from one context to other new contexts. Bransford et al. (2000) claimed there were two types: near transfer, a transfer between highly similar contexts; and far transfer, a transfer
between dissimilar contexts (e.g. a transfer between an academic environment and a non-academic environment). Transfer may also be negative as a previous learning experience may hinder performance in another learning context (Luchins & Luchins, 1970). In addition, knowledge transfer requires that the learner thinks at the design level. This includes understanding how two different domains may be related, and it includes the application of previous experiences (Gee, 2017). Bransford (2000) explained that the necessary key characteristics of learning transfer include the following:

1. The degree of mastery of the original subject influences the rate of transfer;
2. Transfer is an active dynamic process, and not a passive end-product of a learning experience;
3. Abstract knowledge as opposed to overtly contextualized knowledge aids transfer;
4. “All new learning involves transfer based on previous learning” (Bransford et al., 2000, p. 53; Gee, 2017);
5. Covering too many topics in very short periods may hinder learning and negatively impact transfer as “students (a) learn only isolated sets of facts that are not organized and connected or (b) are introduced to organizing principles that they cannot grasp because they lack enough specific knowledge to make them meaningful” (Bradford et al., 2000, p. 58); and
6. Teaching a subject in single context hinders transfer, while multiple-context teaching enhances it (Bjork & Richardson-Klavehn, 1989; Gee, 2017).

More importantly, a key finding in the literature, with regard to learning and transfer, indicated that knowledge organized in conceptual frameworks engendered greater transfers, and aided long term memory (Bradford, et al., 2000; Miller, 1956). According to Bransford et al.
(2000), “students must: Have a deep foundation of factual knowledge, understand facts and ideas in the context of a conceptual framework, and organize knowledge in ways that facilitate retrieval and application to develop deep competence in any area of inquiry” (p. 16). In other words, the development of deep competences in key knowledge areas may facilitate learning transfer.

Learning transfer and gamification. Can gamification engage students enough to motivate the necessary deep foundational learning, described as ‘active learning’ by Gee (2017), required for knowledge transfer? The answer may be ‘yes.’ With content gamification, instructors can create instructional levels based on learners’ cognitive capacities. A learning experience can now carry over to the next level of instruction. Also, the application of meaningful stories can help learners of gamified instructions apply learning experiences to related tasks in different learning environments with similar contexts (far transfer). With this, instructors need to find subtle ways of motivating learners through gamification by investing more time on the mastery of their subjects. Gamification may therefore be an important pedagogical tool in learning and knowledge transfer.

The ARCS Model of Motivation

Keller (1979) developed the attention, relevance, confidence and satisfaction (ARCS) model of motivation in response to the need for a model to help understand the influence of motivation on learning and identify systematic ways of addressing learning motivation problems. Keller (1979) defined attention as the curiosity to be aroused and sustained; relevance as the closeness of instruction to personal values or goals to be achieved; confidence as the belief in oneself to succeed; and satisfaction as the act of feeling good about one’s achievement.
In this respect, Kaneko, Saito, Nohara, Kudo, and Yamada (2015) described the curiosity and novelty (often introduced through role-playing or hands-on experience) that produces attention as factors that users find attractive; relevance as factors relating to an immediate or future need; confidence as factors that increase the likelihood of success; and satisfaction as feedback factors such as rewards and benefits that secure success.

Ryan and Deci (2000) described motivation as the influence on a person to do something. Motivation has a strong influence on the amount of time people are willing to invest in an activity like learning (Bransford, 2000). However, there are two sources of motivation, intrinsic and extrinsic sources. Extrinsic motivation acts as an external force, such as grades, technology, and reward points that are applied to influence an individual. Intrinsic motivation occurs when the source of motivation comes from within the individual (Spector & Park, 2018). An example of intrinsic motivation is competence motivation. White and Solomon (1959) defined competence motivation as the desired to solve problems and develop competency.

Keller (2010) identified five intrinsically influencing factors that can motivate learning: (a) relating goals and personal values; (b) anticipated satisfaction; (c) a belief in one’s ability to succeed (self-efficacy); (d) provision of a good feedback system and the ability to regulate self; and (e) curiosity and attention. Games are also known to produce intrinsic motivation in learners if functionally related to the learning sequence (Keller, 1987). Motivation has also been discovered to be contagious in an enthusiastic group of friends or in an affinity group of game players (Krishen, 2013; Gee, 2003, 2007).

Keller (1987) claimed that effort directly indicates motivation, and defined effort as that which measures persistence and strength of action. By applying Porter and Lawler’s (1968) expectancy-value theory, motivation may be taken as a multiplicative function of values and
expectancies. Where “value” implies a person’s preference and beliefs, motives, utility and decision; expectancy represents the probability of success, and the degree to which a person trusts in his/her ability to achieve a given goal (Edwards, 1954; Feather, 1975). Experience may affect expectancy, meaning experience also influences motivation as a feedback loop (Keller, 1987). According to the expectancy-value theory, if the learning instruction does not relate to the learner’s perspective (value) or if the learner places a zero value on his ability to master the instruction, motivation becomes zero due to the multiplicative function. This may result in motivation problems.

Motivation problems may exist in the learner or in the instruction. Spector and Park (2018) defined a learner as a person “who has committed him-/herself to a sequence of studies for a particular purpose for a specific reason” (p. 28). Motivation problems reside in the learner when the learner lacks the self-confidence for success in a given task or the desire for achievement. It resides in the instruction when the instruction lacks motivational characteristics of curiosity, relevance, engagement, progression and satisfaction (Keller, 1979). According to Keller (1987), instructional design techniques may not motivate a learner if the motivation problem resides in the learner, unless they undertake a behavioral change experience.

The current study therefore applies Keller’s (1979, 1987) motivational framework, the ARCS model, in the study of the effects of gamification on students learning with considerations for the theory of learning.

**Summary, Gaps, and Tensions in the Literature**

Deterding (2012) believed that a gamification that merely uses game-design elements and does not apply game design principles as a guiding lens tends to be exploitative, non-motivating, and ineffective as a learning tool. Deterding (2012) wished research would someday produce
gamification models that apply social psychological processes that also include deliberate considerations for contexts, individual differences, and meanings (the reasons for user’s engagement with the gamified experience).

Stott and Neustaedter (2013) agreed with Deterding (2012) that success in the application of game-design elements to education depends on the context. In consonance with Dichev and Dicheva (2017), they confirmed the absence of an instrument to gather descriptive information about the use of games and game elements in classrooms of higher institutions. Dichev and Dicheva (2017) claimed that the knowledge about how to gamify a learning experience with the specifics of the educational context are still limited. Furthermore, they suggested the need for a testable and easily configured gamification system with prototypes that can support game features that are applicable to different learning contexts.

Campbell et al. (2016) claimed research had shown gamification to be effective, but it would take time, organization and some trial and error to create a gamified course that would successfully incite deep and connected learning experiences. Campbell et al. (2016) concluded that research on gamification remains in its infancy, despite the anecdotal evidence of its success.

Dichev and Dicheva (2017) concluded that current studies mixed points, leaderboard, badges, progress bar, avatars, and status without any discernable experimental approach and made it difficult to identify effective game elements in promoting learners’ motivation and engagement in a given context for a group of learners. In their opinion, the fundamental differences in studied educational contexts hinders the transfer of experimented gamification practices from one learning environment and situation to another.

In sum, the design of a successful gamified learning experience that can motivate learning and change behaviors remains a guessing practice. Therefore, there remains a need for
studies that utilize more reliable measures of motivation. This research will proceed from this point by applying the theory of connectionism, critical learning, and Keller’s (1979, 1987) motivational framework, the ARCS model, which applies social psychological processes as guiding lens in investigating the perceptions of college faculties toward gamification. This will be in regard to the benefits and challenges afforded by gamification in the satisfaction of students’ psychological needs for relatedness, competency and autonomy. The current research study aims to achieve this by investigating the existence of a set of patterns between students’ psychological needs (P), instruction types (I), and game elements (G) as illustrated in diagram 3.1 of chapter three of this study.
Chapter 3

Methodology

This research study applied the social constructionism research paradigm which argues for a belief in the construction of reality through social interactions (Patton, 2015). With this paradigm, the researcher engages in fieldworks and exercises reflexivity as the key instrument in the research (Patton, 2015). In this instance, the interactions were carried out through a collective case study of the research subjects. The process included participant interviews, a demographic survey, and verification of syllabi in regard to learning contexts. The current research sought to investigate and understand faculty members’ perceptions of the benefits and challenges inherent in the use of gamification in adult students’ learning. The current research studied how people gave meaning to the events around them (Patton, 2015). Therefore, a qualitative research method became appropriate for this research as it aimed to understand faculty members’ perceptions and practices within different learning contexts. The qualitative analysis included participant interviews, a demographic survey, and the review of syllabi for the confirmation of learning contexts. The need to understand faculty’s perceptions of gamification became imperative due to the findings from Sailer et al. (2017) as well as Kasurinen and Knutas (2018) that indicated a high appeal for gamification in education since the year 2010. In addition, limited studies have investigated the perceptions of faculty members based on the benefits and challenges provided by gamification in adult student’s learning and in different learning contexts.

The interview elicited the participants’ perceptions of the benefits inherent in the use of gamification according to the level of satisfaction, autonomy, and relatedness enjoyed by adult students, and the concomitant challenges over a specific period for data analysis according to the nature of the current research.
Nature of the Study

The current research applied the social constructionism framework. This involves a qualitative approach in the study of how people construct meanings from their different perceptions of a system and the consequences of a system’s dynamics. It also pays close attention to the context, which describes the situation and nature of a system of interest (Creswell & Poth, 2018; Patton, 2015). According to Patton (2015), giving attention to contexts helps in producing generalizable results, and in identifying and avoiding unintended consequences with the use of open-ended questions.

Qualitative case study involves the researcher in selecting subjects based on information richness and contexts (Patton, 2015). Since the current research investigated faculty members’ perceptions regarding the opportunities and challenges inherent in the use of gamification in adult learning environments with considerations for different learning contexts, a qualitative case study method appeared the most appropriate method (Patton, 2015, Yin, 2018).

Large randomly selected populations may be too difficult to work with, when considering the research context (Cetinkaya-Rundel, Diez & Barr 2016). In addition, quantitative methods do not consider research contexts (Patton, 2015). The research study had a goal of making meaning out of faculty members’ perceptions of gamification by applying a case study method.

Research Approach/Methods

This study applied the case study methodology in order to determine the faculty’s perception of the benefits and challenges posed with the use of gamification to satisfy adult students’ psychological needs for relatedness, competency, and autonomy with the consideration for different learning contexts. Case study research involves the researcher in the process of studying a contemporary and bounded case, over a period of time, through detailed and careful
data collection from many sources, which may include interviews, observation, and document viewing (Yin, 2018). I interviewed 12 instructors.

The research question or intent, the time and place of the research, and the focus of analysis (which may be an individual, a group, a program, or an activity) help with deciding the case study of choice which include the single instrumental case study, the intrinsic case study, and the collective or multiple case study (Creswell & Poth, 2018; Yin, 2018).

According to Creswell and Poth (2018), with the single instrumental case study, the researcher focuses on an issue and selects a bounded case to help investigate the issue; with the intrinsic case study the researcher focuses on the case itself, due to its uniqueness; and with the collective case study, the researcher focuses on an issue and selects multiple cases to investigate the issue. This research study considered other case study types and decided to apply the collective case study after a careful consideration of the research question, which investigated the perceptions of college faculty towards gamification. The collective case study method involves a researcher in a case-by-case comparison of perceptions to discover persistent themes and patterns across investigated cases (Creswell & Poth, 2018).

The current study investigated faculty members’ perceptions of opportunities and challenges inherent in the use of gamification in learning environments. It aimed to achieve this by investigating the existence of patterns that may map students’ psychological needs (P) and instruction types (I) to appropriate game elements (G). In this instance, students’ psychological needs include relatedness, autonomy, satisfaction, and competency. The study also investigated faculties’ perceptions of students’ reactions to gamified learning experiences according to gender. The collective case study helped with the case-by-case comparisons of faculty perceptions of
gamification across different learning contexts. It also allowed for data collection from multiple sources that included document review, demographics survey, and candidate interviews.

**Institutional Review Board**

The Institutional Review Board (IRB) reviews all proposed research studies with the aim of protecting the right and welfare of human subjects involved in a research activity at the University. The current research involved human subjects but did not recruit any vulnerable member of the community due to the study’s requirements on age, economic status, and educational level of the anticipated participants, who were course instructors. However, all necessary precautions were taken to protect the identities of all participants, and all data were secured against leaks and theft. The current study initiated the St. Thomas University’s IRB application process once the dissertation committee approved the proposal. This provided the required ethical guidelines for the current research activity and ensured a proper protection for all participants involved in the research study.

**Role of the Researcher**

I have motivated and engaged hundreds of students as a college teacher during my youth service year. In addition, I had the responsibility of motivating subordinates and colleagues to performance excellence as the unit head of a life unit in an insurance company, and as the systems developer in a big bank for more than a decade. In these situations, I have applied motivational techniques without having any scientific knowledge of how these techniques work.

My qualification as a software developer and my newly acquired knowledge of instructional design techniques from my one-year internship with UST E-learning and Research Center (STELAR) motivated this research topic. I realized my exposure and unique experience
would aid my study and investigation on how gamification influenced graduate students’ motivation and engagement in their online learning environments.

I also aimed to discover how instructors scientifically gamify online classes with predictable results. However, my lack of experience in higher education teaching and my international background as an African could act as a limitation in this research. The limitations I could encounter included not fully understanding the subject’s body languages and daily life jargons due to cultural differences. This effect was partly normalized by the composition of the research sample that was drawn from the faculty members (who were representatives of the diverse community living around the University) and partly by my ability to detect when to ask for help.

Three of the participants were my former professors. I did not take a class with any of them at the time of the research. I expected the research subjects’ sincerity, friendliness, and openness during the interviews regardless of individual identities. This was due to my background as a Christian and as a Nigerian who has studied and travelled widely. Therefore, the Holy book which instructed me to “ask and it shall be given, to knock and it shall be open unto me” has shaped my view of the world (Mathew 7: 7). In addition, it has been my experience that most people are willing to help when asked. In this regard, my chair helped with the proofreading and testing of the research questions.

Overall, I did not see my cultural background as a major challenge in this study, since I have lived and studied in the United Kingdom and in the United States for a total of five years now. Moreover, I sought assistance as needed in this regard from my chair.
Recruitment and Selection of Participants

Participants who exhibit at least one of the following selection criteria were recruited through a snowball sampling process. Snowball sampling is a repetitive process that involves the researcher in a process of accessing participants’ contact information from initial participants (Waters, 2015). I started the snowballing process with my current and past instructors by requesting information about eligible participants from them. Potential participants were screened for eligibility through a short web survey (Appendix B) that tested for the following criteria:

- All participants are full-time, adjunct, or affiliate faculty from a comprehensive liberal arts private Catholic university in a Midwest metropolitan region. The university has roughly 10,000 undergraduate and graduate students with more than 800 full-time faculty members.

- Instructors used meaningful stories as content delivery strategies. Meaningful stories are game design elements that can enrich contexts and motivate academic performance if the stories relate to the students’ values (Sailer et al., 2017).

- Instructors gave prompt feedback through the award of points, badges or comments (Kaneko, Saito, Nohara, Kudo, & Yamada, 2015). An award of points, badges or comments that is based on a satisfactory performance applies the game principle of certification and recognition (Gee, 2014; Gené et al., 2014).

- Instructors reduced risks of failure through the introduction of educational plays and assignment resubmissions. Assignment resubmission applies the game principle of repetition that reduces the risk of failure (Gee, 2014). With this process, the instructors
boosted students’ confidence, and increased the likelihood of success (Gee, 2017; Kaneko et al., 2015).

- Instructors used gamified discussion boards (a combination of the discussion board and the leaderboard or other game principles) to induce reflective educational discussions. Group work, project-based, challenge-based and competence-based learning apply the game principle of affinity groups that helps secure students’ attention and engenders a sense of belonging with the possibilities for contagious motivation (Ryan & Deci, 2000; Kaneko, Saito, Nohara, Kudo, & Yamada, 2015; Krishen, 2013; Gee, 2007; Gee, 2017; Werbach & Hunter, 2012; Wiggins, 2016).

I sent email invitations to 26 faculty members of the University. In addition, I met with 13 accessible faculty members directly. Nine of the directly approached faculty members passed the screening interviews, and I interviewed them. Only three of the faculty members contacted through email took the interview (email content included in Appendix C).

**Pilot Interview**

The current study conducted a pilot interview with two faculty members, who used gamification in their learning environments, to test the validity and usefulness of the constructed questions to the research. Connelly (2008) as well as Treece and Treece (1982) suggested that a pilot study sample size should be 10% of the research sample size. Therefore, I decided on the use of two faculty members for the pilot interview. The research sample size was 12 faculty members who used gamification in their learning environments. According to Weiss (1995), the pilot interview helps assure that the questions achieve the purpose of the research by ensuring that the questions are easy to understand for the faculty members. As a result, a descriptive paragraph of instruction types or learning contexts was added to question two of the research
question. In addition, due to scarcity of candidates for this research, the two pilot study candidates were later re-interviewed for the actual interview. After a successful conclusion of the pilot interview, the selected candidates completed an informed consent process when selected for the actual interview. The informed consent form (appendix C) include the following: confidentiality of their identities and the interview data; the purpose of the interview and the nature of the interview; their right to withdraw from the interview at any time; their requirement to go over the interview transcripts for approval and validity before the data can be included in the study; and that the interview shall be recorded (Creswell & Poth, 2018).

**Data Collection: Interviews**

The current research collected data through qualitative interviews. The interview questions were open-ended in design to allow the participants the opportunity to fully describe their experiences. The interview questions were administered in sequential order as written down in the questionnaire to ensure completeness, smooth transition of dialogue, adaptation of questions based on a previous response, an easy note taking experience, coding, and the eventual data processing and analysis. Pseudonyms were used in place of participants’ identifying information to maintain confidentiality. The interview location and time were determined by the participants, and the interview was informal in nature.

I avoided curtailing the responses as the participants reflected on their experiences with gamification, while allowing the instructors to fully bore their hearts on the discussion as they answered the questions to the best of their abilities. I timed the interview and realized that an interview lasted for about 45 minutes on average. The shortest interview lasted 30 minutes and the longest lasted 72 minutes. In addition, I encouraged the participants to ask clarifying questions when necessary. I also recorded the interviews. In addition to the recording, I took
pertinent notes during each interview for reflections and commentary purposes. At the end of the interview, each participant showed interest in knowing about the future outcome of the research and how the research findings would improve content deliveries in adult education through gamification. In addition to this, participants willingly referred me to other colleagues, who also used some form of gamification in their learning environments.

After each interview, each participant was asked about their interview experience and if there were any additional concerns or questions that they may want to discuss. I coded and typed all information into a word document for safe keeping in the University’s Microsoft OneDrive account for two years to protect against human memory failure, data loss, and data intrusions. The interviews were manually transcribed. The transcripts were sent back to the interviewees for verification through a member checking process. The process of returning an interview to a participant for validation is termed member checking (Birt, Scott, Cavers, Campbell, & Walter, 2016; Lincoln, & Guba, 1985). The interviewed candidates were allowed two weeks to go through their interview transcripts. All were satisfied with their interview transcripts. The interview included the following basic questions according to different categories:

Game Elements (G)

1. Please describe the game element(s) you introduced in your course (e.g. a gamified discussion board).

Instruction Types (I)

1. How would you describe the knowledge type in your course to which the game element(s) have been applied, (a) declarative/factual acquisition, (b) rule-based, (c) soft-skill, or (d) affective knowledge type?
2. Based on your experience as a user of gamification, what types of gamification do you believe are more effective for learners in your course?

3. Please describe the learning objectives the game element(s) were expected to achieve.

4. As you reflect on the course, what do you think are the impacts of your introduced game element(s) on the learning objectives?

5. Can you please describe how the introduced game element(s) impacted students’ learning and understanding of core principles in the course?

Psychological Needs (P)

1. Please describe your motive for the choice of game element(s).

2. Please describe the impact of the introduced game element(s) on learners’ behavior in terms of student-to-student and student-to-instructor relationships.

3. Please describe the impact of introduced game element(s) on students’ sense of accomplishment.

4. What did you perceive as the motivational triggers that engaged your students with your choice of gamification element?

Challenges

1. If you combined game elements, how would you compare the effectiveness of the use of multiple game elements to that of a single game element on students’ engagement and motivation in your course?

2. Please describe any noticeable disparities in the achievement of learning objectives by gender that was due to the introduced game element(s).

3. How do you hope to use similar game element(s) in teaching another course or in achieving different learning objectives?
Please refer to appendix A and B for the full interview questions and the demographic questions, which was administered through a web survey.

**Data Analysis**

The current research study applied qualitative content analysis, which includes open and axial coding, for identifying patterns in collected data to aid information synthesis. The qualitative content analysis approach relies on a structure that identifies the similarities and differences in qualitative data for information synthesis (Cohen, Manion, & Morrison, 2017). Data collected through qualitative interviews were analyzed with “Dedoose,” a data analyses software. The analysis included open and axial coding based on the perceived level of enjoyed autonomy, relatedness, content comprehension, competency, sense of accomplishment, critical learning, and students’ responses to the influence of the introduced gamification elements.

The current research applied open coding as the first level of data analysis to create tentative labels that represent the meanings produced by chunks of data (Miles & Huberman, 2014). It then applied axial coding to the generated codes and derived concepts from emerging themes. Axial coding involves a process that relates concepts, categories, and sub-categories at the qualitative data analysis stage to reveal the connections within data that produce themes (Gorra & Kornilaki, 2010).

The current research analyzed retrospective data. According to Cetinkaya-Rundel, Diez, and Barr (2016), retrospective studies aid the retrieval of data from past events. Data retrieved from the interviews was categorized as (S) subjects, (G) game elements, (I) instruction type, and (P) psychological needs. The categorized data was stratified further into the following based on the literature review:
1. Subjects (S1) instructor/teacher.

2. Instructional types (I1) affective knowledge, (I2) conceptual knowledge, (I3) rule-based knowledge, and (I4) leadership training.

3. Psychological need (P1) autonomy, (P2) competence, and (P3) relatedness.

4. Game elements (G1) assignment resubmission, (G2) gamified discussion board, (G3) educational plays, (G4) electronic badges, (G5) group work, (G6) avatar, (G7) prompt feedback, (G8) meaningful storytelling, and (G9) leaderboard.

The current research study then analyzed the retrieved data based on the four components of the conceptual framework — Keller’s (1979, 1987) motivational framework, the ARCS (attention, relevance, confidence and satisfaction) — to further sort data according to emerging themes. This is in consideration to the main research question (what are the opportunities and challenges in implementing gamification in adult students’ learning?), and the following supporting question:

How does gamification create the immersion needed for adult students’ engagement and critical learning?

This helped determine if there existed patterns between a game element of interest, the psychological need, perceived students’ motivation, and students’ satisfaction. The interview provided detailed descriptions of instructors’ perceptions of learners’ motivation. After the qualitative descriptive enquiry interview, the researcher coded the responses into categories of emergent concepts, which enabled comparison and the formulation of conceptual theories (Maxwell, 2013). The analysis design pattern is as described in figure 1 below:
Reliability and Validity

The current research clarified any of the researcher’s personal biases that could impact the research enquiries as advised by Merriam (1988). It also acknowledged any other biases that could affect the findings of this study. In addition, a pilot study was conducted with two faculty members by using the designed interview questions before administering the questions on the participants. The questions were then modified as necessary to better suit the purpose of the study. After the interview, the researcher emailed interview transcripts to participants, encouraging them to go over the interview transcripts in order to validate their responses. The process limited the researcher’s bias while helping to avoid a misinterpretation of participants’ responses and perspectives regarding the phenomenon of the study (Maxwell, 2013). The researcher used peer review in verifying the congruency of emerging themes by going over emerging themes with the dissertation chair. In addition, the research study purposely allowed for diversity in the population sample.
selection process to enable a wide applicability of result findings by the consumers of the research. The population was made large enough to ensure validity and reliability of data (Patton, 2015).

**Ethical Considerations**

Participants could schedule interviews at convenient times and locations to allow for privacy and confidentiality. Participants could either pause or take a break during the interview and could also withdraw from the interview at any time. The University’s Counseling and Psychological Services were available to provide counselling support to participants who may need it. This could be due to the stress of recounting an emotional personal experience.

All participants were respected and allowed to fully control their own narrations. The researcher took necessary efforts to ensure that participants’ responses were free from personal interpretations, which could be based on the researcher’s personal experiences and beliefs.
Chapter 4: Findings

The current research aimed to determine the effectiveness of gamification as a pedagogical tool of motivation in different learning contexts through a qualitative interview of instructors who used gamification as motivational tools in designing their classroom learning experiences. In addition, it aimed to understand how gamification worked by investigating patterns for effective combinations of game elements, adult students’ psychological needs, and learning contexts. The discovered patterns shed light on how gamification engendered the desired motivation and immersions that were necessary for critical learning. To this end, the research fielded 14 questions in its interview sessions to elicit responses that would answer the research questions (see Appendix A). The current research interviewed 12 of the University’s faculty members, who used game elements, game thinking, game principles, and game mechanics in their learning environments to engage adult learners in the learning process.

The Participants

I contacted 26 faculty members of the University through email. In addition, I contacted accessible faculty directly. Nine of the directly approached faculty members passed the screening interviews, and I interviewed them. Only three of the faculty members, not contacted, took the interview. The remainder were unable to participate due to lack of availability or did not pass the screening interview. This recruitment process yielded one associate professor, three assistant professors, four professors, and four instructors—seven males and five females with highest qualifications ranging from B.Sc. to Ph.D. All recruited faculty members used gamification in their learning environments, which included face-to-face and a combination of online and face-to-face (F2F) learning environments (hybrid learning environments). None utilized only online learning environments (Table 2).
Table 2

Demographics of Participants

<table>
<thead>
<tr>
<th>Alias</th>
<th>Gender</th>
<th>Education</th>
<th>Course subjects</th>
<th>Title</th>
<th>Instruction level</th>
<th>Teaching Years</th>
<th>Course Delivery Format</th>
</tr>
</thead>
<tbody>
<tr>
<td>I00</td>
<td>Male</td>
<td>Ed.D.</td>
<td>Project management, Strategic management</td>
<td>Assistant Professor</td>
<td>Graduate</td>
<td>34</td>
<td>Hybrid</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>S001</td>
<td>Male</td>
<td>Ph.D.</td>
<td>Non-fiction writing, American social and educational history. Adult learning, leadership.</td>
<td>A former St. Thomas faculty member</td>
<td>Undergraduate and Graduate</td>
<td>40</td>
<td>Hybrid</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>W002</td>
<td>Female</td>
<td>Ed.D.</td>
<td>Leadership theory</td>
<td>Assistant Professor</td>
<td>Graduate</td>
<td>32</td>
<td>Hybrid</td>
</tr>
<tr>
<td>J003</td>
<td>Male</td>
<td>B.A.</td>
<td>Business Ethics</td>
<td>Assistant Professor</td>
<td>Graduate</td>
<td>16</td>
<td>F2F</td>
</tr>
<tr>
<td>B005</td>
<td>Female</td>
<td>Ph. D</td>
<td>Education Psychology, Instructional technology, Instructional design, Organization al development, Computer science</td>
<td>Adjunct Instructor</td>
<td>Undergraduate and Graduate</td>
<td>36</td>
<td>Hybrid</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Adjunct professor</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>A006</td>
<td>Female</td>
<td>Ed.D.</td>
<td>Law, Public Policy</td>
<td>Assistant professor</td>
<td>Graduate</td>
<td>13</td>
<td>F2F</td>
</tr>
<tr>
<td>R007</td>
<td>Male</td>
<td>Ed.D.</td>
<td>Computer Information Systems, Teacher Education, Leadership</td>
<td>Assistant Professor Emeritus</td>
<td>Graduate</td>
<td>35</td>
<td>F2F</td>
</tr>
<tr>
<td>Alias</td>
<td>Gender</td>
<td>Education</td>
<td>Course subjects</td>
<td>Title</td>
<td>Instruction level</td>
<td>Teaching Years</td>
<td>Course Delivery Format</td>
</tr>
<tr>
<td>-------</td>
<td>--------</td>
<td>-----------</td>
<td>----------------------------------</td>
<td>------------------------------</td>
<td>-------------------</td>
<td>-----------------</td>
<td>------------------------</td>
</tr>
<tr>
<td>P008</td>
<td>Female</td>
<td>M.Sc.</td>
<td>Diversity, Leadership</td>
<td>Prog Mgr. II</td>
<td>Graduate</td>
<td>5</td>
<td>F2F</td>
</tr>
<tr>
<td>W009</td>
<td>Male</td>
<td>Ph.D.</td>
<td>Clinic faculty</td>
<td>Visiting Professor of Law</td>
<td>Graduate</td>
<td>29</td>
<td>F2F</td>
</tr>
<tr>
<td>S010</td>
<td>Female</td>
<td>Ed.D.</td>
<td>Leadership theory</td>
<td>Associate Professor</td>
<td>Graduate</td>
<td>34</td>
<td>Hybrid</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Corporate and Securities Law</td>
<td>Distinguished Visiting Professor</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>T011</td>
<td>Male</td>
<td>Ph.D.</td>
<td>English, public speaking,</td>
<td>Clinical Faculty</td>
<td>Undergraduate</td>
<td>20</td>
<td>F2F</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>journalism, leadership and</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>diversity management</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

The average experience of teaching for the targeted population was 26 years. The lowest years of teaching was five years, and the highest time working in teaching was 40 years. Only one faculty member instructed at the undergraduate level. Nine faculty members instructed at the graduate level, and the remaining three instructed at both the undergraduate and graduate levels (Table 2).

Participants applied combinations of gamification elements in their various learning environments including meaningful storytelling, educational play, assignment resubmission, prompt feedback, group work, and role playing (Table 3).
Table 3

Descriptions of Game Elements

<table>
<thead>
<tr>
<th>Game elements</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Meaningful storytelling</td>
<td>Instructors who used meaningful stories as content delivery strategies. Meaningful stories are game design elements that can enrich contexts and motivate academic performance if the stories relate to the students’ values (Sailer et al., 2017).</td>
</tr>
<tr>
<td>Group work/group discussion</td>
<td>Group work, project-based, challenge-based and competence-based learning apply the game principle of affinity groups that helps secure students’ attention and engenders a sense of belonging with the possibilities for contagious motivation (Ryan &amp; Deci, 2000; Kaneko, Saito, Nohara, Kudo, &amp; Yamada, 2015; Krishen, 2013; Gee, 2007; Gee, 2017; Werbach &amp; Hunter, 2012; Wiggins, 2016).</td>
</tr>
<tr>
<td>Educational play/role-play</td>
<td>Instructors who reduced risks of failure through the introduction of educational plays. Educational plays apply the game principle of repetitions that reduces the risk of failure (Gee, 2014).</td>
</tr>
<tr>
<td>Prompt feedback</td>
<td>Providing prompt feedback through comments. Comments recognizing satisfactory performances apply the game principle of certification and recognition (Gee, 2014; Gené et al., 2014).</td>
</tr>
<tr>
<td>Assignment resubmissions</td>
<td>Assignment resubmission applies the game principle of repetitions that reduces the risk of failure, boosts students’ confidence, and increases the likelihood of success (Gee, 2017; Kaneko et al., 2015).</td>
</tr>
<tr>
<td>Gamified or rule-based Discussion Boards.</td>
<td>Gamified discussion boards apply game mechanics (rules, objectives and challenges) to motivate learning engagement in learners (Deterding, 2012; Kapp, 2012; Wiggins, 2016).</td>
</tr>
</tbody>
</table>

I coded participants’ names, and data to maintain confidentiality. I also coded the transcribed participant interviews with identifiers that included a combination of numbers and letters representing their first names. The identifiers or pseudonyms I used in this included “P012,” “T011,” “S010,” “W009,” “P008,” “R007,” “A006,” “B005,” “I00,” “J003,” “W002,” and “S001.” The transcriptions process led to the development of codes for categorization.
Categorization

The coding process revealed related codes, which were categorized into groups, and then into concepts. The interview questions prompted the participants to talk about their perceptions of gamification according to its opportunities and challenges in their learning environments.

I followed the list of interview questions sequentially during the interview. The responses to the interview questions produced valuable contents that I coded and categorized according to the concepts of interest. All of the participants were passionate about providing meaningful education by adapting learning to students’ background and culture. They all believed that they needed some kind of gamification to develop some level of relationship within their students’ population, and some level of rapport with the student population to achieve a valuable learning experience.

I organized the rest of the chapter into two main sections that represented the findings by interview and the findings by categorization of codes that came up during the interview process. In order to gather as much detail as possible, I did not constrain responses from the participants. I had the interview transcribed by hand in order to have a feel of the data. The manual transcription resulted in a total of 174 pages of texts. I then categorized the responses into codes and concepts that represent the textural and structural themes of each participants. The primary aim of this chapter includes a review of the main concepts (a) opportunities and benefits of gamification, and (b) perceptions of the challenges posed by gamification.

Findings from Interview Questions

The current research targeted faculty who used gamification in their learning environments. Ten questions specifically assessed the opportunities and benefits of gamification.
The questions were categorized into four groups, which include game elements (G), instruction types (I), the psychological needs (P), and the challenges (C).

**Game elements (G).** The game elements group fielded only one question, “please describe the game element(s) you introduced in your course.” Responses to this question indicated that no participant applied a single game element. All participants had applied a combination of game elements in different learning contexts (Table 4, Appendix D).

The textual analysis indicated that all 12 faculty members applied the meaningful storytelling elements regardless of the learning contexts. Ten of the twelve faculty members applied the group work game element regardless of learning contexts. Five of the interviewed faculty members applied educational plays in all learning contexts. Two faculty members applied gamified discussion boards in three different learning contexts of soft skills, declarative/factual, and rule-based knowledge. Assignment resubmission was applied by four faculty members in all learning contexts. Prompt feedback was applied by three faculty members in all learning contexts. This leads us to the context/instruction types question group.

**Instruction types (I).** The instruction types or learning context questions fielded five questions to determine (a) the knowledge types applied in each learning environment, (b) the most effective game element for a learning context, (c) the learning objectives for the use of the game element, (d) the impact of the game elements on the learning objectives, and (e) how the introduced game elements impacted student’s understanding of core principles.

According to the textual analysis (Table 4, Appendix D), one member applied soft skill knowledge; one member applied declarative knowledge; four members applied rule-based knowledge, two members applied a combination of soft skills and declarative knowledge; two members applied a combination of soft skills and affective knowledge; one member applied a
combination of soft skill, affective, and declarative knowledge; and one member applied a combination of affective and declarative knowledge.

Responses from the interviewed faculty members according to their applied learning contexts indicated the following:

1. The most effective game element for the soft skill context or knowledge type appears to be the meaningful storytelling game element;
2. The most effective game elements for the rule-based context or knowledge type appears to be a combination of the meaningful storytelling and group work/affinity group game elements;
3. The most effective game element for the combinational application of the soft skills and declarative learning contexts appears to be meaningful storytelling;
4. The most effective game elements for the combinational application of the soft skills and affective knowledge appears to be soft skills and group work game elements;
5. The most effective game element for the declarative/factual acquisition learning context appears to be the meaningful storytelling game element;
6. The most effective game element for the combinational application of the soft skills, affective and the factual acquisition learning contexts appears to be the role-playing game element; and
7. The most effective game elements for the combination of the affective and the declarative learning contexts appears to be group work and prompt feedback.

The textual analysis indicated that the learning objectives for the use of meaningful storytelling include experiential learning and the commitment of concepts to long term memory. The learning objectives for the use of group work/ group discussion include the induction of the
group motivation to contribute and the cocreation of knowledge. The objective for the use of role-play is to help students develop effective analytical and decision-making skills. The objective of the prompt feedback is to motivate students’ performance.

The textual analysis indicated that all interviewed faculty members perceived that their choices of game elements had a positive impact on the core learning principles. Only one faculty member perceived that his storytelling contradicted his students’ stories in regard to the achievement of learning objectives (Table 4, Appendix D). This takes us to the psychological needs’ questions.

**Psychological needs (P).** The psychological needs questions fielded four questions that aimed to determine (a) the motives for the use of a game elements, (b) the impact of game elements on learners’ relatedness, (c) the impact of game elements on the learners’ sense of accomplishment, and (d) and the motivational triggers that engaged students with the choice of game elements.

**Motives for the use of a game elements.** According to the textural analysis (Table 5, Appendix D), all faculty members applied storytelling with the motive of utilizing the afforded opportunities of meaningful storytelling element to reveal the humanities behind concepts, create experiential learning experiences, engage students’ emotion in the learning process, stir up people’s skills in students, lower learning barriers, co-create knowledge with and within students, and repeat basic ideas in different forms. Ten of the 12 faculty members applied group work/teamwork game element with the motive of utilizing the afforded opportunities to induce students’ engagement, create competition, develop worldviews, induce students’ relatedness, and to create knowledge.
Five of the faculty members applied educational plays with the motive of utilizing the afforded opportunities of the game mechanics of rules, objectives and challenges to develop analytical, oral and written advocacy skills in learners. Two faculty members applied gamified discussion boards with the motive of utilizing the afforded opportunities of the game mechanics of rules, and the game principle of competition to immerse students in the learning experience. Assignment resubmission was applied by four faculty members for the motive of engendering students’ motivation in the learning process as afforded by the game design principle of repetition. Prompt feedback was applied by three faculty members with the motive of engendering students’ motivation as afforded by the game element of prompt feedback.

**Impacts of game elements on learners’ relatedness.** Eleven of the 12 faculty members perceived that the introduced game elements had excellent impacts on their students’ relatedness and students-to-instructor’s relatedness. Only one out of the 12 faculty members suspected that the student-to-student’ relatedness may be dependent on how he interacted with the students (Table 5, Appendix D).

**Impacts of game elements on the learners’ sense of accomplishment.** All interviewed faculty members perceived that the introduced game elements had a positive on students’ sense of accomplishment through (a) enabling deep reflections with the topic of discussion—critical learning, (b) providing a sense of comprehension, (c) inducing self-confidence in students, (d) engendering meaningful learning experiences through experiential learning, and (e) committing concepts to long-term memory through storytelling (Table 5, Appendix D).

**Motivational triggers.** Faculty members perceived closeness of stories to learners’ background or learning experiences, the use of unlikely heroes, painting of word pictures, sharing of stories through interactivity, and injected sense of humor as the motivation triggers of
meaningful storytelling. Ten members perceived student choice, connection to the professional development skill sets, and group competitions as the motivational triggers of group work/teamwork. Five members perceived the safe environment to utilize acquired skill sets as the motivational triggers of role-plays and educational plays (Table 5, Appendix D). However, gamification also comes with some challenges.

**Challenges of Gamification (C).** The challenges fielded three questions to determine (a) the effectiveness of multiple game elements compared to that of a single game element on students’ engagement and motivation, (b) the disparities in the achievement of learning objectives by gender that were due to the introduced game element(s), (c) the portability of game elements to other learning contexts, and (d) the challenges posed by game elements of choice. Responses to the questions are included in Table 3 (Appendix D).

**Multiple versus single game element.** All faculty members unequivocally preferred the combinational effects of game elements, in the induction of motivation and engagement, to those of single game elements in their adult learning environments. They had the perception that a single game element may not be as effective in sustaining adult learners’ engagement for periods extending more than an hour.

**Achievement of learning objectives by gender.** Two of the faculty members perceived non gender-neutral stories may produce different perceptions in learners based on gender differences. One faculty member perceived that the males focus more on the role-playing elements than the females and another perceived that the females collaborated more in group discussions than the males. One member did not perceive any gender differences in the achievement of learning objectives, but by whether a student was introverted or extroverted. The rest did not notice any differences in the achievement of learning objectives based on gender.
Use of similar game element(s) in different learning contexts. According to the textual analysis, all interviewed faculty members believed that the game elements of storytelling, group work, educational play, role-play, and assignment resubmissions work well in all learning contexts (Table 6, Appendix D).

Challenges of gamification. According to the data (Table 6, Appendix D), faculty members experienced the following challenges with gamification (a) using stories that are difficult to understand, (b) designing the game elements to be more engaging, (c) the application of the game elements requires preparation, (d) students may have different expectations, (f) finding appropriate actors for role-playing, (g) instructors require high debriefing skills to get a lot out of gamification, and (h) group work may bring out the good and the ugly in students.

Based on the interview data, two main categories emerged from the interview data (a) the perceived opportunities of gamification, and (b) the perceptions of the challenges posed by gamification. The findings were further categorized and textually analyzed along these categories.

Findings by Categories

The perceived opportunities of gamification. The opportunities advocated by the faculty were analyzed through the following conceptual categorization (a) enhancing students’ autonomy with gamification, (b) providing a sense of accomplishment with gamification, (c) committing contents to long-term memory with gamification, (d) the lowering of learning barriers with gamification, (e) revealing of content relatedness and critical learning, (f) engaging learners’ emotions with gamification, and (g) gamification served as a medium of repetition of basic ideas.
**Enhancing students’ autonomy with gamification.** Autonomy in the form of decision freedom represents a feeling of being in control, which may induce learners’ satisfaction (Keller, 1987; Sailer, Hense, Mayr, & Mandl, 2017). The data analysis (Table 6, Appendix D) indicated that eight faculty members used educational plays, and one used assignment resubmission to inject some level of autonomy into their learning environments. They believed that students enjoyed some level of autonomy over their academic progress when given the opportunity to retry assignments for better grades and when allowed to partake in decision making that affected their academic progress. In line with the beliefs of the faculty in this group, S010 introduced the concepts of role-play/educational play in her “Scholars and Researchers in Education” class and reported the following:

I met with the students last night, again the 917 students online, and I took three excerpts of writing from the previous year. So that none of the students will be embarrassed about it. I called them text excerpts. So, I took three pieces, they are both… they are all working on the same question. But they are looking at the writing that was done by the previous year. So, I put three different examples, and then I gave them a rubric, and then I said, you're playing two roles here. The first is faculty evaluator, you gonna read this as if you're a faculty and you're assigning a score to what the student has written. So, you read it conceptually; read it for understanding, grade it like it was a faculty member. Do what we do. So, then I said, your role as an evaluator faculty, peer reviewer. Then your second role is editor. Second time you go through, look at how well this thing is written. What's the language’s usage? Is it ha... people using the formal voice or informal voice? Are the verb passive or active? Are the citations correct, being an editor? And I said, editors make a minimum of $50 dollars an hour. So, give it a $50 an hour look. If you are... you
know, looking at this and charging someone to edit. How much money, and how many hours would you charge? So, again I'm going back to the role.

In addition, a faculty member in this group specifically believed assignment resubmissions, when allowed in his teaching of Memoir, lessened the fear of failure in students, boosted students’ self-confidence in the learning process, and gave them a sense of accomplishment. This is similar to Gee’s (2014) concept of psychosocial moratorium—freedom to take risks due to reduced consequences.

**Providing a sense of accomplishment with gamification.** Nine of the 12 faculty aimed to achieve students’ satisfaction with the use of various game elements that included meaningful storytelling, assignment resubmission, and group work or role-playing. A faculty member, I00, who belonged in this group perceived that the element of storytelling provided students with a common language to speak and a common shared cognitive narrative of what was being done. The faculty believed that meaningful storytelling provided a starting point at which the students could engage their stories with each other. According S010, “no game element is played alone, it’s either played with another individual or in a group.” T001 explained further:

I think that applies more to group work, because with the group work the student is doing all those, he's doing most of the work rather than listening. Ha… mm and I think they get a sense of accomplishment with their work… when they are talking to each other and try to find the needed answer… that they can make a real contribution, whereas if they just led dialogues with the professor they don't have the same sense of having done something. Well, I haven't thought of that before.

In addition, P012 perceived that assignment resubmission provided a deep sense of satisfaction for students in his English classes. According to P012:
The resubmission is more of an individual thing, and it gives them another opportunity to do it, and think that if a student seeks a resubmission either for the grade purposes or for their own private satisfaction, a student that wants to redo an assignment has... is a motivated student, and maybe more led by grade or maybe more motivated by pride. So, ha... the act of doing that... they always... they typically seem to work really hard because they are motivated, and the result... is especially since is the second time around. They typically... they do a much more better job, and feel a sense of accomplishment.

Finally, all members believed meaningful storytelling assisted their students in committing concepts to long-term memory.

**Committing contents to long-term memory with gamification.** Three faculty members strongly perceived that the game element of meaningful storytelling assisted learners in committing content to long-term memory (Table 5, Appendix D). Faculty members in this group believed that students internalize theories more if they could relate to them personally through simulations or role-plays, if they could see them in action through digital stories, or if they could see them connected to a story from a guest speaker. According to T011, a law professor, “sometimes they remember the story that helps them remember the law.” P008 gave a supporting argument by describing the impacts of meaningful storytelling in her leadership class:

There are a lot of people that get really good at the three Rs — read, remember, and regurgitate. They get really good at reading well, remembering what they read, and being able to repeat the facts out. But they don't really internalize it. So, it's that they can do really well taking tests. But once they've moved on, they don't... It doesn't really seem to affect them. So, things like telling personal stories can help the lessons stay with them.
Some faculty members also have the perception that meaningful storytelling may have the capability to lower barriers to learning.

*Lowering learning barriers with gamification.* Seven faculty members perceived that a few students came in very resistant, as they thought they already understood the course contents. Therefore, the students thought that the class would be a waste of their time. The faculty members perceived this attitude as a barrier to learning, and believed having a game element, using storytelling can help lower the barrier to learning (Table 4, Appendix D). In addition, the injection of humor and experiential learning into the learning experiences in leadership and data research classes with the use of metaphors—meaningful storytelling, and educational plays may lower the resistance to learning. R007’s perception succinctly described this for the group:

Even if I think am doing a good job with my argument that doesn't mean it's changing anything on your end. What you'll do is probably, trying to craft a better argument to counter it. Whereas when we tell a story, people kind of just listen to the story ahh... rather than argue about it. It's em... If you tell about the experience you have, any resistance to it seems chewable because it would be telling you that you don't have that experience. So, I think storytelling is an essential part of teaching anything where you're trying to change the way people look at things.

In other words, the application of meaningful storytelling may have the potential to change world views or to generate critical awareness in learners. Further findings showed that game elements of teamwork/group work, meaningful storytelling, role-play, and the gamified discussion board might have lowered the barriers to learning. According to the faculty members with this belief, placing students in small groups induced intrinsic motivation because students tend to be more naturally engaged when placed in small groups, and small group dynamics
encouraged students to learn how to work in groups and eventually become independent learners. According to P012:

I've used group work for a variety of courses. Ha mm... I used that in my public relations courses that I've taught in the past. I've used it in writing courses, ha mm... in public speaking courses. Group work is so important because students have got to learn to work in a group.

The motives for using group work include making independent learners out of students, creating a sense of belonging among the students, and creating a learning environment that is conducive for a co-creation of knowledge. These motives were fully explained by S010:

The motive is, I gave every… I always want to get two or three things for one. So, in a group work setting. I want them to get the knowledge by creating it for those in it. I want them to experience belonging and being known, being loved and being appreciated by the people. I want them to have a desire themselves to go as independent learners and scholars. And so, I can get all those things, three things, in one activity...

Participants in this group also observed that gamified discussion boards allowed for two forms of interactions: (a) students expressing their own opinions out of their own personal experiences, and (b) responding to, commenting on, and even showing how they were learning from other peoples’ ideas. So, they were expressive and responsive at the same time. This may also induce critical learning in students.

*Revealing of content relatedness and inducing critical learning.* Three of the faculty members strongly believed that the use of small group interactivity generated learning experiences through idea relatedness (Table 5, Appendix D). This group strongly believed that the required collaborative efforts of the applied group assignments, which necessitated peer
feedback, created students’ engagement and deeper reflection with the topics of discussion. In addition, the gamification process cumulated in project ownership and relevancy. J003 captures the group’s belief with the following statement:

Certainly, they learn from each other. My approach to teaching is, we have the answers inside of us. Some of them are from our old experience, some of it from just knowledge that we have. So, if I can get students talking with one another about their own experiences, they can teach each other. Ha … and then I can amplify it by giving them the principles, the theories behind what they are actually learning. And, so it is important for all of us to be working.

In other words, interactivity in group learning created meaningful learning experiences for the group members. According to the faculty members in this group, group interactions may develop learners’ world views, and have a high potential to engage and generate critical awareness in members when a story matches with their own stories, or when it relates to the learners’ cultures and backgrounds.

Engaging learners’ emotions with gamification. Five faculty members believed small group interactivity encouraged student-to-student and student-to-instructor communication (Table 5, Appendix D). This group applied the combination of meaningful storytelling and group work or group assignment to induce student engagement with the course contents. According to T010, “the combination of storytelling and teamwork engages students’ emotion more than in a dry lecture.” B005 described the group’s perception, “if they are interactive and then they are engaged, and if they are engaged, I... they are going to learn more.” T010 believed that the combination of storytelling and teamwork had helped with the repetition of basic ideas in his classes.
Gamification served as a medium of repetition. The potency of repetitions of basic ideas or concepts in the comprehension of content was emphasized by all interviewed faculty members. The interviewed faculty members used assignment resubmissions or presented similar ideas in slightly different forms by using meaningful storytelling. For example, P012 used assignment resubmission as a form of repetition in his English class. S010 applied repetition by grading only the final piece; the piece that represented the students’ best effort. S001 utilized repetition with group work by moving an idea from an individual student to the small groups, and from the small groups to the larger groups. S001 described the strategy:

So, you have your first ideas, then you express those through the small groups, and then take those ideas from the small groups and you bring them to even larger groups for the whole group. So that those ideas can be shared, and then there is the opportunity to reflect on the whole process. How effective it was, how worthwhile it was, and what sort of things were learnt. So, starting with the individual, moving the small group, moving the whole group, and making sense of it as group.

However, a few faculty members perceived that the concept of working in a team may be challenging for the introverts.

The perceptions of the challenges posed by gamification. The faculty’s application of gamification is primarily based on trial and error, and mere perceptions of effectiveness. Faculty faced the challenge of not having any scientific model for implementing gamification in their learning environments. In addition, educational gamification has its limitations. A few faculty members gave their perceptions of the challenges experienced while using gamification in their learning environments (Table 6, Appendix D). The following sections discussed themes relating to the challenges that pertain to the use of educational gamification in learning environments.
which include (a) non-suitability of gamification for the introvert learners, (b) inequality of learners’ experience, (c) technological limitations, (d) requirement for high debriefing skills from the instructors.

**Not suitable for the introverts.** Two faculty members perceived that the game dynamics of gamification may not be suitable for the “lone wolves.” In other words, the outgoing students may particularly love group work and group assignments. But special attention needed to be given to the introverts who love to work alone. P012 succinctly described this perception concerning the group assignment’s shortcoming:

I think that people who are... this tends to be easier for people who are outgoing, extroverts. Ha... for people who are social, they seem to have an easier time with the group work. If you're introvert, if you like working alone, if you’re a lone wolf type. If you’re shy, then the group assignment is a challenge for you, and you have to overcome that, and I think that's important.

Meaning that the group work game element may not provide equal learning experiences as anticipated.

**Inequality of learners’ experiences.** Two faculty members claimed they sometimes could not control how their stories were interpreted by their students due to differences in gender, culture, and learning experiences. Therefore, faculty do run a risk of passing across unintended messages. In addition, students may feel sidelined when the administered story has the opposite sex as the main character. I00 captured the group’s view in this regard:

Sure, the concept of storytelling itself may have a bias because the storytelling may be perceived as …. when we talk about a manager, when you talk about a leader, when you talk about a particular situation in an enterprise. The person listening to that will transfer
the story into a male central story or maybe a female central story or they may turn that into a discussion about their race or their ethnicity. So, the stories by itself is …neutral.

How they perceive it, and the words you use in it. If I use pronouns like ‘he’ that is going to cause one perception. But if I use nouns like “the manager” they will create another perception.

In addition, technology-based gamification remains inaccessible to many. Many students still lacked fast internet connectivity in their homes (Office of Educational Technology, 2016).

**Limited by technology.** Technology-based gamification may be implemented through video conferencing or through the concept of flipped classrooms. The concept of flipped classrooms virtually delivers content through media, such as phones and laptops, to adult student learners whenever and wherever needed. With the flipped classroom concept, students study privately online to later discuss and receive answers to difficult questions from their classmates and the instructors when in the classroom. However, two of the interviewed faculty avoided the use of technological enabled gamification due to limited bandwidth and the lack of fast internet connectivity in some learners’ homes. The internet connectivity may only accommodate a certain number of students in a virtual learning environment. Faculty members noticed that when the class size got beyond a certain threshold the connectivity started to break. BC005 explained her perception of this limitation:

Okay, the video and the audio and break up as well. So, we do more chatting than we do verbal and audio, and the audio is fine usually, I don't know, we are having trouble today. But the audio is usually not the issue as long it's less than 15 people. I have done some with, you know, a larger number and then there is breaking up. Ha mm so, you know, there is probably something in the air. Some network issues.
In addition, some game elements may require a great deal of preparation.

**Requires preparation and high debriefing skills.** Great effort may be required to deliver gender neutral stories that will meaningfully relate to contents and deliver experiential learning to the targeted audience. Group work often requires a high debriefing skill from the instructors to derived expected outcomes from them. SN010 had this to say about group work and educational plays:

“You can talk about the conceptual challenges. You have to be very skilled with the debriefing to get out of that activity what you want. And so, you prepare for the debriefing as if it's a lecture.”

According to Freire (2013), the collaborative process of experience that is afforded by group discussion/group work may result in critical learning. This benefit of group work may compensate for the perceived shortcoming.

**Summary**

Lack of high-speed internet connectivity in some learners’ homes restricted the use of technological-based gamification. There existed no method of transferring what works in one learning context to another. Faculty’s use of gamification was primarily based on trial and error, and mere perceptions of effectiveness. The emerging themes indicated that the element of group work may not be adequate for the introverts, except if combined with other game elements that include meaningful storytelling.

The textural analysis indicated that meaningful storytelling, if not made gender neutral, may not deliver equal learning experiences—two faculty members perceived students sometimes interpreted stories based on their gender or based on the main character’s gender. However, themes emerged that indicated that the element of meaningful storytelling may be effective
across all learning contexts. Group work may engage learners’ emotion. However, it was perceived to require a high level of debriefing skills from the instructor in order to derive desired results. The emerging themes indicated that the combination of learners’ satisfaction and competencies may induce a sense of autonomy, and relatedness may motivate critical learning. In conclusion, patterns for the use of gamification in learning environments appear in sight as the research proceeds. This and more shall be disclosed in the data analysis chapter.
Chapter 5

Data Analysis

This research investigated the perceptions of faculty members who used gamification in their learning environments. In addition, it explored the opportunities and challenges inherent in the use of gamification according to the applied game elements, principles and the learning contexts. This research applied a collective case study method in investigating for consistent themes and patterns. It applied a case by case comparison of 12 faculty members’ perceptions of gamification to discover persistent themes and patterns across investigated cases (Creswell & Poth, 2018). This chapter analyzed emerging themes from the findings chapter by using Keller’s (1979, 1987) ARCS Model of Motivation, and Freire’s (2013) critical thinking concept as guiding lenses. Three main themes emerged from the data (a) opportunities of gamification, (b) challenges posed by gamification, and (c) how gamification creates immersion for adult learners in different learning contexts.

**Opportunities of Gamification**

This section categorizes the opportunities and benefits of gamification main theme into the following sub-themes, (a) gamification as a tool for students’ satisfaction and accomplishment, (b) gamification as a medium of content relatedness and critical learning, (c) gamification as a medium for students’ relatedness and engagement, (d) gamification as an inducer of learners’ confidence.

**Gamification as a Tool for Students’ Satisfaction and Accomplishment**

An important aspect of adult education remains learners’ content comprehension (Barr & Tagg, 1995). The findings showed that gamification, in form of meaningful storytelling, helped adult students better understand the nuances of given tasks and assignments through small group
discussions. According to the faculty members, meaningful storytelling helped adult students communicate in their own vocabularies and enhanced content comprehension rates. Assignment resubmissions added some level of autonomy to the learning process, improved students’ satisfaction levels, and students’ sense of accomplishment.

**Theories.** According to Merriam and Bierema (2014), adult learners have the need to satisfy important desires in their lives and are satisfied when those desires are met. This assertion satisfies the competency components of Keller’s (1979, 1987) motivational framework, which claimed that students have the need to satisfy their psychological needs for competency. In addition, the satisfaction of the psychological needs for competency results in students’ satisfaction (Keller, 1987). All the participants believed that students were able to relate core principles to their life’s experiences through meaningful storytelling. This very well align with Freire’s (2013) critical thinking concept. More importantly, meaningful storytelling engenders knowledge retention when core principles are anchored on memorable learning experiences (Kendall & Kendall, 2017).

**Discussion.** The interviewed faculty members perceived that the process of experience sharing through collaborative discussions facilitated cordial student-to-student relationships and students-to-instructor relationships. Overall, all the interviewed faculty members perceived that meaningful storytelling worked well across all learning contexts that included leadership, soft-skill, rule-based, and affective instruction types (see Table 4, Appendix D). However, faculty members also perceived that stories have the potential to send conflicting messages and deliver unequal learning experiences when instructors do not construct them with consideration for gender neutrality, or do not carefully design them to deliver the desired experiential and critical learning experiences. However, faculty members perceived that the content became
comprehensible as students communicated in their vocabularies and related their present learning experiences to their previous learning experiences. Students experienced the “ah-ha” moments and feelings of satisfaction as they shared learning experiences from their different places of work and cultures.

**Gamification as a Medium of Content Relatedness and Critical Learning**

Faculty members who used gamified discussion boards, (which combined the use of the discussion board with ground rules of discussion, or other competitive game element such as the prompt feedback) perceived that the combination helped induce critical reasoning and comprehension in learners. In other words, critical reasoning ensued as adult learners discussed core learning principles among themselves. In addition, faculty believed that the embedded meaningful storytelling element of the discussion board induced intelligent responses from the involved students. Faculty members who used gamified discussion boards believed that their students developed critical consciousness, and deeper understanding of core materials through critical questioning and learning in the collaborative process of experience sharing with other classmates.

**Theories.** Freire (2013) defined critical consciousness/reasoning as the ability to describe facts and things as they exist empirically in their circumstantial existence and in correlation with other facts and things. According to Freire (2013), a possessor of naïve consciousness considers his/her reasonings as superior to facts and may interpret facts as he/she pleases. However, the crucial change from naïve consciousness to critical consciousness requires an education in the form of critical learning. Freire (2013) concluded that “we needed then, an education which would lead men to take a knee stance toward their problems – that of intimacy with those problems, one oriented toward research instead of repeating irrelevant principles. An education
of ‘I wonder.’ Instead of merely. ‘I do.’” (p. 33). This connects well with the theory of connectionism, which claims that all new learnings are connected to previous learning experiences. In addition, connectionism emphasizes the potency of pattern-recognition in humans (Gee, 2017).

**Discussion.** The findings showed that faculty members who combined the game principle of affinity group, in the form of small group discussions with group assignments, had the following common perceptions.

1. The constant collaborative efforts of group assignments created student-engagement and deeper reflection with the topics of discussion.

2. Gamified discussion boards that combined discussion boards with ground rules of engagement induced critical reasoning and more intelligent responses due to the inherent competitive nature of group discussions.

However, group discussions may not be the favorite for the introverts. According to faculty member, PL012, “If you're an introvert, if you like working alone, if you’re a lone wolf type. If you’re shy, then the group assignment is a challenge for you.” However, faculty members combined meaningful storytelling with the collaborative game principle of affinity group in the form of group work or group discussion to engage the introverted learners.

**Gamification as a Medium for Students’ Relatedness and Engagement**

Faculty members perceived that adult students became more engaged in the learning process when the collaborative game principle of affinity group was combined with meaningful storytelling in the learning process. Affinity group engendering game elements include peer feedback, group discussion, teamwork, and group assignments.
According to Light (2001), “Faculty members who had an especially big impact are those who helped students make connections between a serious curriculum, on the one hand, and the students’ personal lives, values, and experiences on the other” (p. 110). Meaningful storytelling may help create links between serious curricula and learners’ private life experiences. In addition, the data indicated that a combination of regular peer feedback, group discussions and gamified discussion boards enabled multi-stage collaborative learning. Multi-stage collaborative learning enables students’ learning through the creation of conducive conditions and environments for instructor-students and in-group students’ interactions (Whetten, 2007).

According to TJ010, “the combination of storytelling and teamwork engages students’ emotion more than in a dry lecture.”

**Theories.** Keller’s (1979, 1987) motivational framework claimed that students have the desire to satisfy a psychological need for relatedness. The fulfilment of the psychological need for relatedness through collaborative learning engenders constructive learning rather than a passive delivery of content from the instructor to the students (Merriam & Bierema, 2014). With constructive learning, students’ roles do change from passive information receivers to that of active knowledge developers (Hur & Suhyun, 2012). Merriam and Bierema (2014) defined constructive learning as “the construction of meaning from experience” (p. 36). According to Freire’s (2013) critical learning concept, this is the learning of “I wonder.”

**Discussion.** The findings showed that the introduction of the game principle of affinity group into a learning environment may induce student-to-student as well as students-to-instructor relatedness. The data analysis indicated that participating faculty members often used a combination of game elements such as peer feedback and small group discussions through the discussion board to satisfy the psychological need for relatedness in leadership or management
classes. Furthermore, in a collaborative process, experience sharing often results in critical awareness which may also boost learners’ confidence in the learning process.

**Gamification as a Booster of Learners’ Confidence**

One faculty member injected humor in the learning process through meaningful storytelling. Two faculty members boosted students’ confidence by allowing assignment resubmissions. Four faculty members boosted students’ confidence with the use of role-plays. S010 applied a combination of role-playing and immediate feedback in boosting learners’ confidence:

Those things they start learning. What's the thinking? What are the emotions? What are the curiosities I have? What are the actions? So, you mimic the role until you become the role, and so, I think the fundamental is putting students at this level, putting them in the role of professional. So, I put them as a scholar. I put them as a writer. I put them as a peer reviewer. I made them an editor; you see. I think role. And then, once they are in that role, they have to start thinking that way, and eventually that results in identity change.

First, I start to pretend I am the role; now, I am the role. And so, there is a shift that happens in this. Then there is also the idea of transformation learning. Which is, that once students are playing these roles, they have a realization through the feedback, through the ways in which they are able to achieve success of the iteration of the assignments.

Other interviewed members applied educational plays, in the form of personalized cards to boost learners’ confidence.

**Theories.** Keller (1979) defined confidence as the belief in oneself to succeed. According to Keller (1979), learners are motivated when they have the personal conviction that they can
succeed. In this respect, Kaneko, Saito, Nohara, Kudo, and Yamada (2015) described confidence as factors that increase the likelihood of success.

**Discussion.** Faculty members who allowed assignment resubmissions strongly perceived that this practice boosted student’s confidence in the learning process. This align well with Gee’s (2014) concept of psychosocial moratorium (freedom to take risks due to reduced consequences). In other words, faculty perceived that a single game element may not be as effective. This necessitated a look into how gamification may create the needed immersion for adult students’ engagement and critical learning.

**How Gamification Creates Immersion for Adult Learners**

The data analysis indicated that gamification created immersion/engagement for adult students through the induction of intrinsic motivation to contribute to their learning in meaningful ways through a group discussion or during groupwork in all learning contexts.

**Theories.** The concept of meaningful learning collaborated the ‘relevance’ component of Keller’s (1979, 1987) Attention, Relevance, Confidence and Satisfaction (ARCS) motivational framework. According to the relevance component of the framework, instructions must be relevant to personal values or goals to motivate learners. In addition, meaningful storytelling helped learners relate new learning to previous learning experiences, and lowered learning barriers, allowing the injections of humor in all learning contexts. This agrees with connectionism theory (Angel, 2010), which acknowledges the potency of pattern recognition in humans.

**Discussion.** The data analysis indicated that the game elements of repetitions, which was applied through assignment resubmissions, improved students’ confidence in the learning process by reducing the risk of failure in all learning contexts. The use of repetition through
assignment resubmissions for confidence development satisfies the confidence component of the Keller’ (1979, 1987) motivation framework. Also, educational plays attracted students’ attention in all learning contexts. The concept of education plays satisfied the attention component of Keller’s (1979, 1987) motivational framework. However, gamification does come with some challenges.

**Challenges of Gamification**

All 12 interviewed faculty members perceived that the influence of a single game element may not be engaging enough to maintain the attention of adult learners for a sustained period of time. This, they believed, may be due to the observed differences in learning styles, background experiences and culture. Therefore, none of the interviewed faculty used just a single game element. The faculty members combined meaningful storytelling with small group discussions, meaningful storytelling with role-playing, and meaningful storytelling with the use of educational plays. In addition, the main theme of challenges of gamification include the following sub-themes: (a) gamification, not a one size fits all solution; (b) group work may require high debriefing skills; and (d) gamification suffers from technological limitations.

**Gamification not a One Size Fits All Solution**

According to the data analysis outgoing students may particularly love group work and group assignments. But special attention needs to be given to the introverts who love to work alone. According to PL012, “Group work can bring out both the good and the bad in people. So, you get to see the other side of them.”

In addition, there exists a risk of producing different perceptions in learners, according to gender, when stories are not designed to be gender neutral. None of the interviewed faculty members agreed that just a single game element was adequate to induce sustained student
engagement for critical learning. The faculty members’ perception of the inadequacy of a single game element in engaging and motivating learners’ attention for sustained periods of time corresponds with those of Kapp (2012). According to Kapp (2012), “a single element or even one or two elements alone cannot make an engaging, immersive, learning environment” (p, 26). In addition, the use of some game elements may require some level of skills to be effective.

Gamification may Require High Debriefing Skills

According to the data analysis, the game element of group work may require a high level of debriefing skill to derive the needed scholarship from the learning experience. According to SN010, “You can talk about the conceptual challenges. You have to be very skilled with the debriefing to get out of that activity what you want. And so, you prepare for the debriefing as if it's a lecture.”

Gamification may also suffer from the limitations of technology and the restrictions imposed by the virtual learning environments.

Gamification Suffers from Technological Limitations

Game elements such as role-playing are not useable in asynchronous online learning environments, where learners are not required to log onto the virtual learning environment synchronously (at the same time). In addition, the data analysis indicated that the performance of the network connectivity started to diminish with an increase in the number of students. This diminishes the motivating effects of game elements.

Summary

In summary, the findings from this research majorly corresponded with those of Kapp (2012), with the game element of meaningful storytelling being the only exception. According to Kapp (2012), “a single element or even one or two elements alone cannot make an engaging,
immersive, learning environment” (p. 26). The findings indicated that meaningful storytelling may be applicable in all learning contexts. Gamified discussion boards may be considered effective pedagogical tools of engagement and critical learning in leadership acquisition skills and declarative knowledge learning environments. Social simulation or role-playing appeared as the most appropriate gamification element for declarative/factual acquisition knowledge type such as the knowledge of the law. According to a faculty member, short celebrity appearances appeared effective in gamifying the affective knowledge that deals with attitudes, values, interest, emotions and beliefs.

Meaningful storytelling and the game principle of affinity group may induce student-to-student and students-to-instructor relationships. In addition, interviewed faculty members believed that the combination of regular peer feedbacks, group discussions and gamified discussion boards engendered multi-stage collaborative learning with soft-skill, declarative, and affective knowledge types. This may result in project relevancy and perhaps ownerships (Keller, 1987).

In conclusion, interviewed faculty members perceived that meaningful storytelling engaged learners’ emotions, and group discussions induced intrinsic motivation in learners with a sense of belonging to contribute to the group discussion. Role-playing immersed learners in the learning experience. The data analysis indicated that these content gamification elements provided intrinsic motivation in learners. Therefore, content gamification may provide intrinsic motivation.
Chapter 6

Conclusion and Recommendations

This final chapter presents a short summary of the research, the implications of the findings, and recommendations that are based on the research findings. Before now, adult educators based their classroom gamification process on guessing practice and not on any proven scientific model (Dichev, & Dicheva, 2017). Therefore, this research aimed to accomplish two main goals (1) to investigate the perceptions of faculty members who use educational gamification in their learning environments with the goal of motivating deep learning in adult students, and (2) to recommend a framework for educational gamification that may be applied in different learning contexts.

The research used the collective case study methodology to investigate the faculty’s perception of gamification according to its afforded opportunities and challenges. It applied Keller’s (1979) ARCS model of motivation, connectionism theory (Angel, 2010), and Freire’s (2013) critical thinking concept as analytical lenses to analyze the research data. Themes emerged from the analysis of data according to the afforded opportunities and challenges of educational gamification as perceived by the 12 interviewed faculty members. The emerged themes were categorized into two main themes opportunities of gamification, and the inherent challenges of gamification.

Opportunities of Gamification

The following themes aligned well with the afforded opportunities of gamification; (a) gamification as a tool for students’ satisfaction and accomplishment, (b) gamification as a medium for students’ relatedness and engagement, and (c) gamification as a medium of content relatedness and critical learning.
Gamification as a Tool for Students’ Satisfaction and Accomplishment

The research findings indicated that the game element of meaningful storytelling enhanced adult students’ comprehension rates, satisfaction levels, and their senses of accomplishment. This was possible as faculty members who gamified their learning environments with meaningful storytelling were able to create model of critical questioning that related topics of discussion to adult students’ personal learning experiences. In other words, gamification enhanced project-based learning. Project-based learning relates theories to real life scenario (Gutstein, 2003). Therefore, with gamification adult students enjoyed the benefit of relating contents to their background experiences and of communicating in their vocabularies as they shared personal experiences with their colleagues. Moreover, all the participants believed that their students were able to relate core principles to their lives’ experiences with meaningful storytelling. This may be deeply satisfying. According to Merriam and Bierema (2014), adult students learn because they need to satisfy some important needs in their lives and are satisfied when those needs are met. In this regard, the psychological need for competence may be satisfied. This finding aligned with the competency component of the research framework, Keller (1979) ARCS motivational framework. The instructors also believed knowledge retention was enhanced when core principles were anchored on students’ memorable learning experiences. In addition, faculty members believed meaningful storytelling provided opportunities for collaborative discussions, student-to-student relatedness and students-to-instructor relatedness.

Gamification as a Medium for Students’ Relatedness and Engagement

Faculty members used game elements such as group discussions, teamwork, and group assignments to enhance multi-stage collaborative learning, identify and build on strengths, develop self-efficacy and help adult students find their voices in the learning environments.
Group projects help members identify and build on strengths, develop self-efficacy, and find their voices (Goodman, Liang, Helms, Latta, Sparks, & Weinrab, 2004). Multi-stage collaborative learning provides learners with environments that support instructor-student and in-group students’ interactions (Whetten, 2007). The findings indicated that the combination of regular peer feedback, group discussions, affinity groups and gamified discussion board consistently enabled multi-stage collaborative learning experiences. The data analysis further indicated that the combination of game elements such as peer feedback and group discussions satisfied the psychological need for relatedness in leadership or management classes. This implies that the game elements of affinity group, in the form of group discussions, and prompt feedback work well with the gamification of leadership training or softs-skill contents. The finding aligns well with Keller’s (1979, 1987) ARCS motivational framework. Moreover, collaborative learning processes that include experience sharing may result in critical learning (Freire, 2013).

Gamification as a Medium for Students’ Relatedness and Engagement

The research findings indicated that faculty members who applied gamified discussion boards in leadership training classes or in a soft skill learning context perceived that the combination helped induced critical reasoning and learning in adult students. The embedded storytelling element of the discussion board aided the analysis and comparison of relating patterns from students’ background learning experiences and the core learning principles, while critical reasoning became necessary as students competitively discussed the core learning principles. This finding aligned with the theory of connectionism, a component of the research framework. The theory of connectionism emphasizes the concept of pattern recognition in humans. In addition, it claims that the connections humans make between previous and present
experiences are very crucial to learning (Angel, 2010; Plaut, 2000). Moreover, the embedded competitive game mechanics of competition induced intelligent responses from the students. The participating faculty members believed that the combination of the discussion board with ground rules of discussion and engagement have the potential to transform otherwise passive students into active knowledge contributors. However, gamification also has some drawbacks.

**Challenges of Gamification**

It is challenging to implement educational plays and role-play gamification in asynchronous online learning environments. The implementation of educational plays in online learning environments requires real time participation. However, participating students may not be required to participate in the learning process in real time (a benefit of online learning). This makes the implementation of educational plays a serious challenge in a synchronous online learning environment. In addition to this, meaningful storytelling has a challenge of conveying contradictory messages to students according to students’ gender and backgrounds. However, this risk may be reduced, if not totally removed, with the use of inclusive and gender-neutral stories in the gamification process. The lack of high-speed internet in some homes had been noted by faculty members as a serious challenge to the gamification process. Faculty also lamented about the difficulties in finding neutral participants (non-students) for the role-playing exercises. The benefits and challenges of gamification produced some implications.

**Implications**

The research findings have some implications for the stakeholders. The stakeholders include the college instructors, adult education practitioners, and curriculum designers. The implications are fully discussed in relation to the affected stakeholders in the following sections.
College Instructors and Adult Education Practitioners

According to the Gallup Student Poll of 2015, students’ engagement had consistently decreased with the progressive grade level (Brenneman, 2016). This was due to the impact of the learning environment, adult relationships, and the educators’ perceptions of the students’ value (Brenneman, 2016). The positive effects of gamification on student-to-student and students-to-instructor relatedness may help adult educators and faculty members perceive students’ value positively as an implication of these research findings. Consequently, adult students’ engagement level may increase with the progressive grade level.

Curriculum Designers

Curriculum designers, who spend most of their time reviewing student records, meeting with administrators, and considering new instructional methods may make more educated decisions about how to embed gamification into colleges and universities’ curricula. Informed decisions are possible when curricula are developed with deep consideration for the Keller’s (1979, 1987) ARCS motivational framework, which emphasizes the attention, relevance, competence, and the satisfaction components of learners’ motivation. The knowledge of game elements and their effective applications may go a long way in the planning and implementation of motivating and engaging curricula.

Recommendations

The research findings suggest the following recommendations (a) colleges of education and universities should incorporate gamification into their curricula, (b) institution of higher learning should recommend courses in gamification to their curriculum designers, (c) institution of higher learnings should endeavor to employ gamification experts where possible, and (d) gamification should never be seen as the solution to all learning motivation problems.
Contributions to Knowledge and Literature in the Field

The research accomplished its set out goal of determining how faculty perceived the benefits and challenges of gamification in the learning environments. The research’s results contributed to knowledge by recommending a framework of educational gamification that considers the learning contexts and eliminates guessing practices from the gamification process (Figure 2).

Figure 2

A Gamification Framework with Considerations for the Learning Contexts

Meaningful storytelling and group work/teamwork (the application of the game principle of affinity group) may induce student-to-student and students-to-instructor relationships in all learning contexts. Educational plays and assignment resubmissions also worked well in all learning contexts, and the game elements of meaningful storytelling, group work, assignment resubmissions, and educational plays may be applied together as necessary (figure 2).
Research Limitations

The current research has a limitation of a small sample size of 12 instructors. In addition, this research was limited in scope to the impact of educational gamification on adult learning experiences. Future research may focus on the impact of gamification on non-adult learners and other areas of applicability that may include commerce, manufacturing and healthcare. The results may not be generalizable to other contexts since the subjects in this study were from the same university, a Midwest mid-size private university.

Suggestions for Future Research

Future research may investigate students’ perception to systematically determine at the granular level, how to map the combinations of students’ psychological needs (P) and instruction types (I) to appropriate game elements (G). In addition, future research may include quantitative data, and investigate the opportunities and challenges afforded by gamification in non-adult learning environments.

Conclusion

Gamification may be considered a pedagogical tool of motivation in all learning contexts. Meaningful storytelling, group work/teamwork, educational plays, and assignment resubmissions worked well in all learning contexts and may be combined as deemed fit in any learning context to induce learning motivation. Lack of high-speed internet connectivity in some learners’ homes restricted the use of technological-based gamification. This research teaches us that gamification works when properly applied.
Appendix A

Interview Questions

1. Please describe the game element(s) you introduced in your course (e.g. gamified discussion board).

2. How would you describe the knowledge type in your course to which the game element(s) have been applied, (a) declarative/factual acquisition, (b) rule-based, (c) soft-skill, or (d) affective knowledge type?

   Declarative/ factual knowledge declares facts that are based on heuristics or on the rule of thumb. Rule-based knowledge represents knowledge as a set of rules, such as in computer programming. Soft-skill knowledge includes communication skills, attitudes, people skills, social skills, character traits, emotional intelligence quotients and social intelligence. In other words, leadership skills. Affective knowledge aims to positively influence people’s attitude (Bloom, 1953).

3. Based on your experience as a user of gamification, what types of gamification do you believe are more effective for learners in your course?

4. Please describe the learning objectives the game element(s) were expected to achieve.

5. As you reflect on the course, what do you think are the impacts of your introduced game element(s) on the learning objectives?

6. Can you please describe how the introduced game element(s) impacted students’ learning and understanding of core principles in the course?

7. Please describe your motive for the choice of game element(s).

8. Please describe the impacts of the introduced game element(s) on learners’ behavior in terms of student-to-student and students-to-instructor relationships.
9. Please describe the impacts of introduced game element(s) on students’ sense of accomplishment.

10. What did you perceive as the motivational triggers that engaged your students with your choice of gamification element?

11. If you combined game elements, how would you compare the effectiveness of the use of multiple game elements to that of a single game element on students’ engagement and motivation in your course?

12. Please describe noticeable disparities in the achievement of learning objectives by gender that was due to the introduced game element(s).

13. How do you hope to use similar game element(s) in teaching another course or in achieving different learning objectives?

14. What are the noticeable challenges that are inherent with the use of the game elements of choice?
Appendix B

Demographics

1. Do you currently teach at the undergraduate or the graduate level and in a United States university or college of education?

2. Please select the game element(s)/principle(s) you applied in your class (a) meaningful storytelling, (b) gamified or rule-based discussion board, (c) prompt feedback through the award of points, badges or comments, (d) educational plays, (e) assignment resubmissions, (f) group work, and (g) others.

3. Please select the level you instruct. (a) Undergraduate, (b) Graduate, (c) Both.

4. Where is your teaching environment (a) online, (b) off-line (F2F), or (c) Hybrid?

5. What is your highest level of qualification (a) B.Sc., (b) M.Sc., (c) Ph.D., (d) ED.D?

6. Please indicate your sex (a) Male, (b) Female.

7. Please indicate your age range.
   a. 21 – 30
   b. 31 – 40
   c. 41 – 50
   d. 51 – 60
   e. 60 and above.

8. Please enter years of teaching experience.

9. Please list your teaching areas.
Appendix C

Consent Form

[1398137-1] The Perceptions of College Faculty Toward Gamification: Opportunities and Challenges.

You are invited to participate in a research study about faculty’s perceptions toward gamification. You were selected as a possible participant because you made use of a gamified discussion board, game element(s), designs or thinking in your learning environment. You are eligible to participate in this study because you instruct adult students in an American College of Education or university. The following information is provided in order to help you make an informed decision whether you would like to participate. Please read this form and ask any questions you may have before agreeing to be in the study.

This study is being conducted by Olugbenga Dosunmu of the department of education, University of St. Thomas, and supervised by Dr. Chien-Tzu Candace Chou. This study was approved by the Institutional Review Board at the University of St. Thomas.

Background Information

The purpose of this study is to investigate the perceptions of college faculty towards gamification and its inherent benefits and challenges. The research questions include a main research question (what do instructors perceive as the opportunities and challenges in implementing gamification in adult students’ learning?), and a supporting research question (how does gamification create the immersion needed for adult students’ engagement and critical
learning based on faculty’s perception?). The research will assist instructors of adult learners in creating more engaging and desirable adult learning experiences.

Procedures

If you agree to participate in this study, I will ask you to do the following things:

- Answer some related educational gamification questions during an interview.
- The interview will take place during your chosen availability and at your location of choice within the campus of University of St. Thomas, or through Zoom.
- The interview will last a duration of 45 minutes, and the research will interview only 15 candidates.
- The interview will be audiotaped, and a follow-up interview may be requested if more information is needed.

Risks and Benefits of Being in the Study

The study has no risks, and there are no direct benefits for participating in this study.

Privacy and Confidentiality

Your privacy will be protected while you participate in this study. You have the option of providing you availability and suggesting the location of the interview. You may also elect to take the interview online from the privacy of your home through Zoom. The Zoom link will be provided upon request. The records of this study will be kept confidential. In any sort of report I publish, I will not include information that will make it possible to identify you. The types of records I will create include audio recordings, transcripts, and computer records of participants names and email. Only the project investigator (Olugbenga Dosunmu) and the supervisor (Dr. Chien-Tzu Candace Chou) will have access to this record. These records shall be destroyed immediately after the research is over, or if necessary, maintained only for a maximum period of three years.

All record shall be securely stored in a passworded cloud memory for a secured access. Therefore, there shall be no risk of data theft while traveling from one location to another. Since, the project investigator can access data securely from any connected computer. All signed consent
forms shall be kept for a maximum of three years upon completion of the study. Institutional Review Board officials at the University of St. Thomas reserve the right to inspect all research records to ensure compliance.

**Voluntary Nature of the Study**

Your participation in this study is entirely voluntary. Your decision whether or not to participate will not affect your current or future relations with any individuals, employers, cooperating agencies, institutions or the University of St. Thomas. There are no penalties or consequences if you choose not to participate. If you decide to participate, you are free to withdraw at any time without penalty or loss of any benefits to which you are otherwise entitled. Should you decide to withdraw, data collected about you will be destroyed and not used. You can withdraw at any time by stating so. You are also free to skip any questions I may ask.

**Contacts and Questions**

My name is *Olugbenga Dosunmu*. You may ask any questions you have now and any time during or after the research procedures. If you have questions later, you may contact me at dosu0001@stthomas.edu, or contact my advisor, Dr. Chien-Tzu Candace Chou at (651) 962-4814. You may also contact the University of St. Thomas Institutional Review Board at 651-962-6035 or muen0526@stthomas.edu with any questions or concerns.

**Statement of Consent**

I have had a conversation with the researcher about this study and have read the above information. My questions have been answered to my satisfaction. I consent to participate in the study. I am at least 18 years of age. I give permission to be audio recorded during this study.

**You will be given a copy of this form to keep for your records.**

_______________________________________________________________
Signature of Study Participant                                             Date
Print Name of Study Participant

Signature of Researcher

Date
Appendix D

Tables for Textual Analysis

Table 4

*Game Elements, Learning Contexts, Learning Objectives and Perceived Impacts by Participants*

<table>
<thead>
<tr>
<th>Participants’ frequency (n)</th>
<th>Codes</th>
<th>Questions and Responses</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 (W002)</td>
<td>Meaningful storytelling, group work, and educational plays.</td>
<td>Soft skills. To help students connect ideas and theories. The game element served as a motivating factor in the achievement of the learning objective. Meaningful storytelling objectified the core learning points.</td>
</tr>
<tr>
<td>1 (R007)</td>
<td>Meaningful storytelling and group work.</td>
<td>Declarative knowledge. To develop people’s understanding and social relationship. The story conflicted with those of many people in the class. You often get keen sense of humor, and it was adaptable to the course’s core principles.</td>
</tr>
<tr>
<td>4 (A006, B005, W009, T011)</td>
<td>Meaningful storytelling, group work, role-playing, prompt feedback, and assignment resubmissions.</td>
<td>Rule-based knowledge. To help students develop effective analytical skills and also utilize effective oral and written advocacies. The game element of small group discussion brought principles down to the real human level of this is something that happened to me. Educational plays gave students opportunities to practise analytical thinking, oral and written advocacy skills.</td>
</tr>
<tr>
<td>Participants’ frequency (n)</td>
<td>Codes</td>
<td>Questions and Responses</td>
</tr>
<tr>
<td>-----------------------------</td>
<td>-----------------------------</td>
<td>-------------------------</td>
</tr>
<tr>
<td></td>
<td>Game elements</td>
<td>Contexts</td>
</tr>
<tr>
<td>2</td>
<td>Meaningful storytelling, educational plays, gamified discussion board, assignment resubmission.</td>
<td>Soft skills and declarative/factual acquisition knowledge type.</td>
</tr>
<tr>
<td>2</td>
<td>Meaningful storytelling, educational games, and group work.</td>
<td>Soft skills and affective knowledge.</td>
</tr>
<tr>
<td>Participants’ frequency (n)</td>
<td>Codes</td>
<td>Questions and Responses</td>
</tr>
<tr>
<td>---------------------------</td>
<td>-------</td>
<td>-------------------------</td>
</tr>
<tr>
<td></td>
<td>Game elements</td>
<td>Contexts</td>
</tr>
<tr>
<td></td>
<td>Meaningful storytelling, group work, educational plays, role-playing, prompt feedback through comments, assignment resubmissions.</td>
<td>Soft skill, affective, and declarative knowledge.</td>
</tr>
<tr>
<td>1 (S010)</td>
<td>Meaningful storytelling, group work, prompt feedback through comment, and assignment resubmissions.</td>
<td>Affective and declarative knowledge.</td>
</tr>
</tbody>
</table>
Table 5

Game Elements, Motives, Impact on Relatedness, Sense of Accomplishment and Motivational Triggers by Participants

<table>
<thead>
<tr>
<th>Participants’ frequency (n)</th>
<th>Codes</th>
<th>Motive</th>
<th>Questions and Responses</th>
</tr>
</thead>
<tbody>
<tr>
<td>5 (I00, S001, B005, P008, W009)</td>
<td>Meaningful storytelling, educational plays, gamified discussion board, assignment resubmission, and group work.</td>
<td>Competency, to make students become more efficient at something.</td>
<td>When they got to know each other better, it made the relationship with the instructor better and easier.</td>
</tr>
<tr>
<td>1 (P008)</td>
<td>Meaningful storytelling, educational games, and group work.</td>
<td>Used meaningful storytelling to lower learning barriers.</td>
<td>“When they got to know each other better, it made the relationship with the instructor better and easier.”</td>
</tr>
<tr>
<td>1 (W009)</td>
<td>Meaningful storytelling and role-play.</td>
<td>Used role plays to develop effective analytical skills, oral and written advocacies in learners.</td>
<td>“Students learnt how to work effectively in a team.”</td>
</tr>
<tr>
<td>Participants’ frequency (n)</td>
<td>Codes</td>
<td>Questions and Responses</td>
<td></td>
</tr>
<tr>
<td>-----------------------------</td>
<td>------------------------------------------------------------------------</td>
<td>-----------------------------------------------------------------------------------------</td>
<td></td>
</tr>
<tr>
<td>4 (T011, S010, P012, A006)</td>
<td>Assignment resubmission, meaningful storytelling, and group work.</td>
<td>They liked each other; they had fun. There was enjoyment</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Used group work to engage students’ emotion.</td>
<td>“They remember the story that helps them remember the law.”</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Storytelling and assignment resubmissions to repeat basic ideas in</td>
<td>The perception that the learning process was going to be fun and enjoyable</td>
<td></td>
</tr>
<tr>
<td></td>
<td>different forms.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1 (P012)</td>
<td>Meaningful storytelling, group work.</td>
<td>“In group assignments you see how the students interact with each other, and you see</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Used group work to bring competition to the group and to teach students to work in groups.</td>
<td>the group dynamics.”</td>
<td></td>
</tr>
<tr>
<td>2 (B005, S001)</td>
<td>Gamified discussion board, meaningful storytelling, group work,</td>
<td>Game elements increased engagement level for the instructor, and students.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>educational plays.</td>
<td>“The harder the students had to work on the group project the more sense of novelty they had at the end.”</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Used gamified discussion board to get people immersed in the experience.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Game elements increased engagement level for the instructor, and students.</td>
<td>“The course was more relevant, and the students learnt more through the use of stories, interactivity and collaboration.”</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>The perception that the learning process was going to be fun and enjoyable.</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Participants’ frequency (n)</td>
<td>Codes</td>
<td>Motive</td>
<td>Impacts on learners’ relatedness?</td>
</tr>
<tr>
<td>-----------------------------</td>
<td>-------</td>
<td>--------</td>
<td>---------------------------------</td>
</tr>
<tr>
<td>3 (S010, P012, B005)</td>
<td>Prompt feedback, assignment resubmission, and meaningful storytelling.</td>
<td>Used assignment resubmissions and prompt feedback to further motivate the students.</td>
<td>“It added some new dimensions to the process.”</td>
</tr>
<tr>
<td>1 (R007)</td>
<td>Meaningful storytelling and group work.</td>
<td>Used meaningful storytelling to develop learner’s understanding, and group work to develop their world views.</td>
<td>“It's not what they were doing, it's how I interacted with the class that possibly made the difference.”</td>
</tr>
</tbody>
</table>
Table 6

*Challenges of Gamification*

<table>
<thead>
<tr>
<th>Participants’ frequency (n)</th>
<th>Codes</th>
<th>Questions and Responses</th>
<th>Challenges with game elements?</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Game elements</td>
<td>Multiple vs single game element?</td>
<td>Achievement of learning objectives by gender?</td>
</tr>
<tr>
<td>3 (I00, R007, T011)</td>
<td>Meaningful storytelling and group work.</td>
<td>“If you have more than one element in an hour and a half lecture, you're better, you're more likely to keep their attention just by the fact of changing.”</td>
<td>“There is a small gender element in the stories too because it's easier for a male to identify with a male storyteller than it is for a female.”</td>
</tr>
<tr>
<td>3 (W002, P008, J003)</td>
<td>Meaningful storytelling, group work, and educational plays.</td>
<td>“More and more people have very short attention spans. So, the combination is great.”</td>
<td>“The women were more vocal in the counseling classes, and men were more vocal in the leadership classes.”</td>
</tr>
<tr>
<td>Participants’ frequency (n)</td>
<td>Codes</td>
<td>Questions and Responses</td>
<td></td>
</tr>
<tr>
<td>-----------------------------</td>
<td>----------------------------------------------------------------------</td>
<td>----------------------------------------------------------------------------------------</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Meaningful storytelling, group work, educational play, prompt feedback with the award of points and badges, and gamified discussion board, and assignment resubmission.</td>
<td>“It is apparently more powerful, more effective to incorporate multiple elements than just one.” “I don’t see in them any differences. What I do see is... extroverts and introverts in the classroom.” “Yeah, there isn’t a course where I don’t use game element. I use the same patterns.” “You have to be very skilled with the debriefing to get out of that activity what you want.”</td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>Meaningful storytelling and role-play/educational play.</td>
<td>“The combination of video and role-playing were more effective than just simulation/role-playing.” “No, I didn't notice it.” “It was kind of harder to deal with more students.” “Finding appropriate actors.”</td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>Meaningful storytelling, group work, and assignment resubmissions.</td>
<td>“By having a diversity of instructional techniques, you get to engage the students.” “Nothing specific.” “I would continue with experiential learning.” “Require preparation.”</td>
<td></td>
</tr>
</tbody>
</table>
References


Conference on Technological Ecosystems for Enhancing Multiculturality, 215-220.


http://dl.acm.org/citation.cfm?id=2669902


Steinkuehler, C., Squire, K., & Barab, S. A. (2012). *Games, learning, and society: Learning and meaning in the digital age / edited by] constance steinkuehler, the university of wisconsin, madison; kurt squire, the university of wisconsin, madison; sasha barab, arizona state university*. Cambridge: Cambridge University Press.


