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EXPLORING GRADUATE STUDENTS' PERSPECTIVES TOWARDS USING GAMIFICATION TECHNIQUES IN ONLINE LEARNING

Daniah ALABBASI
College of Education
King Saud University
Riyadh, Saudi Arabia

ABSTRACT

Teachers and educational institutions are attempting to find an appropriate strategy to motivate as well as engage students in the learning process. Institutions are encouraging the use of gamification in education for the purpose of improving the intrinsic motivation as well as engagement. However, the students' perspective of the issue is under-investigated. The purpose of this research study was to explore graduate students' perspectives toward the use of gamification techniques in online learning. The study used exploratory research and survey as the data collection tool. Forty-seven graduate students (n = 47) enrolled in an instructional technology program studied in a learning management system that supports gamification (TalentLMS). The average total percentages were calculated for each survey section to compose the final perspective of the included students. The results showed a positive perception toward the use of gamification tools in online learning among graduate students. Students require effort-demanding, challenging, sophisticated learning systems that increase competency, enhance recall memory, concentration, attentiveness, commitment, and social interaction. Limitations of the study are identified, which highlights the need for further research on the subject matter.

Keywords: **Gamification, graduate student, online learning, game element, perspective, technique.**

INTRODUCTION

In the education system, it has been argued that traditional approaches to teaching and learning have proven to be ineffective and unexciting to the students (Dicheva, Dichev, Agre, & Angelova, 2015). The Generation Y and Z students have different experiences as well as prospects in the type of education that will be effective to them (Poole, Kemp, Patterson, & Williams, 2014). Moreover, these students process and comprehend information differently as compared to the earlier generations (Poole et al., 2014). Glover (2013) reported that nowadays students are demotivated and less engaged in the learning process, a problem highly recognized by teachers, tutors, and education management. The Millennial generation has been found to enjoy the concept of teamwork and collaboration achievements in learning. They possess characteristics, such as being "skilled, social, demanding, and energetic" (Poole et al., 2014, 2). According to literature, they are technologically conscious and prefer the world with, for example, computers and the internet (cited in Poole et al., 2014).

Understanding the desires of students in this category give educational systems the urge to incorporate an appropriate activity, which will support their learning process through alteration of behavior. Glover (2013) argues that learning is an active continuous process,

which is driven by motivation from the beginning. Teachers and educational institutions are attempting to find an appropriate strategy to motivate as well as engage students in the learning process (Wilson Calongne, & Henderson, 2015). Technological advancements (computer and internet) have however, played a vital role in the education system and have promoted the introduction of online learning programs (Nguten, 2015).

Research has suggested that giving instructions and learning through the use of technology is a trending practice in the education world (Tsai, 2013). Gamification is the process of transforming or mechanizing a system to be approached in a game-like or playful manner. In other words, it is the use of elements designed for games in non-game scenarios (Deterding Dixon, Khaled, & Nacke, 2011) Institutions are encouraging the use of gamification in education for the purpose of improving the intrinsic motivation as well as engagement (Wilson et al., 2015). As an approved and successful strategy in several social platforms, research has anticipated gamification to have related outcomes in education, specifically making students be more engaged and display a real desire to learn (Dominguez et al., 2013). Using elements rather than full-designed games is the trick in using gamification. Ideally, the incorporation of an effort demanding activity guide the success of gamification since it has been found to motivate as well as engage individuals (Deterding et al., 2011).

Gamification is directly related to several elements of the motivational theory. Mark Lepper (Kapp, 2012) once proposed a series of design principles that was tested to promote intrinsic motivation. Those principles are control, challenge, curiosity, and contextualization. On the other hand, Thomas Malone (Kapp, 2012) postulated three key elements that make a game motivating; challenge, fantasy, and curiosity. The two researchers combined their finding into one theory and named it the taxonomy of intrinsic motivation. The taxonomy is divided into two parts; the first focused on internal motivation and the second focused on interpersonal motivation. The elements in each part of the taxonomy exemplify the effects of gamification on students' behaviors and feelings during the online learning process. For example, in the internal motivation part, challenge is required to fuel learners' interest to compete and complete the tasks. That kind of challenge can be built in the course activities by designing activities with incremental difficulty level. Another example related to the interpersonal part of the taxonomy is related to the social aspect of gamification. Students in the gamified environment compete against each other or next to each other to reach a final goal. The solidarity created between the students in an online environment due to the use of gamification tools helps to build an online community that make up for the decreased physical interaction usually related to feeling isolated or lonely.

Investigation of the application of gamification in education is vast. In a literature review by Hamari, Koivisto, & Sarsa (2014) it was shown that gamification works. Researchers encourage the use of the technique, suggesting that it is motivating and makes students more engaged. In their study, Buckley & Doyle (2014) investigated the impact of gamification intervention in the online learning of undergraduate students. They found that a positive link existed between gamification and online learning (Buckley & Doyle, 2014). However, the positivity depends on whether the student has intrinsic or extrinsic motivation (Buckley & Doyle, 2014).

Urh, Vukovic, Jereb, & Pintar (2015) conducted a study to develop a model of introducing gamification into the e-learning systems of higher education. The model suggested the incorporation of elements of gamification (e.g., rule-based system), the game mechanics (e.g., points), and game dynamics (e.g., rewards) in all levels of e-learning (Urh et al., 2015). The overall outcome of this aspect is the increase in "engagement, satisfaction, effectiveness, efficiency, experience, knowledge acquisition, and state of flow" (Urh et al.,

2015, 392). The motivational aspect realized from the effects of gamification in online learning outlines the interest to most researchers. Dicheva et al. (2014) conducted a systematic literature review where they reported that most studies show positive results of gamification application in education.

While most studies concentrate on the outcome of gamification in education, few identifiable studies are conducted from the students' perspective of its application in their learning process (Cheong, Filippou, & Cheong, 2014: Franco-Mariscal, Oliva-Martinez, & Gil, 2015; Armier Jr., Shepherd, & Skrabut, 2016). Cheong et al. (2014) conducted a study on undergraduate students' perception of game elements, in which they found that systems that use games are highly appreciated by students. According to this study, students are more socially interactive, engaged, and appreciative of feedback (Cheong et al., 2014), all of which are provided by gamification. In another study, Franco-Mariscal et al. (2015) examined the perception of high school students and found a positive attitude towards the use of game tools in education. They perceived games as interesting, enjoyable, and favorable in making them understand the learning concepts.

Armier Jr. et al. (2016) investigated the inclination of students to participate in gamified learning activities. Examining an experimental (gamified activities) and control group, Armier Jr. et al. (2016) found a significant difference between the groups. The experimental group was more willing to attend group meetings than the control group (Armier Jr. et al., 2016). Gamification influences the psychological aspects of students. Lander & Callan (2011) investigated the psychology of gamification on undergraduate student and found that students chose to complete questions that incorporated gamification. The option to complete was triggered by the fact that students perceived gamified quizzes as fun, enjoyable, and rewarding (Lander & Callan, 2011).

Dominguez et al. (2013) reported gamified activities as being less motivating than traditional activities. These findings contradict other identified studies, and the authors reported the student to be undecided about whether gamified activities were enjoyable, easy to use, involving, or worthwhile (Dominguez et al., 2013). Gamification also influences the cognitive abilities of students. Sanmugam, Abdullah, & Zaid (2014), in a literature review found gamification to improve the attentional capacity of people, in that they can differentiate between distracting variables and the intended learning purpose. Morris, Croker, Zimmerman, Gill, & Romig (2013) found that gaming elements increase the ability to simulate and develop reasoning skills. Moreover, games enhance intellectual development by promoting self-acceptances of oneself (Morris et al., 2013). Supportively, Ke (2009) found out that computer games do not distract the learning process, but rather improve the students' intellectual development.

Problem Statement

Institutions are embracing online learning because of its effectiveness in educating and communicating with students. Moreover, technological advancements have made most of the students spend a lot of time on the internet (Aghazamani, 2010). As a result, it is more appropriate to teach and learn from online platforms. Game elements have been appreciated by today's students, and their introduction in online learning can have an impact on the learning process as well as outcomes. The successful implementation of any new teaching

strategy is dependent on the students' perception of it. Students at the university level have reported to dislike the traditional methods of teaching (Aghazamani, 2010) and with the development of new strategies to enhance the learning process, it is vital to understand their perception towards these approaches. Understanding perceptions help policy makers make informed decisions based on true experiences of the targeted learner.

It is critical for the learners to have positive attitude and perception on particular education-enhancing strategy if educators are to succeed in implementing it in education. Research has shown the positivity of gamification in education, but there is limited research on this strategy from the student's perspective. Students are a key part of the education system since they receive the inputs of the teachers. Therefore, the level of understanding of how they perceive gamified activities is important for the educational strategists as well as teachers. With the few studies, it is difficult to make a valid and reliable conclusion on the issue which will highlight the need for further studies. The purpose of this research study was to explore graduate students' perspectives toward the use of gamification techniques in online learning. It intends to contribute to the literature and highlight the need for further research in this new and under-investigated area.

METHODOLOGY AND DATA COLLECTION

Ethical Consideration

Participation in the study was voluntary and participants were given extra credit grade that goes toward their graduate courses upon completion of all online courses requirements. Participants were provided with a detailed informed consent form showing the purpose of the study. Inclusion in the study required each participant to sign an informed consent before the start of the data collection process.

Design and Participants

The research study used an exploratory research approach. This method allows the researcher to think, imagine, as well as use their experience, insight, and skills to reveal innovations (Reiter, 2013). Unlike confirmatory research, exploratory research is rigorous, hence able to achieve a greater level of validity (Reiter, 2013). The study included graduate students (n = 47) enrolling in an instructional technology program. The enrolled students had an average age of 29 years, ranging between 25-33 years.

Data Collection Strategy

Before the data collection, forty-seven participants were introduced to the LMS in two training sessions and then were divided in groups of 3- 4 students/group to create 10 different online mini courses. The mini courses were designed based on specific guidelines that encompassed effective online course design principles, and were hosted in a learning management system that supports gamification (TalentLMS). This LMS provides the course developer the option to integrate gamification tools such as points, badges, and leaderboards as part of any activity the learner engages into during the learning experience. They were given three week time frame to create the courses. Then, when the courses were ready and checked buy the researcher for quality, each participant was enrolled in at least two mini online courses with one condition that participants should not be enrolled in courses that were designed by them. For example if group 1 created course 1, they could not be enrolled as students in that course, they can rather be enrolled as students in course 2 and 3. The courses were managed and taught by the groups that designed them.

All participants were divided into groups ranging from 7-8 students in each course with each student registering in at least two courses. Students were instructed to actively participate in course discussions and assignments within their respective group. The completion time

allocated for the courses was three weeks. At the end of the three-week period, participants responded independently to the survey.

Courses Design

Because of the fact that the participants were students in a graduate instructional technology program, the researcher found this research opportunity a great one to give those students the chance to apply their acquired knowledge relating to online course design in creating and managing the mini courses. Students were given specific guidelines to follow in the course design such as the minimum number of modules (three modules) and activities in the course which the researcher asked to fit three week time frame. The modules should be of increased difficulty as well as the activities designed in them. They were also asked to include a discussion activity as well as hands-on activities depending on the topic of the course. The activities should also reflect blooms' higher order thinking skills as well as lower thinking skills. For final assessment, participants were required to add a final test. For every designed activity, the participants were asked to attach a specific number of points that match the difficulty level of the task. They used the gamification tools available in the LMS. Other instructions were also provided to the participants relating to the aesthetic part of the course and other design guidelines geared to reducing cognitive load.

Data Collection Tool

The study used a survey as the data collection tool. The survey had a total of 31 items and was developed to use a five-point Likert scale ranging from strongly agree to strongly disagree. Moreover, the survey had six sections including, 1) positive effects of incorporating game elements (Leaderboards) in learning management systems with three underlying items. 2) Psychological effects of incorporating game elements (points, badges, Leaderboards) in learning management systems with eight items. 3) Positive effects of the instant feedback the game elements provide with three items. 4) Cognitive effects of incorporating game elements (points, badges, Leaderboards) in learning management systems with four items. 5) Formation of good learning habits as a result of using game elements with eight items. Finally, 6) negative effects of incorporating game elements (points, badges, and Leaderboards) in learning management systems with five items (see Appendix A). Cronbach's Alpha was conducted to measure the survey's reliability. The survey was found to be highly reliable (31 items; $\alpha = .89$).

Data Analysis

Responses from the survey were analyzed using percentages of every point of the five point Likert scale on each item. Overall, the average percentage was calculated for each survey section to compose the final perspective of the included students. Tables and figures (pie charts) were used to support and summarize the theoretical results. Additionally, the level of agreement reported as strongly agree and agree were grouped as agree while those reported as strongly disagree and disagree were grouped as disagree.

RESULTS

The average percentages of each item in the sections were used in the analysis. The results showed a general positive perception toward the use of gamification tools in online learning among graduate students. The table below shows the average and detailed percentages of students' responses to each Likert scale point.

Table 1. ***The level of agreement responses on each item in the six sections in percentage.***

Items	Total	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
Positive Effects of Incorporating Game Elements (leaderboards) in Learning Managements Systems						
Comparing my performance with the performance of other students in the online course through Leaderboards fueled my interest to compete.	47	43%	40%	13%	4%	0%
Comparing my performance with the performance of other students in the online course through Leaderboards fueled my interest to work hard.	47	43%	49%	4%	4%	0%
Comparing my performance with the performance of other students in the online course through Leaderboards motivated me to succeed.	47	49%	36%	13%	2%	0%
Average	47	45%	42%	10%	4%	0%
Psychological Effects of Incorporating Game Elements (points, badges, leaderboards) in Learning Managements Systems						
Game elements increased my sense of belonging to the online community.	47	43%	30%	15%	13%	0%
Game elements reduced the loneliness feeling I used to experience in online learning.	47	32%	38%	15%	15%	0%
Game elements increased my feeling of connectedness with other students in the class.	47	28%	34%	17%	19%	2%
Using game elements reduces the feeling of boredom I used to feel in traditional online courses.	47	40%	43%	9%	9%	0%
Using game elements reduced the anxiety feeling I used to experience in traditional online courses.	47	28%	40%	19%	11%	2%
Using game elements conveyed to me the notion of risk-free environment where I felt less stressed while studying because of the playful feeling associated with game elements.	47	28%	47%	13%	11%	2%
Using game elements in online learning changed in me the negative perception usually associated with traditional online courses due to increased difficulty and social disconnect.	47	38%	38%	17%	6%	0%
I enjoyed learning in online courses that employ game elements.	47	49%	38%	6%	6%	0%
Average	47	36%	39%	14%	11%	1%
Positive Effects of the Instant Feedback the Game Elements Provide						
The instant feedback helped me to know how well I am doing in the course.	47	62%	32%	6%	0%	0%
The instant feedback fueled my interest to continue.	47	53%	36%	9%	2%	0%
The instant feedback increased my engagement level in the online course.	47	62%	28%	4%	4%	2%
Average	47	59%	32%	6%	2%	1%
Cognitive Effects of Incorporating Game Elements (points, badges, leaderboards) in Learning Managements Systems						
I believe that using game elements in online learning contributed to an increase in my feeling of being competent.	47	47%	45%	2%	6%	0%

I believe that having game elements in online learning may increase my chance of remembering the learned content for a long period.	**47**	**34%**	**36%**	**19%**	**9%**	**2%**
Using game elements in online learning improved my concentration level while studying.	**47**	**49%**	**34%**	**9%**	**6%**	**2%**
Using game elements motivated me to pay more attention to all changes in the course requirements that can add for me more points.	**47**	**57%**	**36%**	**2%**	**2%**	**2%**
Average	**47**	**47%**	**38%**	**8%**	**6%**	**2%**
Formation of Good Learning Habits as a Result of Using Game Elements						
I believe that using game elements in online learning increased my desire to do more than what I was required to do in the course.	**47**	**43%**	**32%**	**15%**	**11%**	**0%**
Using game elements motivated me to invest more effort to understand the content more deeply.	**47**	**34%**	**53%**	**6%**	**6%**	**0%**
I believe that using game elements in online learning increased my desire to redo the required tasks to raise my points.	**47**	**30%**	**26%**	**23%**	**17%**	**4%**
I believe that using game elements in online learning motivated me to complete all course requirements.	**47**	**66%**	**28%**	**2%**	**4%**	**0%**
I was motivated to participate more often in the discussion board to gain more points.	**47**	**66%**	**26%**	**0%**	**4%**	**4%**
I was motivated to interact more often with other students in class.	**47**	**47%**	**21%**	**13%**	**15%**	**4%**
I was more relaxed when completing the required tasks because I know I can redo them in case I make any mistakes.	**47**	**38%**	**38%**	**11%**	**11%**	**2%**
Unlike tasks, I was more cautious about not making mistakes when completing the final test because I know that I have one chance to do well in it.	**47**	**49%**	**32%**	**13%**	**6%**	**0%**
Average	**47**	**47%**	**32%**	**10%**	**9%**	**2%**
Negative Effects of Incorporating Game Elements (points, badges, and leaderboards) in Learning Managements Systems						
Incorporating game elements in online learning created negative feelings between students due to the adverse effects of competition.	**47**	**4%**	**32%**	**19%**	**19%**	**26%**
Incorporating game elements in online learning discouraged the formation of strong relationships between students.	**47**	**4%**	**13%**	**32%**	**19%**	**32%**
Utilizing game elements in online learning lowered my motivation to complete the course.	**47**	**0%**	**4%**	**13%**	**32%**	**51%**
Utilizing game elements in online learning made me feel anxious while working on the course.	**47**	**2%**	**9%**	**15%**	**36%**	**38%**
I was more concerned about collecting points than effectively learning the materials.	**47**	**9%**	**23%**	**21%**	**30%**	**17%**
Average	**47**	**4%**	**16%**	**20%**	**27%**	**33%**

The results of the first construct (the perceived positive effects of incorporating game elements (Leaderboards) in LMS's) showed an 87% total percentage of agreement among

graduate students, 4% total percentage disagreed with the remaining, and 10% having neutral (neither agree nor disagree) perception (Figure 1). The results for the second construct (the perceived psychological effects of incorporating game elements (points, badges, Leaderboards) in LMS's) showed a 74% total percentage of agreement and 12% of disagreement. In this section, 14% of the total percentage had a neutral perception concerning psychological effects (Figure 2). The results of the third construct (the perceived possible effects of the instant feedback the game elements provide) showed a 91% total percentage of agreement and 3% total percentage of disagreement. A small percentage (6%) provided a neutral response (Figure 3).

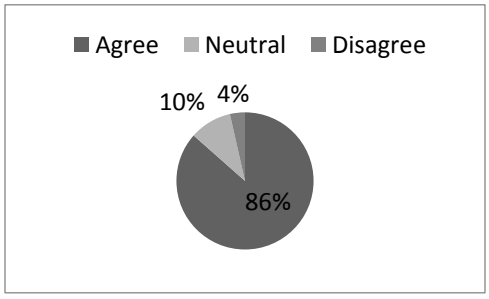

Figure 1. Positive effects of incorporating game elements (Leaderboards) in learning management systems.

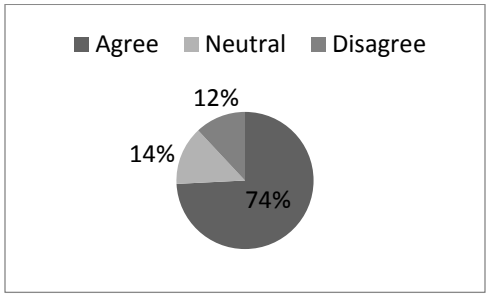

Figure 2. Psychological effects of incorporating game elements (points, badges, Leaderboards) in learning management systems.

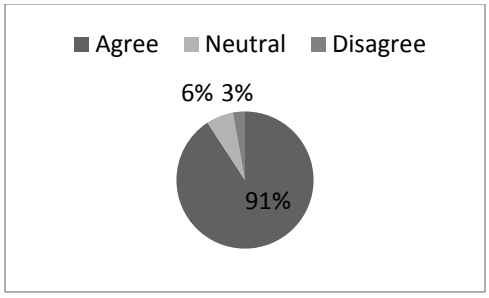

Figure 3. Positive Effects of the Instant Feedback the Game Elements Provide

The results of the fourth construct (the perceived cognitive effects of incorporating game elements (points, badges, Leaderboards) in LMS's) showed an 85% total percentage of agreement and a 7% total percentage of disagreement among graduate students with 8% neutral (Figure 4). The results of the fifth construct (the perceived formation of good learning habits as a result of using game elements) showed a 79% total percentage of agreement, an 11% total percentage of disagreement among graduate students, and a 10% total percentage neutral (Figure 5). The results of the sixth construct (the perceived negative effects of incorporating game elements (points, badges, and Leaderboards) in LMS's) showed

a 60% total percentage of disagreement, a 20% total percentage of agreement, and a 20% neutral response among graduate students (Figure 6).

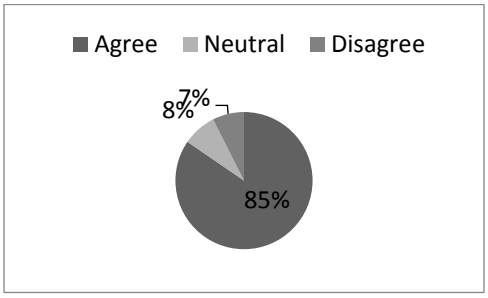

Figure 4. Cognitive effects of incorporating game elements (points, badges, Leaderboards) in learning management systems.

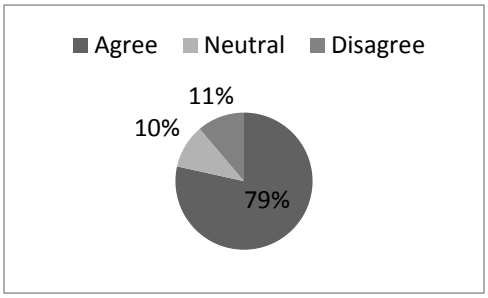

Figure 5. Formation of Good Learning Habits as a Result of Using Game Elements

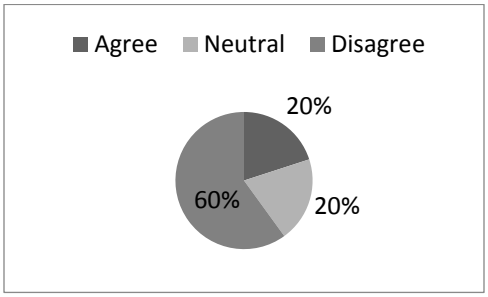

Figure 6. Negative Effects of Incorporating Game Elements (points, badges, and Leaderboards) in Learning Management Systems.

DISCUSSION

This study explored graduate students' perspectives towards the use of gamification techniques in online learning. The results showed a general positive perception toward the utilization of those techniques.

Positive Effects of Incorporating Game Elements (Leaderboards) in LMS

Results from this study illustrate a positive perception of incorporating gamification into online learning. 86% of the graduate students believe that incorporating leaderboards in the learning management systems makes them more competitive, hardworking, and successful. This is supportive of Flores (2015) who found out that some of the advantages of gamification are creating a healthy competition, employee motivation, and realizing outcomes. The reason behind this perspective is that leaderboards allow students to visually compare their performance against each other which may have increased their motivation level, and therefore affected their attitude toward the required course tasks.

Psychological Effects of Incorporating Game Elements (Points, Badges, and Leaderboards) in LMS

Online learning is usually associated with feeling lonely and socially disconnected. In an exploratory factor analysis study done to understand students' barriers to online learning, researchers found that two of the most critical factors to effective online learning are learner motivation and social interactions (Muilenburg & Berge, 2005). One reported challenge that may lower students' motivation in online learning and that might be partly responsible for students' attrition is the emotional aspect of online learning where students feel disconnected and isolated due to the lack of physical interaction between each other and the teacher (Dyrud, 2000, as cited in Bocchi, Eastman & Swift, 2004, Singh & Pan, 2004 as cited in Li & Irby, 2008). To increase students' motivation and persistence in online classes, researchers recommend increasing students' engagement and sense of community in the online learning environment (Bocchi, Eastman, & Swift, 2004).

Psychologically, the finding reveals that gamified online learning increases the students' sense of belonging to the online community, reduce lonely experiences in online learning, increase the interaction, and connection to other course learners. Also, it reduces boredom and anxiety found in traditional online learning. Online learning with game elements reduces stress due to the idea of a risk-free learning environment, reduces negativity associated with traditional online learning, and offers an enjoyable learning platform. The idea behind risk-free learning environment is related to the joyful feeling students' experience as a result of being placed in a game like environment. These findings correspond with Lander & Callan (2011) who realized gamified learning activities as fun, enjoyable, and rewarding. They also agree with Franco-Mariscal et al. (2015) who examined the perception of high school students and reported game elements to be interesting, enjoyable, and favorable in enhancing the student learning outcome. Unfortunately, the results of the current study were not in line with the findings of Dominguez et al. (2013) who revealed a neutral response concerning the enjoyable nature of gamified education activities.

Positive Effects of Instant Feedback Provided by Game Elements

Students' engagement and sense of community in an online environment (Angelino, Williams, & Natvig, 2007) depend on the quality of interactions in the online course. For example, if feedback and support are slow in the online course, students' feeling of isolation, disconnectedness, and frustration will increase (Takiya, Archbold & Berge, 2005 as cited in Tyler-Smith, 2006). The results of this research study revealed that instant feedback provided by the incorporated game elements helps students to determine their progress in the course. The instant feedback also encourages and makes online learning more interesting, hence the desire to continue. This was seen in the high percentage of agreement (87%) that students expressed toward the statement (I enjoyed learning in online course that employ game elements). Also, students expressed that having game elements contributed to an increase in the engagement level of online learning. These results are consistent with previous research such as that of Cheong et al. (2014), which illustrated that gamification offers feedback that is appreciated by students. Moreover, they reported that gamification makes students more engaged (Cheong et al., 2014). Also, the results are consistent with Franco-Mariscal et al. (2015), who found that students develop an interest in their courses when given feedback by their teachers.

Cognitive Effects of Incorporating Game Elements

The results of this study revealed that the incorporation of game elements in online learning promotes cognitive development. Students believed themselves to be more competent, have effective memory storage, information retrieval, have increased concentration during studies, and be more attentive to any new opportunities in the course that give them more

points. The reason behind these findings may be related to the motivating effect of the game elements. Acquiring points for successful accomplishments has two advantages. First, it gives the instant feedback that the learner usually need to in order to feel assured that he/she is on track. Feeling assured imposes a feeling of competence in learners which in turn raises their motivation level. Second, acquiring points motivates learners to pay attention to their actions. The excitement associated with gaining points makes the learner cognizant of those opportunities as well as careful of not losing what has been gained. Moreover, being careful not to lose points increases learners' concentration levels, and therefore increase their chance of remembering what has been learned.

These results are in agreement with the findings of Sanmugam et al. (2014), Morris et al. (2013), and Ke (2009), which suggested that game elements promote intellectual development, especially the attentiveness capacity. Through the complex gaming systems, students can explore their unused brain parts while being fully engaged in the learning process (Lee & Hammer, 2011). Gauthier, Corrin, & Jenkinson (2015) argued that game mechanics enhances the development of problem-solving strategies, hence increasing the predictive abilities of a learner.

Formation of Good Habits by Incorporating Game Elements

Incorporating game elements in online learning were found to create good learning habits. Game elements enhance the desire to complete all course requirements. Also, it motivates the students to put more efforts in understanding the concepts and contents of the course as well as re-evaluating the required tasks for better grades. Franco-Mariscal et al. (2015) realized that game elements stimulate students to participate in all learning activities. Students can understand the main concepts of the total course units (Franco-Mariscal et al., 2015). Moreover, it motivates students to complete the course requirements, participate in group discussions and interact with other students. The findings were consistent with Cheong et al. (2014), who found that students are attracted to gamified learning because it allows them to be interactive. It also agrees with Lister (2015), who after performing a deep literature review found that gamification leads to increased class attendance and participation. Students perceive gamified online learning as more relaxing since making mistakes offer the chance for corrections. Also, as discussed above, game elements increase the student attentiveness to final tests with the understanding that it is offered only once.

The reason behind the formation of those good habits can also be attributed to the motivating aspect of the game elements. Students want to gain more points in order to compete with their friends and gain higher status. The exciting feeling associated with competition make students want to gain more points by being involved in every opportunity that offers them. This can be observed in redoing the activities or participating more often in the discussion board. The great advantage that can come out of this is to help students form strong bonds between them and other students in the online course. Consequently, reduce the lonely feeling the students usually experience in online learning due to decreased physical interactions (Bocchi, Eastman, & Swift, 2004).

Negative Effects of Incorporating Game Elements

In response to the negative effects of incorporating game elements in learning management systems, the results showed that most students did not have a negative feeling of game elements due to the creation of competition. This group of students did not perceive game elements as discouraging regarding creating a strong academic and social relationship. They, also, disagreed with the statement that game elements demotivate the student's urge to complete the course, create anxiety, and leads to poor learning habits. Some students, on the other hand, agreed that game elements discourage socialization, create anxiety, cause poor learning habits, and inhibit the completion of the cause. The findings from the majority of

students conflict with those of Hanus & Fox (2015), who found that leaderboards could exert a negative influence on students' motivation.

Also, they contradict the findings of Charles et al. (2011), who depicted that students are dissatisfied by the competition created by the game elements. The results from the students who had a positive response to the negative effects of incorporating game elements in online learning support the findings of Hanus & Fox (2015) and Charles et al. (2011). Moreover, they are consistent with Haaranen et al. (2014), who realized that students have a negative perception about badges when incorporated in their learning process. Supportively, Lister (2015) argues that game elements can be a distraction from academic goals as well as cause careless learning habits, hence not always a successful strategy in the learning process.

Overall, the study reveals that students regard gamification as an important strategy in enhancing their achievements in online learning. The findings support and reinforce previous research, especially on the positive, cognitive, psychological, and instant feedback effects of gamification. These areas are important in designing the gamified learning systems. However, it is also crucial to understand the negative aspects of game elements to academic. On the other hand, the results have shown that students do not perceive game elements to impact them negatively, which is not in line with previous studies. Gamification introduces play in learning for purposes of enjoyment and, therefore, a deprived gamified approach can lead to forced play, which is demotivating and discouraging (Lister, 2015). Students prefer a gamified learning system that is flexible and easy to navigate, hence the need for appropriate implementation strategies of game elements by course instructors.

LIMITATIONS

Multiple limitations were identified in this study. First, since the concept of gamification is fairly novel, there are few empirical studies on the topic. It is therefore difficult to develop a deep insight of research achievement. Moreover, the examination of perception of student used a small sample size, which limits the generalizability of the study results. The research design being cross-sectional, it only examines students using a gamified learning system at a specific time. It, therefore, makes it difficult to understand the long-term perception and perspective of the use of gamification in online learning. Gamification is composed of several elements, including game mechanics and game dynamics (Urh et al., 2015). Finally, in this study, only game mechanics, which are the objects of the game, are used, leaving out game dynamics, which captures the behavior emerging from playing games.

CONCLUSION

The findings from the study have revealed that students have a positive perception towards using gamification in online learning. Precise and consistent with the findings of previous studies, graduate students are more competitive, hardworking, and successful with gamified learning management systems. These findings suggest that graduate students in this technological era require an effort-demanding, challenging, and sophisticated learning system. Graduate students believe that incorporating game elements in learning enable them to have a sense of belonging, enjoy, feel less lonely, increase connectivity, reduce boredom, reduce anxiety, reduce stress, and increase positivity in the learning process. Gamification, therefore, positively impacts the mental part of the students. These findings depict that graduate students need learning systems with minimal psychological distress. The findings also showed that gamified learning offers instant feedback, which contributes to progress monitoring, building interest in the course, and increasing student learning engagement. Such outcomes reveal that graduate students need an engaging learning system with frequent monitoring.

Gamification increases the level of competence, enhances the recall memory, improves concentration, and attentiveness. As such, it leads to cognitive development and clearly showing that students appreciate a learning system that motivates and improves their brain function. Gamification contributes to the formation of good learning habits, for example, putting efforts to understand beyond the course requirements. It encourages revision, full completion of the course, undertakes discussion, interaction, and through completion of tasks. These findings show that graduate students prefer learning systems that devote them to commitment, social interaction, flexibility, and relaxing aspects of education. The study findings implicate online education instructors to employ strategies that are preferred by the students. It also, influences education system designers to develop gamified learning systems since students have a positive perception towards them. In conclusion, the study identified some limitation, which highlights the need for further investigation on the topic. However, gamification is a highly appreciated and successful strategy for improving the student online learning experience.

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BIODATA and CONTACT ADDRESSES of AUTHORS

Daniah ALABBASI is an Assistant Professor of instructional technology at the College of Education, King Saud University. Dr. Alabbasi gained her Ed.D. in Instructional Technology at December, 2011 from Texas Tech University, Lubbock, Texas. Her academic interest areas are learning and cognition, technology integration, and distance learning. She has conducted several research studies that deal with designing effective learning experiences for preservice and in-service teachers. Also, she has published several papers in the area of cognitive load and multimedia design.

Daniah ALABBASI
Instructional Technology
King Saud University, 11692, Riyadh, Saudi Arabia
Phone: +966 504121235
E-mail: dalabbasi@ksu.edu.sa

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APPENDIX

Survey on Gamification in Online Learning: A Students' Perspectives

Item	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
Positive Effects of Incorporating Game Elements (leaderboards) in Learning Managements Systems					
1. Comparing my performance with the performance of other students in the online course through Leaderboards fueled my interest to compete.	☐	☐	☐	☐	☐
2. Comparing my performance with the performance of other students in the online course through Leaderboards fueled my interest to work hard.	☐	☐	☐	☐	☐
3. Comparing my performance with the performance of other students in the online course through Leaderboards motivated me to succeed.	☐	☐	☐	☐	☐
Psychological Effects of Incorporating Game Elements (points, badges, leaderboards) in Learning Managements Systems					
4. Game elements increased my sense of belonging to the online community.	☐	☐	☐	☐	☐
5. Game elements reduced the loneliness feeling I used to experience in online learning.	☐	☐	☐	☐	☐
6. Game elements increased my feeling of connectedness with other students in the class.	☐	☐	☐	☐	☐
7. Using game elements reduces the feeling of boredom I used to feel in traditional online courses.	☐	☐	☐	☐	☐
8. Using game elements reduced the anxiety feeling I used to experience in traditional online courses.	☐	☐	☐	☐	☐
9. Using game elements conveyed to me the notion of risk-free environment where I felt less stressed while studying because of the playful feeling associated with game elements.	☐	☐	☐	☐	☐
10. Using game elements in online learning changed in me the negative perception usually associated with traditional online courses due to increased difficulty and social disconnect.	☐	☐	☐	☐	☐
11. I enjoyed learning in online courses that employ game elements.	☐	☐	☐	☐	☐
Positive Effects of the Instant Feedback the Game Elements Provide					
12. The instant feedback helped me to know how well I am doing in the course.	☐	☐	☐	☐	☐
13. The instant feedback fueled my interest to continue.	☐	☐	☐	☐	☐
14. The instant feedback increased my engagement level in the online course.	☐	☐	☐	☐	☐
Cognitive Effects of Incorporating Game Elements (points, badges, leaderboards) in Learning Managements Systems					
15. I believe that using game elements in online learning contributed to an increase in my feeling of being competent.	☐	☐	☐	☐	☐
16. I believe that having game elements in online learning may increase my chance of remembering the learned content for a long period.	☐	☐	☐	☐	☐
17. Using game elements in online learning improved my concentration level while studying.	☐	☐	☐	☐	☐
18. Using game elements motivated me to pay more attention to all changes in the course requirements that can add for me more points.	☐	☐	☐	☐	☐
Formation of Good Learning Habits as a Result of Using Game Elements					
19. I believe that using game elements in online learning increased my desire to do more than what I was required to do in the course.	☐	☐	☐	☐	☐

20. Using game elements motivated me to invest more effort to understand the content more deeply.	☐	☐	☐	☐	☐
21. I believe that using game elements in online learning increased my desire to redo the required tasks to raise my points.	☐	☐	☐	☐	☐
22. I believe that using game elements in online learning motivated me to complete all course requirements.	☐	☐	☐	☐	☐
23. I was motivated to participate more often in the discussion board to gain more points.	☐	☐	☐	☐	☐
24. I was motivated to interact more often with other students in class.	☐	☐	☐	☐	☐
25. I was more relaxed when completing the required tasks because I know I can redo them in case I make any mistakes.	☐	☐	☐	☐	☐
26. Unlike tasks, I was more cautious about not making mistakes when completing the final test because I know that I have one chance to do well in it.	☐	☐	☐	☐	☐
Negative Effects of Incorporating Game Elements (points, badges, and leaderboards) in Learning Managements Systems					
27. Incorporating game elements in online learning created negative feelings between students due to the adverse effects of competition.	☐	☐	☐	☐	☐
28. Incorporating game elements in online learning discouraged the formation of strong relationships between students.	☐	☐	☐	☐	☐
29. Utilizing game elements in online learning lowered my motivation to complete the course.	☐	☐	☐	☐	☐
30. Utilizing game elements in online learning made me feel anxious while working on the course.	☐	☐	☐	☐	☐
31. I was more concerned about collecting points than effectively learning the materials.	☐	☐	☐	☐	☐