# Exploring Teachers Perspectives towards Using Gamification Techniques in Online Learning

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## ABSTRACT
Teachers are the disseminators of information and hence important in promoting the success of innovations such as gamified learning management systems. While studies have revealed that students have a positive perception of the use of gamification in online learning (Boeker et al., 2013; Buckley & Doyle, 2014; Nevin et al., 2013; Urh et al., 2015; Woo, 2014), there are few studies conducted from the teachers' perspectives. It is necessary to have research that shows the perception of teachers regarding the incorporation of gamification to enhance knowledge through online platforms with unique features. The purpose of this study was to explore teachers' perspectives toward the use of gamification techniques in online learning. The study used an exploratory research design. It collected data from forty-seven (47) in-service and pre-service teacher, who were involved in a graduate instructional technology program. A three section survey guided by a five-point Likert scale was used to collect information. The average percentage for each survey section was used in the data analysis. The results of the study indicated a positive perception toward the use of gamification tools in online learning among in-service and pre-service teachers together with online course design features. Some teachers felt that gamification affected students negatively. Limitations of the study are outlined, which dictate that further research is required.

**Keywords**: Gamification, online, learning, teacher, perspective.

## INTRODUCTION
Online learning is becoming the conventional approach of teaching students in universities. Technology has changed the education systems, which are nowadays focusing on learning through new technological methods as opposed to traditional methods. Most students in todays' learning circles are the Generation Y (Millennials), and accordingly have accepted online learning (Song, 2010; Al-Adwan, Al-Adwan, & Smedley, 2013). Online learning is offered through the internet either partially or entirely, and studies have supported the idea that millennial learners have fully embraced it at the social and academic level (Greenhow, Walker, & Seongdok, 2009)

The implementation of gamification in the learning process has been documented in several studies. Students have been found to have a positive attitude and perception about gamification in learning (Buckley & Doyle, 2014; Dicheva et al., 2014; Cheong, Filippou, & Cheong, 2014; Franco-Mariscal, Oliva-Martinez, & Gil, 2015; Armier Jr., Shepherd, & Skrabut, 2016). Online learning incorporating gamification has also been found to receive a positive perception from students. Nevin et al. (2013) showed that students had accepted the use of gamification because it helped them in the retention of knowledge. Woo (2014) revealed that game-based learning improves the students' motivation, cognitive abilities, and performance. Considerably, students are major stakeholders of a successful learning process and, therefore, their perception and acceptance of gamification techniques is crucial for effective completion of the course requirements.

Initially, traditional methods of learning were used and compared with gamified online learning. Boeker, Andel, Vach, & Frankenschmidt (2013) found that the latter made students have better intellectual knowledge. Comparatively, gamified learning is effective in motivating students than traditional approaches. Game-based learning enables students to enjoy and have fun while learning (Boeker et al., 2013). According to Laskaris (2014), gamified learning is more visual than oral and students have been found to remember twice what they see than what they read. Therefore, incorporating gamification in verbal learning has an overall better outcome.

Teachers are the disseminators of information and hence important in promoting the success of innovation such as gamified learning management systems. Teachers realize the need for motivating students and engaging them in collaborative learning as well as in conventional teaching settings (Noraddin, 2015). Accordingly, educators have proposed the introduction of game elements in learning in an attempt to enhance motivation, collaboration,

and conventional teaching (Katmada, Mavridis, & Tsiatsos, 2014). According to literature cited in Noraddin (2015), gamified learning help students to better understand the course taught. Collectively, these benefits become the stepping stone of embracing and accepting the use of gamification in education.

The perception of teachers towards gamification is important in the implementation of its techniques in learning. Several studies have been conducted to investigate teachers' attitude and perception of game-based learning. Noraddin (2015) examined the opinion of teachers concerning the use of digital games in learning. Using university teachers in Malaysia, Noraddin (2015) found that teachers have a positive perception towards the use of digital games in learning.

Kopcha et al. (2016) performed a survey to examine the perception of teachers towards gamified teaching methods. Using practicing teachers, who were students at the time of the study, Kopcha et al. (2016) found that the surveyed teachers had a positive experience of gamified learning methods. Brom, Sisler & Slavik (2009) examined the implementation of digital game-based learning, its success and acceptance by teachers and students. Using an augmented learning environment framework, they realized that teachers have fully accepted Europe 2045, a digital learning game-based learning (Brom, Sisler & Slavik, 2009).

In an empirical study, Ajayi (2009) explored asynchronous discussion board (ADB) from the teachers' perspective. ADB is a technological (computer) controlled discussion boards done in the form of a game. Using pre-service teachers, the author realized positive views of ADB as a tool of learning to teach (Ajayi, 2009). Teachers perceive ADB as a tool that offers more learning opportunities (Ajayi, 2009). For instance, teachers think that ADB does not only promote socialization among students, but also diversify their learning experience (Ajayi, 2009). Also, they view ADB as an active storage board because it enables easy retrieval of previous discussions as well as enabling the performance of multiple tasks at the same time (Ajayi, 2009).

Lee and Hammer (2011) found that teachers view gamification as an important tool that enables them to guide and reward students. Moreover, they suggested that gamified learning makes students realize their maximum potentials (Lee & Hammer, 2011). Sandford, Ulicsak, Facer, & Rudd (2006) conducted a one-year project to investigate the attitude of teachers and students on the use of computer games in the learning process. From the teachers' point of view, games have a motivating effect on learning (Sandford et al., 2006). Also, teachers perceive games to increase the involvement, interaction, and engagement of students in the course (Sandford et al., 2006).

Moreover, the use of games was based on the perception that it enhances the cognitive and higher order thinking skills (Sandford et al., 2006). Negatively, the study by Sandford et al. (2006) found that teachers thought of games as an aid in the development of antisocial behavior as well as stereotypical notions of other students or teachers (Sandford et al., 2006). In a study investigating the acceptance of game-based learning in secondary school teachers, Bourgonjon et al. (2013) found mixed feelings and realized the existence of complex beliefs of incorporating game features in learning.

In online learning, designing courses with appropriate features is important. The performance and successful implementation of gamification is somewhat dependent on the online course design. Studies indicate that the student learning outcomes in courses are influenced by online course design features. Jaggars & Xu (2016) recently examined the link between online course design features and students performance. In this attempt, the authors realized that online courses, having an instructor-student interaction, uses modalities to invite students into questions, and have features of instant feedback help students to be committed in courses (Jaggars & Xu, 2016). Noticeably, these features reveal that incorporating game elements in such online course will positively affect the learning process.

Joyner, Fuller, Holzweiss, Henderson, & Young (2014) examine the importance of designing online courses that encourage student-instructor relationship. They found that courses, having the presence of instructors are effective in enhancing the student-teacher interaction and guidance (Joyner et al., 2014). Students feel that this feature enables teachers to frequently notify and clarify them on key components of the course (Joyner et al., 2014). Supportively, Driscoll et al. (2012) found that online courses with teacher-oriented features, i.e., the courses having features guided by instructors and pedagogy, provide effective learning environments. They examined three hundred and sixty eight students through a quasi-experiment. They concluded that online courses designed with features such as instructor interaction have a positive impact on learning (Driscoll et al., 2012). The argument derived from the above findings is that appropriate pedagogy incorporated into online courses increases students' level of enjoyment as well as help to create a smooth relationship with their instructors (Driscoll et al., 2012). As such, the use of game elements in these online courses will probably promote a

successful learning process because they may satisfy a partial need of instant feedback that students long for in online learning.

The difficulty level of any learning content should match the target group for whom the learning materials are created. In gamified online platforms, designing content with gradual difficulty is imperative for the successful implementation of those tools. This is because the use of such tools as incentives for overcoming challenging tasks would make sense to students as well as give them a sense of pride and joy as a result of reaching their goals. Therefore, the design of online courses content shouldn't be too simple; otherwise an attempt to incorporate motivating strategies, such as gamification, will be pointless (Hinterberger, 2009). Moreover, online courses should not be too simple to compromise the quality of teaching and learning and not too difficult that discourages students from learning (Hinterberger, 2009). A study conducted by Dobbs, Waid, & del Carmen (2009) indicated that a small percentage of students who participated in their study perceived online courses to be intellectually thought-provoking and difficult, which made them to learn more than what is taught in classroom courses. Dominguez et al. (2013) argued that courses with any level of difficulty have positive and negative effects on gamified learning. On one hand, it increases the positive emotions and feelings of success upon overcoming difficult tasks (Dominguez et al., 2013). Supportively, Jatnika (2015), examining SPSS as a difficult course task, indicated that difficulties in a course improves the cognitive aspects of students. However, if the task appears to be too difficult, it increases anxiety and frustrations, which adversely leads to demotivation of learners (Dominguez et al., 2013). Vatterott (2010) viewed students to be discouraged by assignments that they cannot complete individually. Difficult assignments that possibly demand external assistance do not make students feel competent, but rather frustrated because of their inability to complete the task (Vatterott, 2010).

**Problem Statement**

According to Thomas and Brown (2011) cited in McGrath and Bayerlein (2013), gamification is in its preliminary stages of implementation in the education systems. Its' incorporation in online learning is a challenging task, which requires the input of all involved individuals, particularly students and teachers. Embracing and accepting the gamified learning systems is crucial for its success. While studies have revealed that students have a positive perception of the use of gamification in online learning (Boeker et al., 2013; Buckley & Doyle, 2014; Nevin et al., 2013; Urh et al., 2015; Woo, 2014), there are few studies from the teachers' perspective. The few identified studies concentrate on classroom learning rather than online learning. Since education systems are transforming technologically, it is necessary to have research that shows the perception of teachers regarding the incorporation of gamification to enhance knowledge through online platforms. As such, it is difficult to anticipate the outcome of incorporating game elements in online learning and consequently cause challenges to recommend it in education. Online instructors and designers need to have knowledge on how teachers view gamification in the process of using it in online learning. The limitation of studies on the topic highlights the need for more research to increase and support existing literature. The purpose of this study was to explore teachers' perspectives toward the use of gamification techniques in online learning.

**METHODOLOGY**

*Research design*

The study used an exploratory research design. Due to the high levels of uncertainty about the teachers' perspective of gamification in online learning, the researcher identified exploratory research as the most suitable and significant design to use (van Wyk, 2012). The reviewed literature has suggested the existence of a little understanding of the subject matter. According to literature cited in Mabuda Potgieter & Alberts (2008), exploratory research is done for the purpose of "new insights, new ideas and enhancing knowledge" (p. 13). The strengths of an exploratory study design is the high level of flexibility and an informal structure, which allows an in-depth exploration of an issue (van Wyk, 2012). It offers the chance to classify problems and identify variables that enable formally structured research (van Wyk, 2012).

*Study participants and data collection strategy*

The study enrolled forty-seven (47) in-service and pre-service teachers who were involved in a graduate instructional technology program. They had an average age of twenty-nine years that ranged between 25-33 years old. The forty-seven participants were assigned to ten different online courses. Each course was taught and managed by a group of 4-5 teachers. The online courses were hosted in a learning management system that supports gamification (TalentLMS). Each group was asked to design the online course based on specific guidelines, and manage the course by monitoring students' progress in assignments and in the discussion board. The guidelines were related to the minimum number of modules and assignments in the course and the difficulty level of the selected units.

Teachers were asked to create at least three modules of gradual difficulty accompanied by gradual difficulty assignments. The time allocated for students to complete the course was four weeks, which implied that the course content fitted that time frame giving the students enough time to go through the materials and complete the assignments, including the discussion task. At the end of the four weeks period, participants were asked to respond independently to the survey. The online courses design guidelines indicated that each course should have the following: 1) the content should be studied in no more than four weeks period and should have learning objectives. As depicted by Pollock (2013), effective online courses should be designed with an end in mind. 2) There should be a minimum of three modules of increased difficulty. Pollock (2013) argued that online courses need to engage students, and therefore requires some level of difficulty. 3) There should be assignments that match learning objectives. Such a process will ensure that the actions of students in the course are geared toward the achievement of course goals (Pollock, 2013). 4) Courses should have a discussion activity and 5) there should be a final assessment.

*Data collection*
The data collection instrument was a survey tool created by the researcher. The survey had three sections, including 1) positive effects of incorporating game elements (points, badges, and leaderboards) in learning management systems (12 items). 2) Positive effects of online course design features in courses that employ game elements (5 items). 3) Negative effects of incorporating game elements (points, badges, and leaderboards) in learning management systems (5 items). These three sections had the items (statements) which the respondents were supposed to indicate their level of agreement. Each item was measured using a five-point Likert scale with a range of strongly agree to strongly disagree. The participating teachers were supposed to tick or cross the level they think was appropriate (see appendix A). Cronbach's alpha was used to measure the scale reliability and the survey was found to be highly reliable (22 items; $\alpha = 0.87$).

*Data analysis*
Responses to the survey were analyzed based on total percentages to each item on every point on the five-point Likert scale. The average percentage was calculated for each survey section. To visualize the perception of teachers, the five levels of agreement were categorized into three groups (agree, neutral, and disagree). The percentages of all responses were summarized in a table as well as individual graphical representations. Pie charts were used to support the results.

**RESULTS**
The results showed a positive perception toward the use of gamification tools in online learning among in-service and pre-service teachers. The table below shows the detailed percentages of participants' responses to each Likert scale point. The three areas of inquiry were 1) the perceived positive effects of incorporating game elements (points, badges, and leaderboards) in learning management systems. 2) The perceived positive effects of online course design features in courses that employ game elements. 3) The perceived possible negative effects of incorporating game elements (points, badges, and leaderboards) in learning management systems. The percentages were averages of all the responses of the 47 teachers.

| Areas | Total | Strongly Agree | Agree | Neutral | Disagree | Strongly Disagree |
|---|---|---|---|---|---|---|
| Positive Effects of Incorporating Game Elements (points, badges, and leaderboards) in Learning Managements Systems | 47 | 43% | 43% | 11% | 3% | 0% |
| Positive Effects of Online Course Design Features in Courses that Employ Game Elements | 47 | 50% | 44% | 4% | 2% | 0% |
| Negative Effects of Incorporating Game Elements (points, badges, and leaderboards) in Learning Managements Systems | 47 | 7% | 14% | 25% | 27% | 26% |

The results of the first construct (the perceived positive effects of incorporating game elements (points, badges, and leaderboards) in learning management systems) showed an 86% total percentage of agreement among in-service and pre-service teachers. 11% had a neutral level of agreement and the smallest (3%) total percentage disagreed with the idea that there are positive effects of incorporating game elements in learning management system (Figure 1). The results for the second construct (the perceived positive effects of online course design features in courses that employ game elements) showed a 94% total percentage of agreement among in-service

and pre-service teachers. 4% of the responses did not either disagree or agree while 2% disagreed with the statements that there exist positive effects of gamified online course design features (Figure 2). The results of the third construct (the perceived possible negative effects of incorporating game elements (points, badges, and leaderboards) in learning management systems) showed a 22% total percentage of agreement, 25% neutral responses, and the highest (53%) total percentage of disagreement (Figure 3).
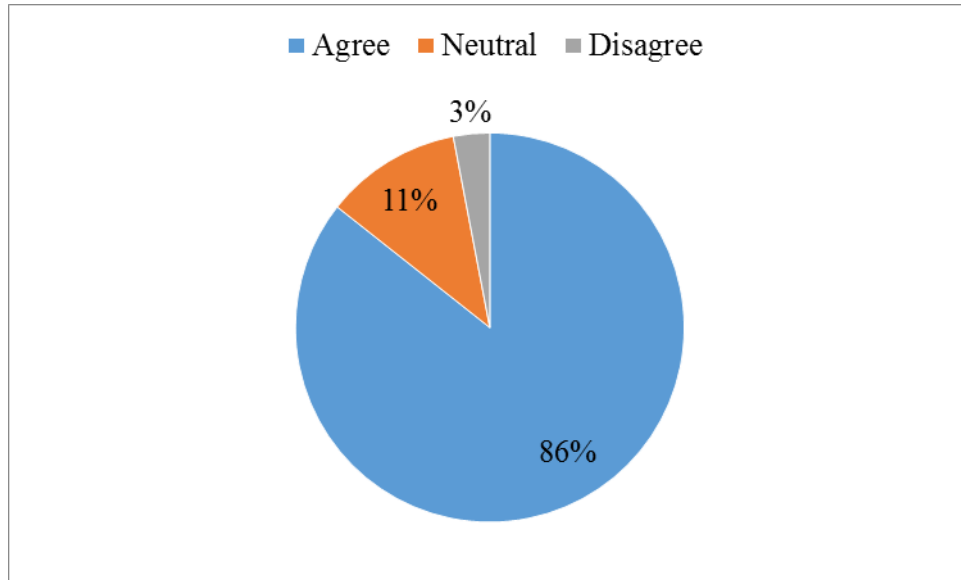


Figure 1. Percentage level of agreement with the positive effects of incorporating game elements (points, badges, and leaderboards) in learning management systems
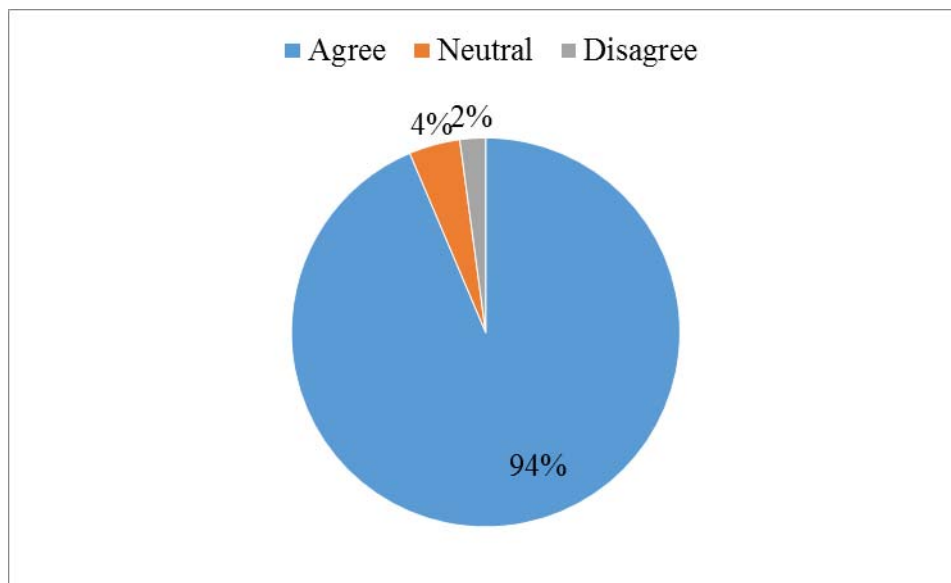


Figure 2. The percentage levels of agreement with positive effects online course design features in courses that employ game elements.
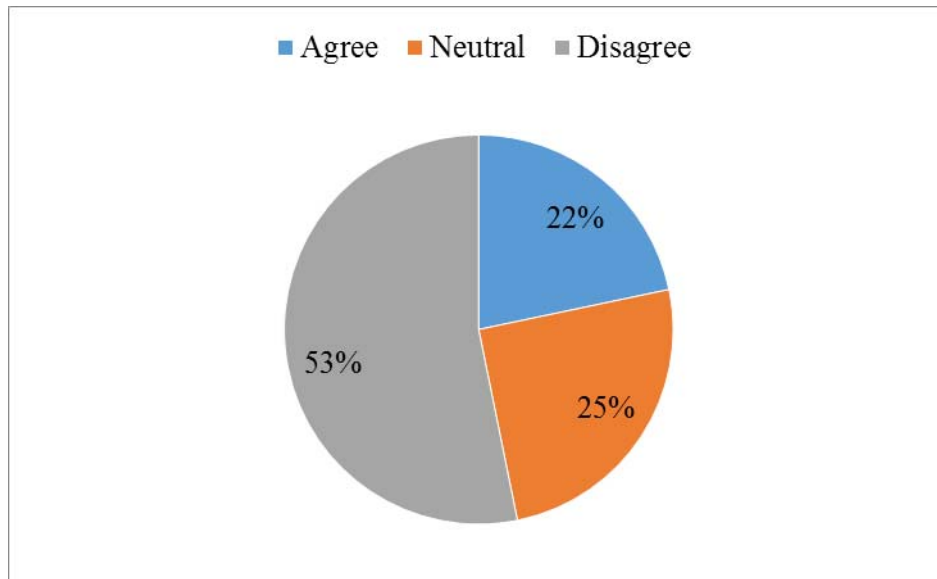
Figure 3. The percentage levels of agreement with negative effects of incorporating game elements (points, badges, and leaderboards) in learning management systems

## DISCUSSION

This study aimed at exploring teachers' perspectives towards using gamification techniques in online learning. The realization of its objectives was based on an exploratory survey that had three sections, including positive effects of incorporating game elements in learning management systems, positive effects of online courses design features in courses using game elements, and negative effects of incorporating game elements in learning management systems. As revealed by the results, there was an overall positive perception toward the use of gamification tools in online learning among in-service and pre-service teachers. Similar to the perception of students (Buckley & Doyle, 2014; Dicheva et al., 2014; Cheong, Filippou, & Cheong, 2014; Armier Jr., Shepherd, & Skrabut, 2016), teachers feel gamification is contributing in a positive way in the learning process of their students. In this section, we discuss the three statements that guided the scope of the survey with a detailed examination of the item variables.

### Positive effects of incorporating game elements (points, badge, and leaderboard) in learning management systems.

The results of the current study have revealed that most of the surveyed teachers have a positive perception toward the incorporation of game elements in learning management systems. Supportive of Noraddin (2015), the study realized that teachers had a positive attitude because they thought that game elements increased their students' motivation. Noraddin (2015) and Sandford et al. (2006) argued that teachers believed that students have an added motivation as a result of digital game-based learning. Teachers agreed that game elements improved the students' attention to various parts of the course. These results are similar to the survey by Noraddin (2015) who asserted that game features in teaching increase the attention and focus of students towards learning.

The results, according to the survey on the positive effects of incorporating game elements, also revealed that teachers perceived game elements to increase students' curiosity of deep exploration of the learning management systems. Also, teachers believe that gamified learning systems increase the students' satisfaction of online learning, give them a sense of autonomy, enable them to enjoy the learning experience, have fun, and participate in discussions. These results are consistent with the findings of Ajayi (2009), who showed that teachers believed the asynchronous discussion board promoted the socialization of students in the learning process. Also, the results agree with Noraddin (2015) that teachers view digital games as contributors of fun and enjoyment in learning.

The incorporation of game elements in learning has the benefit of making students earn points upon the completion of a task. This form of appreciation and reward is a motivator for students to perform beyond the expectation of the teachers and the course requirements. Moreover, game elements are connected with the students' autonomous feeling since they allow for direct involvement in seeing the outcomes of ones' effort and actions. These findings are consistent with Lee and Hammer (2011) that teachers view gamification as an important tool that helps them to guide and reward students. Also, these authors found that gamified learning enables students to realize their maximum potentials (Lee & Hammer, 2011). Consequently, they develop a

sense of being competent and as such students are more cautious not to make mistakes in tests, although they are more relaxed because gamified online learning offers the chance to redo the task and regain the lost points.

**Positive Effects of Online Course Design Features in Courses that Employ Game Elements**
The world and precisely the education systems are transforming technologically, which has encouraged a move towards online learning (Greenhow, Walker, & Seongdok, 2009). The results of the study have revealed that teachers have a positive perception of online course features in courses that employ game elements. Specifically, the positivity showed teachers found online courses that provided challenging tasks with the incorporation of game elements make students' have a feeling of competence, accomplishment, and joy. Moreover, teachers believe that the difficulties of online course tasks make students feel they possess abilities beyond their capacity and gain more than the course requires. According to Dominquez et al. (2013), game elements bring about challenging tasks that test students' level of competence. Dobbs et al. (2009), Dominguez et al. (2013), and Jatnika (2015) realized that difficulties in assignments increase the student competence and accomplishment. The study results also realized that teachers perceived online course design features as promoters of confidence in students in their desire to succeed in online courses. Moreover, teachers perceived instant feedback as a designed feature of online courses effectively motivates students to perform better. Jaggars & Xu (2016) argued that online course features such as instructor-student interaction, modalities, and instant feedback increase the students' commitment in online learning. Also, Joyner et al. (2014) and Driscoll et al. (2012) support these claims by suggesting that online course design features encourages discussion as teachers notify and clarify key components to students about the course.

Gamification encourages students to participate more in the discussion board (Ajayi, 2009; Cheong et al., 2011). This is because when students see that they are being rewarded by the system with more points every time they participate, they will be motivated to participate more often (Lee & Hammer, 2011). Also, when students see that they are getting more rewards, for example badges for completing complex activities, they will also be willing to continue and do more (Dobbs et al., 2009). Discussions offer students the chance to receive immediate feedback from other learners or the instructors, hence helping to gauge the performance of their learning (Bruff et al., 2013). The instant feedback motivates students to do better because it enables them to measure their level of understanding of the course and apply changes wherever necessary (Bruff et al., 2013). Overall, the advantages of discussions and instant feedback made available via gamification as well as online course design features and the gradual increase of the difficulty level when designing online courses may increase students' engagement, motivation, confidence, competence, and accomplishment in online learning.

**Negative Effects of Incorporating Game Elements (points, badges, and leaderboards) in Learning Management Systems**
The results of the study showed that the majority of the teachers disagreed with the negative statements of incorporating game elements in learning management systems. Ideally, some teachers did not view game elements as a factor that can induce negative feelings to students, discourage the formation of strong relationships, or lower their motivation to complete the online courses. Moreover, teachers did not perceive the incorporation of game elements in online learning as either making the students anxious or study for the purpose of gaining points rather than effective understanding of the course. These results are not consistent with several previous studies. For instance, Sandford et al. (2006) found that teachers believe that the use of games in education increases the anti-social behavior in students. Moreover, according to Sandford et al. (2006) teachers view games as platforms for the development of stereotypes about other students and instructors.

On the other hand, the findings of this study indicated that a small but significant proportion of teachers perceived game elements as encouraging negative traits in students. The study found that a quarter of the included teachers agreed that there are negative effects of game elements in learning management systems. These participants believed that students develop negative feelings, build poor relationships with other students, become demotivated, and anxious because of incorporating game elements in online learning. According to this few agreeing participants, the use of game elements make students focus on gaining points rather than effectively understand the course. Considerably, these findings are consistent with Sandford et al. (2006). Examining from a student perspective, Hanus and Fox (2015) supported these results by realizing that leaderboards demotivate students because of the immediate view of the one effort, whether good or bad.

The negativity of incorporating game elements in online learning is brought about by the competitive nature of the platform. Charles et al. (2011) found that game elements create competition, which is dissatisfying to students. In contradiction, studies have realized that game elements encourage discussions among students, hence promoting socialization (Ajayi, 2009; Cheong et al., 2011). Game elements make the students develop poor learning habits (Lister, 2015). The results of the study suggested that some teachers feel that the

incorporation of game elements in online learning makes students learn for the sake of getting points rather that effectively learning the materials. Lister (2015) is supportive of these findings by suggesting that game elements cause an interruption for the overall objective of the learning process.

It is noticed that almost a quarter of the participants had a neutral perception of the negative effects of incorporating game elements in learning management systems. Such participants feel a balanced level of gauging game elements since as reported by Ajayi (2009) and Noraddin (2015) the use of game elements is fun and enjoyable. Through research, it has been realized that gamification has the benefits of "engagement, loyalty, influence, and fun" (Muntean, 2011, 326). According to Kopcha et al. (2006), teachers view gamification as a tool that ease their teaching process as well as the learning of students.  Therefore, while participants might have some negative perceptions as indicated above, the more justifiable positive effects may discourage them from admitting the negativity.

Generally, the study has revealed that teachers perceive gamification as an important tool in online learning. According to them its incorporation in the learning management systems supported by effective online course design is positively impacting the students. Moreover, the majority of the teachers believe that it does not induce negativity in learning. Due to the transition in the education systems, especially the use of technology, the results are a positive outcome for online course designers. Noticeably, some teachers and supportive literature feel that gamified online learning can have a negative impact on the student learning process. Such results indicate a negative attitude and perception of game elements, which can affect the attempt to implement gamified learning systems in education institutions.

**Limitations**
The study has several limitations. Gamification is a new concept and therefore, the first identifiable limitation is the lack of many supporting literature of the results found. Other than the few identified studies (Sandford et al., 2006; Ajayi, 2009; Lee & Hammer, 2011), the other studies are from the student rather than the teachers' perspective. It is hard to conceptualize the achievement of the research regarding either the supports or critics. Therefore, it is challenging to validate the realized findings and recommend the incorporation of game elements in online learning. The other limitation is the use of a small sample size. A sample of forty-seven participants is small in quantitative research because it limits the generalization of the findings.

Another limitation is the examination of teachers from a particular graduate instructional technology program. It would be more valid to examine diverse programs from different institutions. Finally, the study is based on results from a specific point in time, which challenges the attempts to predict the outcome of gamification at its later stages in online learning. The limitations above suggest further investigation on the issue. Precisely, the lack of studies highlights that more research should be conducted to offer the foundation of literature on the subject. Future research should use a larger sample size that is a good representation of teachers for effective generalization. Moreover, a longitudinal approach should be used in future research to obtain the long-term effects of gamification on online learning. Despite the limitations, the study used a valid and reliable data collection tool (survey), which strengthens its results.

**CONCLUSION**
The results of the study have shown that teachers have a positive perception of incorporating gamification into online learning. Specifically, the research has revealed that teachers perceive game elements as improving the motivation of students towards the course goals. It increases the attention and curiosity to navigate multiple elements in the learning management system. Moreover, it increases the students' level of satisfaction and the urge to do more than the course requires. Teachers believe that the incorporation of game elements give students a level of autonomy, giving them the feeling of being in control of their learning process. It is, therefore, clear that gamification is a highly accepted technique that improves the performance of students.

According to teachers, the use of online courses designed with increased difficulty increases the students' level of competence, enables them to have fun and enjoyment while learning, and become more engaged in course discussions. Therefore, the incorporation of game elements in such online course will promote an effective online learning environment. Teachers view gamification as tools that increase carefulness and reducing recklessness while helping the students to be relaxed in their online learning experience. It can be deduced that students do not appreciate pressure, but prefer challenging tasks that are enjoyable and encourage strong relationships. It can be noticed that gamification promotes good learning habits, which assist students' to accomplish the learning goals.

Most of the teachers do not view gamification to impact students negatively. However, some believe that the competitive nature of gamified learning demotivate students. They also view game elements as causing antisocial behavior, increasing anxiety, and leading to poor learning behavior. The negativity of gamification is noticeable, and although a small proportion of the study participants reveal this outcome, it is clear that gamification is not all about positivity in the learning process.

The research has been able to address its purpose. The implications of the study are that online course designers can implement gamification in learning systems with the approval of the teachers. It also motivates researchers to conduct more studies on the topic, especially on the negative effects of game elements in online learning. In conclusion, gamification is important, and education systems should consider incorporating it in online learning. There are limitations in the study, highlighting that more research should be conducted on the subject.

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**Appendix A. Gamification in online Learning Survey: Teachers' Perspectives**

| Item | Strongly Agree | Agree | Neutral | Disagree | Strongly Disagree |
|---|---|---|---|---|---|
| **Positive Effects of Incorporating Game Elements (points, badges, and leaderboards) in Learning Managements Systems** | | | | | |
| 1. Incorporating game elements in online learning increased my students' motivation. | ☐ | ☐ | ☐ | ☐ | ☐ |
| 2. Incorporating game elements in online learning Drew my students' attention to the various parts of the course. | ☐ | ☐ | ☐ | ☐ | ☐ |
| 3. Incorporating game elements in online learning increased my students' curiosity to navigate and explore all the various elements of the LMS. | ☐ | ☐ | ☐ | ☐ | ☐ |
| 4. Incorporating game elements in online learning increased my students' satisfaction about the learning experience in the e-learning course. | ☐ | ☐ | ☐ | ☐ | ☐ |
| 5. Earning points for task completion motivated my students to do more than what they were required to do in the course. | ☐ | ☐ | ☐ | ☐ | ☐ |
| 6. Incorporating game elements in online learning gave my students a sense of autonomy that increases their feeling of being in control over their learning. | ☐ | ☐ | ☐ | ☐ | ☐ |
| 7. Game elements gave my students a sense of autonomy that helped them to directly see the outcome of their actions in the e-learning course. | ☐ | ☐ | ☐ | ☐ | ☐ |
| 8. Passing successfully the predesigned challenges and seeing that directly through the use of game elements increased in my students a feeling of competence. | ☐ | ☐ | ☐ | ☐ | ☐ |
| 9. My students expressed a sense of enjoyment while working on the course. | ☐ | ☐ | ☐ | ☐ | ☐ |
| 10. My students were motivated to participate more often in the discussion board in order to earn more points. | ☐ | ☐ | ☐ | ☐ | ☐ |
| 11. My students were more careful not to make any mistakes in the final test so they don't lose any points. | ☐ | ☐ | ☐ | ☐ | ☐ |
| 12. My students were more relaxed with making mistakes when completing the course tasks because they can redo the tasks and regain the lost points. | ☐ | ☐ | ☐ | ☐ | ☐ |
| **Positive Effects of Online Course Design Features that Employ Game Elements** | | | | | |
| 13. Designing the learning materials of the e-learning course in a way that challenges the students within their competence level and support that with the utilization of game elements gave my students a feeling of **competence.** | ☐ | ☐ | ☐ | ☐ | ☐ |
| 14. Designing the learning materials of the e-learning course in a way that challenges the students within their competence level and support that with the utilization of game elements gave my students a feeling of **accomplishment.** | ☐ | ☐ | ☐ | ☐ | ☐ |
| 15. Designing the learning materials of the e-learning course in a way that challenges the students within their competence level and support that with the utilization of game elements gave my students a feeling of **joy.** | ☐ | ☐ | ☐ | ☐ | ☐ |
| 16. Sharing success criteria with my students in the e-learning course increased their confidence level about succeeding in the course. | ☐ | ☐ | ☐ | ☐ | ☐ |
| 17. The instant feedback made available through game elements motivated my students to do better in the course. | ☐ | ☐ | ☐ | ☐ | ☐ |

| **Negative Effects of Incorporating Game Elements (points, badges, and leaderboards) in Learning Managements Systems** | | | | | |
|---|---|---|---|---|---|
| 18. Incorporating game elements in online learning created negative feelings in my students due to the adverse effects of competition. | ☐ | ☐ | ☐ | ☐ | ☐ |
| 19. Incorporating game elements in online learning discouraged the formation of strong relationships between students. | ☐ | ☐ | ☐ | ☐ | ☐ |
| 20. Utilizing game elements in online learning lowered my students' motivation to complete the course. | ☐ | ☐ | ☐ | ☐ | ☐ |
| 21. Utilizing game elements in online learning made my students anxious. | ☐ | ☐ | ☐ | ☐ | ☐ |
| 22. My students were more concerned about collecting points than effectively learning the materials. | ☐ | ☐ | ☐ | ☐ | ☐ |