

# **Investigation into teachers' reflective practices of applying gamification in a hybrid learning context**

دراسة أثر انعكاس ممارسات وتطبيقات المعلمين للالعاب في سياق التعلم الهجين

by

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**Dissertation submitted in fulfilment  
of the requirements for the degree of  
MASTER OF EDUCATION**

at

**The British University in Dubai**

**June 2021**

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## ABSTRACT

The ubiquitous availability of classroom technologies has invoked a stern migration from the normal lectures in classrooms which is traditional to one which is delivered in an integrated and digitalised environment of learning. These environments for learning which are interactive provides teachers with the opportunity to change their process of teaching by the incorporation of elements of games and these can be seen in this study as a driving force for motivating students towards their goals and for promoting competition, capturing the attention of students, fostering effective teamwork, and also communication. A systematic review of literature is presented in this paper for the systems of game-based learning along with different implementations of gamification and the framework which integrates the design of the elements of games in the context of higher education. Furthermore, some previous research works on the field were gathered from different database for this review. The overall aim and objective was to understand and identify the way systems of learning which are gamified can be applied in higher education along with their usefulness and influence. Findings derived from this research can enable universities of higher education to explore and employ teaching systems and efficient gamified forms of learning which can improve the overall performance, motivation, and engagement of students. Therefore it is highly recommended for gamified learning to be applied in higher education in order to enhance the learning experience of students and to increase their motivation.

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أدى توافر التقنيات المتواجدة بالفصول الدراسية في كل مكان إلى الانتقال بشكل جدي من المحاضرات العادية في الفصول الدراسية والتي تعد تقليدية الان إلى تلك التي يتم تقديمها في بيئة تعليمية متكاملة ورقمية حيث توفر بيئات التعلم التفاعلية الفرصة للمعلمين لتغيير عملية التدريس الخاصة بهم من خلال دمج عناصر من الألعاب ليتم اعتبارها في هذه الدراسة قوة دافعة لتحفيز الطلاب نحو أهدافهم وتعزيز المنافسة والاستحواذ على اهتمامهم، وأيضا تعزيز العمل الجماعي الفعال ، وكذلك التواصل بينهم.

في هذا البحث يتم تقديم مراجعة منهجية للأدب لأنظمة التعلم القائم على الألعاب جنبًا إلى جنب مع وجود تطبيقات مختلفة والإطار الذي يدمج تصميم عناصر الألعاب في سياق التعليم . علاوة على ذلك ، تم جمع بعض الأعمال البحثية السابقة في هذا المجال من قاعدة بيانات مختلفة لهذه المراجعة.

كان الهدف الاساسي والهدف العام هو فهم وتحديد الطريقة التي يمكن بها تطبيق أنظمة التعلم التي يتم دمجها في التعليم جنبًا إلى جنب مع فائدتها وتأثيرها .

يمكن للنتائج المستمدة من هذا البحث أن تمكن جامعات التعليم العالي من استكشاف وتوظيف أنظمة التدريس وأشكال التعلم المحببة الفعالة التي يمكن أن تحسن الأداء العام والتحفيز والمشاركة للطلاب. لذلك يوصى بشدة بتطبيق التعلم الجامع في التعليم من أجل تعزيز تجربة التعلم للطلاب وزيادة الدوافع لديهم.

## **Acknowledgement**

I would like to express my deepest sense of gratitude and appreciation to my dissertation supervisor, Prof. Tendai Charles, for his time and effort that encouraged and helped me accomplish this work. Also I am really very thankful for his invaluable guidance and coaching throughout writing this dissertation. His continuous motivation played the greatest part in my success.

I would also dedicate me dissertation to my lovely Dad may Allah mercy him and my mom who have always encouraged me and paved the ways to achieve my short and long-time goals, especially the academic ones that would promote my skills and abilities in the field of education. They have continuously motivated me to do my master's degree and to fulfill my dreams both academically and professionally.

I would also like to acknowledge and thank all the staff at the British university in Dubai who assisted me.

I am also deeply obliged to thank all teachers, (DMES) staff, Mr. Khalid Abd AL Hameed (MOE) principal of DMES and Ms. Majd Chikh Hussain the executive principal ASCS, who were in charge of the schools where I collected my data.

I can never forget the full support that I have always received from my lovely, supportive, sincere, honest and kind wife, Mirvat Kamil, who has continually motivated me to finalize my dissertation and pursue my dreams.

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# Chapter 1

## Introduction

### 1.1 Introduction

#### 1.1 Background of the study

To date, the increasing number of teachers who already implemented or are planning on implementing a blended teaching mode is massive. Creative methods are sought by teachers to enable their coursework to be more attractive. For example, the utilisation of videos or some other tools to derive the student's attention in the course might be interesting. This procedure of tutoring (additive technology method) has followed a step that is more prominent in modern educational courses that are prominent. Recent studies shows that the evaluation that exists in this particular educational system is not encountered only in higher education but also in the secondary and primary education (Dicheva et al., 2015). Nonetheless, in order to include more engagement and entertainment to these approaches that are technology-based, teachers have adopted techniques of game elements along with other principles to influence, motivate and engage students (De-Marcos *et al.*, 2017). The use of games in courses also helps with the attainment of skills which are essential such as the problem-solving and communication skills (Dicheva et al., 2015).

Games have always been a huge part of the human society for a long time. It have constituted as a sort of amazement and entertainment for some centuries and will continue to stay that way in the unforeseen future (Sailer *et al.*, 2017). The number of users who play video games have increased by more that 20 percent between the year of 2017 to 2020; the statistics explains that more that there will be an additional 1.8 million users by the year 2025 (Statista, 2020) (*Appendix I*). Studies have also shown that over 35% of those who are engaged in these are between the ages of 25 to 34. Although not everyone is an active game

player when they reach adulthood, the elements of game will continue to stimulate the attention of many and evoke entertainment.

The shift seen in the way teaching and tutoring is being conducted is not unimaginable. The learners of nowadays are natives of digitization and well conversant with the utilisation of technology. They grow more impatient to the status-quo and manner of the traditional procedures of teaching. As a result, different styles of learning are accomplished and a new attitude that centres around the process of learning is derived. In other words, the instant and constant access to technology is common among learners. As a result, difficulties might be experienced by students when it comes to focusing throughout the course or a session especially when discipline and concentration is important (Miller, 2014)

Dicheva *et al.*, (2015) and Kiryakova *et al.*, (2018) in one of their studies, successfully demonstrated that a collaborative and interactive learning experience is expected by students and the active participants are the teachers and the students. The latter seems to explain the basic reasons why substantial challenges is encountered by teachers when it comes to adapting to the learning experience, needs, profiles, and process of students. The differences that exists in the style of education along with the need and wants of students creates a learning environment that is disturbed. A lack of interest might be demonstrated by students along with a declined motivation when the lesson is in session. This could lead to cheating, poor performance, and the dropping out from the system of education as a result of failure. However, the engagement and motivation of students can be complex and challenging. New approaches are required which addresses each and every challenges in the learning process (Dicheva *et al.*, 2015 & Kiryakova *et al.*, 2018)

Gamification has portrayed its effectiveness in various aspects and disciplines since the entertainment and engagement are fostered by it (Kim, 2012).

The choice of investigating teachers' practice of the use of gamification in a hybrid learning as topic for thesis arises from personal interest with respect to the combination of digital technologies and learning. As a student, the learning and study styles, methods and tools are of great priority. Beyond the methods of learning, the quest to attain the most suitable and convenient environment for learning which aligns best with the benefits of the digital world is always sought.

## **1.2 Research objectives**

The current research on the use of gamification enabled me to implement and achieve the following objectives:

1. Analyse e-campus platform sustainability and how it can be used to implement the experience of gamified learning.
2. Analyse the experience students have throughout the gamified course.
3. Describing the process of gamification in higher education
4. Exploring the attitude of students along with their perceptions towards gamification

## **1.3 Research question**

One of the major questions addressed in this paper is: "is the learning experience of students enhanced by gamification?"

In order for this question to be effectively answered, we have formulated some sub-questions as follow-up:

- How is the perceived emotional, cognitive and social areas of motivation impacted by gratification?
- What key factors determines the learning experience of students?

- What limitations exists in the education through gamification?
- What is the extent of the effectiveness of gamification?
- How does gamification influence the motivation and engagement of students?
- How is optimization promoted by the elements of the game towards the learning experience of the student?

## **1.4 Research Problems**

A lot of research have been conducted to explain the benefits of gamification along with its potential of influencing and motivating individuals. That notwithstanding, a shortage in the experimental and empirical work opposes the progress (Markopoulos *et al.*, 2015). Studies often focuses on theories of gamification but lacks elements of empirical conclusion.

This research aims at filling up the gap by contributing to the study. I explains and highlights the utilisation of gamification in a hybrid learning context along with the achievements that its learning effect provides. The researcher is responsible for setting up the process of gamification while collaborating with learning advisors of universities and instructors. Therefore, a further control the design variables will ensure the exploration of the dimensions which are practical in a gamified learning approach and experience. Additionally, this research specifically underlines the context of gamification as a blended learning procedure where the on-campus and online activities are fulfilled by students

## **1.5 Structure of the thesis**

To meet the objectives of this study while answering the research questions, this work have been created, formatted and structured in two ways. The first section is the theoretical section while the second section is the practical section. The first part which is the theoretical part is geared towards creating the underpinning theories that surrounds the gamification practice.

The concept of gamification is first defined just as it have been described in the literature. After this, an attempt is made to explore the design framework of the game which have been utilised to model the concept of the game. Finally, existing researches which focuses on gamification are identified in the context of education and learning along with the impact they have on the engagement and motivation of students. In order for us to reduce the practical part, the application of the gamification is examined and their experiences are noted in the literature. The setting of the higher education is highlighted along with the blended environment for learning. Finally, the learning management systems and how they are used with the elements are identified.

The practical section which is the second section, is well dedicated to the experiment which have been conducted with the aim of addressing the research questions which have been described above. The process of gamification is addressed in several steps along with the elements and course used in this thesis. Although, the research method is included in this part and contains the structuring, gathering and the analysing of data. The results are further described statistically since they are both qualitative and quantitative research. This step enables us to refute or validate the motivational and potential power of the overall higher education gamification settings.

Based on these results, the insight on these results have been discussed and conclusion have been drawn on the entire experience of gamification. After this, an act to depict the attitude of the student and the way they react towards gamification is carried out along with the practical issues and limitations of gamification in this study conducted.

## **CHAPTER 2**

### **LITERATURE REVIEW**

#### **2.1 Conceptual framework of gamification**

##### **The concept of gamification**

The topic of gamification receives attention in many areas of research: psychology, design, education, human-computer interaction, game theory, digital information system, medical science, ad business (Mora et al., 2017). Its emergence as a trend has attracted worldwide usage in different areas and aspects. Many gamified solutions have arisen in the market within the past decades (Huotari & Hamari, 2012; Burke, 2014).

Pre-existing concepts are related to gamification such as playful interaction, serious games, and technologies that are game-based (Deterding, Khaled et al., 2011). Nonetheless, the term gamification was used in the year 2002 but never gained traction until the year 2011 (Steele, 2013).

Various definitions have successfully been defined by different literature, although no broadly accepted definition of gamification has been widely accepted (Seaborn & Fels, 2015). The most widely accepted definition was proposed by Deterding, Khalid et al (2011). It states that ‘gamification is the utilization of elements of game design in non-gaming contexts. Gamification also refers to an approach that aims at enhancing the experience of individuals in terms of system or service through the incorporation of experiences into their daily practices or service (Mora et al., 2017).

To oppose the thoughts of many about gamification, the entire process does not entirely mean game making, but using some elements like learning goals, competition, and rewards which ensures that games are engaging and can be incorporated into a wide array of activities and functions (Deterding, Sicart et al., 2011). The major essential gamification element is

that every participant will have feedbacks that are positive as well as compliments after a goal has been accomplished. Deterdig & Sincart et al., (2011) in an experiment elaborates on the use of gamification to overcome boringness and passivity in a course. Gamification can be seen as a term that focuses on the elements of a game instead of the traditional games which are full-fledged and aim at improving the experience of the user along with their non-game engagement. Zichermann & Cunningham (2011) in their study proved it to be a game of mechanics, thinking, and aesthetics in the context of non-game which engages its users to solve critical problems.

### **2.1.1 Gamification in education**

Although the concept of gamification has been used in many contexts, significant attention has been gained in education (Seaborn & Fels, 2015; Hamari et al., 2014). A lot of research has successfully demonstrated how positive, the attitude of teachers can be towards the use of gamification. From the perspective of a teacher, the use of gamification arises in education as a result of its potential which is perceived in enhancing the motivation, interactivity, motivation, attention, and easiness of students (Sanchez & Marti, 2017). Although according to the study conducted by Marti & Sanchez (2017), there were some main barriers when gamification was adopted such as the lack of resources like economic support, training, and time, the lack of interest by the students, and the lack of classroom settings.

It should also be noted that some of the issues faced by instructors include lack of motivation and poor engagement from students (Lee & Hammer, 2011). As a result of this, the application of gamification has been included in education (De-Marcos et al., 2014). There has also been a significant number of research that involves the utilization of elements of the game for tutoring in elementary schools, higher education, and lifelong studies. Gamification in the field of education includes approaches that span learning and teaching respectively (Johnson et al., 2013). This leads us to the definition of gamification as the

utilization of game elements that are student-centered in the context of non-gaming education to improve the experience of the student. Furthermore, gamification in education utilizes the rule system of game-like approach, cultural roles, and the experience of the player to model and shape the overall behavior of the learner (Lee & Hammer, 2011)

The review of literature on gamification, implemented by Zichermann & Linder (2013) suggests an argument that the utilization of gaming technologies enhances the ability to learn new skills up to 40%. The literature also shows that it improves the motivation and performance of the student while enabling them to make more social connections more than the standard and usual course of settings.

Thus, the need to ensure engagement, motivation, and reduction in difficulties arises as a result of gamification (De-Marcos et al., 2014); instead of emphasizing entertainment and leisure. Chapman & Rich (2018) in an argument suggests that the transformation of an assignment into games is not what gamification entails. However, it tries to retrieve the principles of why and how they motivate (from games) while applying them to the interaction layers of non-gaming activities.

### **2.1.2 Gamification on the motivation of students and engagement**

In some cases, learners quit their studies or derive a result that is poor as a result of poor motivation and a low level of engagement with the content being taught (Fan & Wolters, 2014; Yang et al, 2013). The difficulty in grasping the relevance of the theory being taught and how it pertains to their studies is always evident (McQuail, 2010). Knowledge and skills are not directly linked with gamification, the behavior of students is affected along with their motivation and engagement which is necessary for the improvement of their skills and capabilities. The integration of engagement and fun into the education while ensuring

positive feedback has been the aim of gamification. It strives to push students towards the path of being motivated, stimulated to learn, and interested (Muntean, 2011).

Prensky (2001) similarly proposed a solution to the disengagement of learners by combining entertainment and education. An argument was made by Kim (2012) in his study that the productivity and engagement of individuals are ensured in the context of gamification. The ability of players to restart or play again is ensured by gamification and mistakes become recoverable. Failure as a freedom of choice presents learners with the ability to experiment without fear and this has increased the engagement of many students (Lee & Hammer, 2011)

Two tightly related concepts are motivation and engagement and these usually overlap in branches of intrinsic motivation and cognitive engagement (Dörnyei & Ushido, 2011). Even though they can be interchangeable, both concepts are different from each other. Dörnyei & Ottó (1998) finally defined motivation as ‘the cumulative arousal in an individual which drastically changes to direct, initiate, terminate, evaluate and coordinate the processes of motor and cognitive activities which results in the prioritization, selection, and operationalization of the initial wishes’ (Donrei & Otto, 1998). The passion and emotional involvement for accomplishing and participating in learning activities are characterized by engagement (Skinner & Belmont, 1993). Similarly, we can say that motivation is directly connected to psychological elements which promote choice-making and behavior of learners while on the other hand, engagement is id directly linked to the energy that exists in different tasks and actions. This was affirmed by Davis and Mcpartland (2012) when they proved that the successful learning experience is enabled by high task engagement and strong motivation. The conceptualization of engagement as an occurrence in a simultaneous manner for the interest, concentration, and enjoyment encapsulation of the flow of experience was adopted by Hamari et al., (2016). Although, Shernoff (2013) argued that the relation to learning for the three phenomena is valid. Furthermore, other scientists propose that Absorption or

concentration is central to the flow of information and knowledge and can be linked to all meaningful learnings (Csikszentmihalyi, 1990; Montessori, 1967). In that case, enjoyment is a feeling which is positive and is related to creative accomplishment, the demonstration of competencies, and performance in school (Csikszentmihalyi et al., 1993).

Due to the impact of games on the cognitive emotional and social aspects of the lives of the players, it can be classified as a form of motivation (Lee & Hammer, 2011). As a result of that, the gamification in the context of education should focus on these key areas:

- **The social area** is coined from the interaction that exists between players. A wide array of interactions between multiplayer is a mechanism that is embedded in the rule of system. As a result of this mechanism of interaction, players can easily cooperate and assist one another in the attainment of a well-defined objective or goal, while competing against other players to outperform them or for the sake of social interaction of gifting, trading or talking (Dominguez et al., 2013). These interactions that exists enables players to build identities which are in-game while receiving recognition from other players and taking on new roles (Lee & Hoadley, 2007)
- **The cognitive area** is based on the expertise cycle since the game ensures a rule of system with short-term tasks which are multiple and can be attempted repeatedly by a player in a process of try and fail manner until the overall process has been mastered (Gee, 2003).
- **The emotional area** is centered around the failure or success niche. The players expect emotions that are positive on the one side while eluding hurdles and difficulties. These feelings are fostered by games by the use of systems of reward which provides recognition to the achievements of players, awarding them with trophies, points, or other items upon the completion of the task. On the other side, when there is a failure for the player to accomplish their desired aim, failure and

anxiety are expected of them. It should be stressed that this anxiety which is felt is not expected to turn into frustration. The design of the tasks should be in a way that best fit the knowledge and skills of the player's level of knowledge and low penalties on failure should be ensured to enhance the repetition and experimentation of the task (Dominguez et al., 2013)

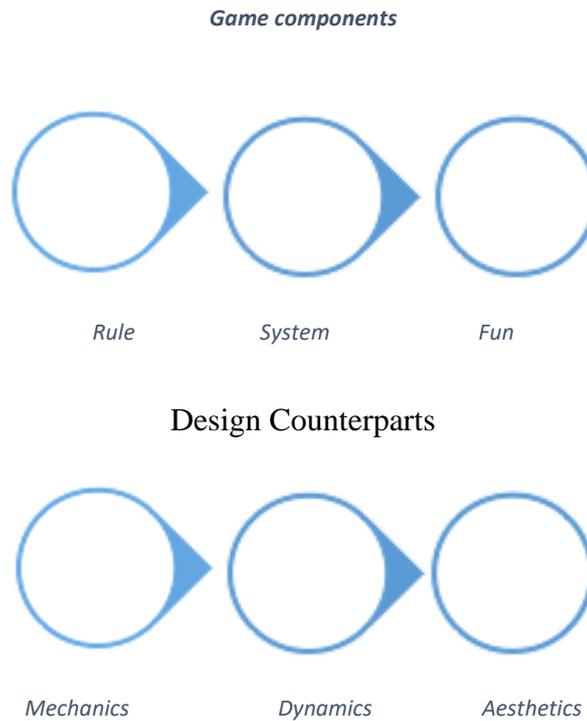
The areas such as cognitive, social, and emotional can be seen as the base and trigger for the motivation of players. However, the difficulty of separating these areas in different situations can be have been recognized by the researcher and this has been as a result of the tight interaction which exists between them since the mechanics of the game ensures more than one is covered at the same time. For example, the received reward of the player upon the successful completion of a task might be important when considering new cycles of increasing the difficulty, expertise, and complexity of the game. In that case, both the cognitive and emotional aspects will be involved in the process

## **2.2 Theoretical frameworks of Game design**

In this section, the relevant design of the game framework will be explored. These models aim to explain the working of games. They also illustrate the way interaction occurs within the components of the game.

### **2.2.1 The framework of Mechanics-Dynamics-Aesthetics (MDA)**

Since games involve the combination of different elements which develop the framework of Mechanics-Dynamics-Aesthetics (MDA), it functions as a model which integrates the constituents of game design and the main principles. The consumption of a player is broken down into three parts such as the fun part, the system part, and the rules.



**Figure 1.** *The framework of MDA (the design counterparts of Game components)*

The framework of MDA was designed by Hunicke et al., (2004) to reinforce and clarify the processes of developers, researchers, and scholars which are iterative. This process aims to make it easy for these distinct parties to model, decompose and study a broad array of gaming artifacts and game designs (Hunicke et al., 2004). As a result of this, the framework of MDA has emerged as the main approach for the design of games. The different frameworks of MDA (Mechanics, Dynamics, and Aesthetics) can be defined in the following ways:

- **Mechanics:** the specific components of the game are defined by this element, at the data representation and algorithm level.
- **Dynamics:** the run-time behavior of this element is indicated as the mechanism acts on the input of players along with every other input over time.

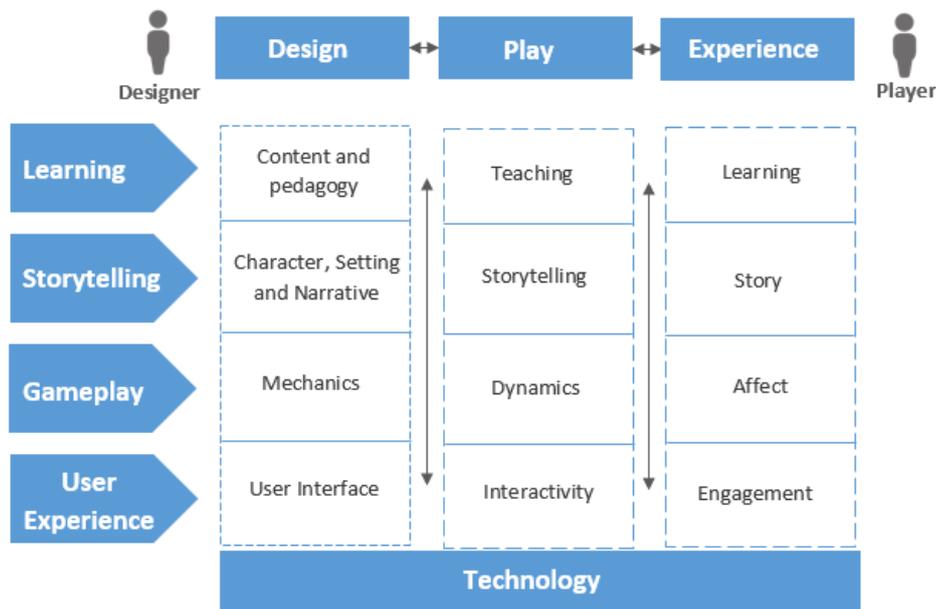
- **Aesthetics:** the intended emotional responses of the individual player is characterized by this element throughout their interaction with the gaming system. A sense of fun is created by aesthetics which is significant to the role and this is attained by dealing with the emotional consciousness of the player who is engaged with the gamified system (Azmi et al., 2015)

The MDA framework tries to merge the gap which exists between the development and design of games, as well as the technical games and criticism by providing an approach for the understanding of games in an integrated way. The usefulness of the MDA approach can be seen in its ability to ensure that perspectives of the game player and the game designer are the same always (Hunicke et al., 2004)

Even though the MDA framework is quite relevant, it has been criticized and challenged for many reasons. The negligence of the model in different aspects of design such as the experience of the player's interaction has been criticized. This is because the mechanics of the game is widely focused on (Polansky, 2015). Similarly, Duarte (2015) and Lantz (2015) also argues in their research that the suitability of the MDA is invalid for all types of games especially for the experience-oriented design or the gamified content

### **2.2.2 The framework of Design, Play, and Experience (DPE)**

When we consider the different notes from studies of Lantz (2004) and Duarte (2015) which centers around the framework of MDA, the model design of the framework has been improved by other researchers. For example, Winn (2008) explains that the purely aesthetic requirement of a game is neglected by the MDA along with those of the player as it focuses on the fun element and the gameplay. Winn (2008) explains that the aspect of storytelling, the influence of technology, and user experience are not included in MDA. The following model below was suggested by Winn (2008) which integrates some new key areas into the framework of Design, Play, and Experience



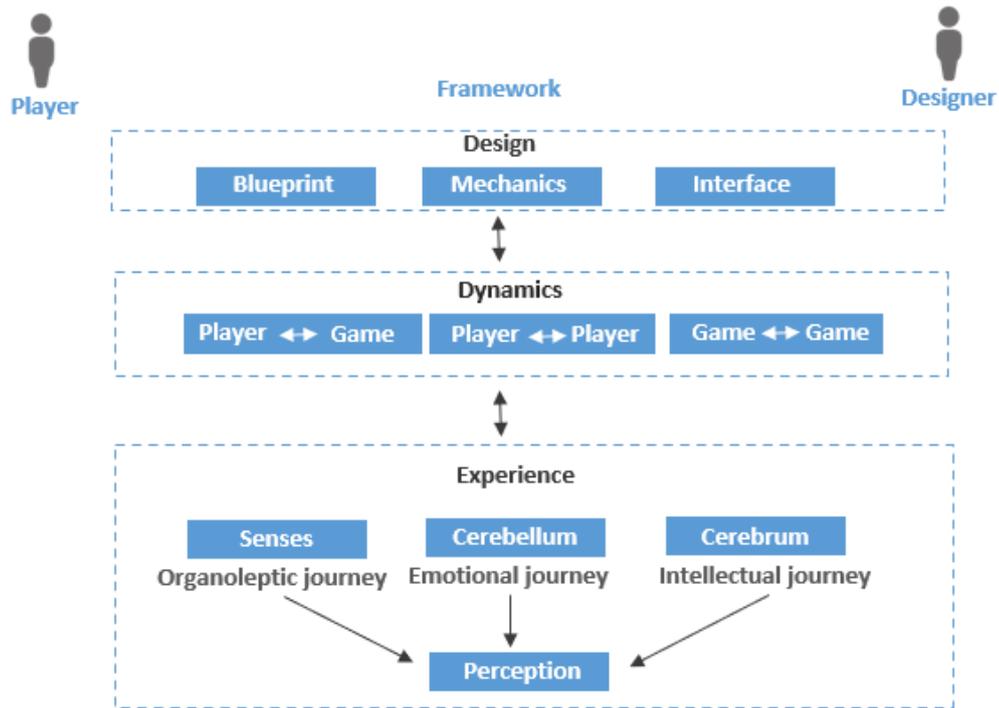
*Figure 2. The DPE framework (Winn., 2008)*

When compared with the framework of MDA, the DPE merges the relationship between the player and the designer but also ensures that the introduction of new aspects such as the user experience and learning are included.

### **2.2.3 The Design, Dynamics, and Experience (DDE) framework**

Apart from Winn (2008), Walk et al., (2017) also tried to improve the framework of MDA. The DDE framework shown below was introduced by them and this is based on the fundamental key areas of Design, Dynamics, and Experience.

The concept of the DDE suggests that every game must be seen and perceived not as a functional unit but as an experience



*Figure 3. The framework of DDE by Walk et al., (2017)*

The ‘mechanics’ as a term which was used by Hunicek et al., (2004) was deemed irrelevant and unnecessary by Walk et al., (2017)

### **2.3 Gamification of learning in practice**

The act of increasing the motivation of students and learners is not an easy task to be accomplished; the practical application and design which is concerned with the experience of gamification require much effort to be implemented. We will explore some of the areas gamification can be applied in the context of education in this chapter

## **2.3.1 Elements of Gamification**

### **Badges**

Digital badges can be defined as ‘an indicator which validates an accomplishment, quality, skill, or interest which can be imbibed in different environments of learning’ (Grant, 2013). There has been different literature on the effects that badges have on the motivation of students along with their engagement to show positive outcomes. Filsecker & Hickey (2014) explains that no damage can be caused by external rewards on the engagement and motivation of students which can promote the overall learning of the student. The researcher also states that the badges’ effectiveness is usually dependent on different factors such as the purpose of the tool, the demographics of the user, and the badges’ relevance for promoting the behavior of different users (Filsecker & Hickey, 2014).

Just as different levels are passed by students, they can accumulate badges that can be categorized based on their achievements which helps to provide a ‘record of online learning achievements’ (Devedžić & Jovanović, 2014). Similarly, Richter et al., (2015) opposed the fact that badges serve as the record for past and present success of an individual’s achievement. In general, the digital badges tend to affect the learning and motivation of students since a community status is provided by them which indicates the levels of achievements (Gibson et al., 2015)

### **Leader boards**

The wide usage of leader boards across different domains and platforms aims at increasing the engagement and interest of users (Jia et al., 2017) they can be categorized as one of the most essential and important key ingredients which are necessary for the design of great games. A sense of fairness has also been introduced by the concept of the leader board in competitions (Reeves & Read, 2009). The ability of users to view their past achievements which can be compared to that of others within the community is ensured by leader boards

and a sense of belonging to competition and a similarly minded group is cultivated by the leader board (O'Donovan, 2012)

Findings gathered by Mekler et al., (2013) indicate that the intrinsic motivation of users was not affected by the leader board but it served as one of the most influential key factors to increase the performance of the learners in a short term. Christy & Fox (2014) also suggests that the implementation of leader board had an impact which was positive on the performance of male students in math quiz when compared to female students

### **Points and levels**

The usage of points in the gamified environment is very common. Points were considered as a key and important entity in the design of games by Zichermann & Cunningham (2011). Emphasis was also laid on the importance of using points in games as an element to improve engagement and learning by Carr-Chillman (2015). Reward encourages some skills of learning if it is utilized by some learners (Nicholson, 2015). Once the imbibed skill is mastered, the provision of rewards must be revoked. Although those individuals who have a strong motivation tend to display attitudes of low engagement with those components of games. Without the usage of a storyline, points can lead to a dwindled motivation and a reduction in the achievement of goals.

### **Progress tracking**

The tracking of progress is very important as an element to be included in the game design (Šćepanović, 2015). In the context of education, this method serves as a form of feedback. The element of the game enables users to be aware of the progress they have covered so far. The researcher suggests that it is very important for game designers to estimate and keep track of the progress at different levels based on the distinct course modules and topics. The tracking of progress is usually documented and shown in form of a graph and one of the most effective ways of utilizing this mechanic in the context of games is by progress bars or by upgrading the characters (Raymer, 2011). Raymer (2011) explains that

a progress bar is an illustration that shows the completed work and the extent to be completed. Cheong et al., (2014) researched a sample size of 51 undergraduate students. Among these students who were from the IT department, the evidence shows some form of motivation as a result of the progress bar and this improved the interest of the students through the current progress' visual display

### **2.3.2 Gamification applications in the higher education context**

This literature review on gamification in the environment of higher education shows different frameworks and approaches which provide different guidelines on the evaluation and designing of experiences related to gamification. In that way, different researchers have provided different views on its implementation challenges and benefits in higher education.

A survey on 70 students of a business school was conducted by Fisher et al., (2014) in an attempt to estimate and compute the attitudes and experience students have with gamification in higher education. According to the findings, most of the students were not new to the concept of gamification and they agreed with the fact that motivation is fostered through gamification. As a result, gamification was perceived as a useful tool that can be used to enhance and improve the learning of students. Authors have identified significant statistics which correlate between the experience of gamification and the attitude towards it which are positive. In conclusion, the research suggests that gamification is a very important strategy for teaching and can be used to recruit students to programs of business education.

Markopoulos et al., (2015) focused their attention and work on the applications of gamification in education and engineering. Their research was conducted on 27 students who were taught the course using the elements of the game in the first module of the course and then switched to the traditional non-gamified method of the module in the next chapter of the course. Although there was no experience of the course by another control group of 37

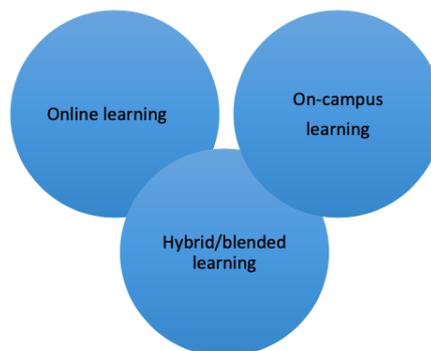
students to gamification, this same assessment method was used on this control group. There has been no improvement from the findings of this study in terms of the improvement on the overall score and grade of the students in the different groups. There was a report on enjoyment and motivation for more hard work from the students exposed to the elements of the game and a deeper engagement was also perceived and reported by these students.

In another research conducted by Strmečki et al., (2015), various elements of the game were used in the undergraduate course through e-learning. A version of the course which was non-gamified utilized an online-based platform along with forums of discussion. A sample size of 50 students were used and these students were split into two groups which were the control group and experimental group. A higher score was shown statistically which was significant to those of the gamified group.

Another experiment was conducted by Barrio et al., (2016) where the perceived learning benefits derived from gamification were evaluated to estimate the non-gamified Student Response System (SRSs) over gamified SRSs. This research presented an overview of the advantages of using SRS in classrooms. A gamified SRS was created through the merging of the elements of the design of competition and reward into SRS. A test by the study aimed at understanding whether or not gamified SRSs can enhance and ensure the improvement of the performance, engagement, motivation, and attention of students. In this study, evidence was seen when there was an increased motivation to attend classes, improve the confidence of students towards learning materials, and reduced the number of disconnections from lectures. Nonetheless, engagement was not completely improved by gamified SRSs for the non-gamified SRSs since the engagement of students in using SRSs was already attained.

### 2.3.3 Blended Learning & Gamification

The combination of a face-to-face and a delivery system that is distant can be considered as a blended learning method (Osguthorpe & Graham, 2003). When an attempt was made to maximize the benefits which are derived from distance learning and face-to-face learning, many researchers explained the effectiveness and importance of this approach. Blended learning was defined as the integration of the classroom's learning experience of face-to-face which is thought to that of the experience from online learning. Several benefits are provided and derived from the blended learning mode as the effectiveness of learning is improved and the access is expanded along with enhanced convenience (Graham, 2009)



*Figure 4. Blended learning*

In terms of the effectiveness derived from environments of blended learning methods with the use of gamification, Scott et al., (2016) suggests that there was a positive effect on students as a result of the gamification.. similarly, Yildirim (2017) explains that blended learning was supported by gamification and has a positive and diverse impact on the attitude of students in terms of lessons conducted. Although, Orcid et al., (2019) performed research on the environment of learning which combined both face-to-face activities and online.

According to their study, the qualitative result suggests that the elements of gamification in the environment of learning play a positive effect on learning.

### **2.3.4 Learning Management Systems (LMSs) & Gamification**

Most institutions of higher educational learning nowadays ensure that one or more management of learning systems for the organization is provided (Fischer et al., 2016). Technology-based environments ensure the evolution of Learning Management Systems (LMSs) so that the interaction of student-teacher can be facilitated. LMSs has been defined by Ellis (2009) as a system that automates the storing, tracking, and administration of education course or particular training.

LMSs encounter some major challenges which are critical in terms of the interactivity of the user and usability of the system since they are usually static and rigid (Azmi & Singj, 2015). In other words, the needs of the users are not met (Siemens, 2004).

Suggestions were postulated by Azmi & Singh (2015) on the improvement of LMSs through the merging of the game-based elements. They recommended the utilization of the mechanics of the game that are familiar and known to the learner or student. These are leader boards to foster motivation, avatars to represent the user, and leveling up to gain experience. The features of gamification according to them enhances engagement and interactivity to the LMSs and offers experiences that are more fulfilling to the users.

## **2.4 Conclusion**

The potential in engaging and motivating students has been highlighted by this literature review. Even though there exist some barriers which can disrupt the widespread adoption of this technique by instructors and teachers, the role of teachers can be promoted by different drivers when introducing the elements of the game into education. Thus, the utilization of leader boards, badges in different levels, and progress for monitoring and

tracking the elements can be classified as some of the effective entities in the context of gamified education. They improve, promote, and drive engagement, foster attention, and enhance learning through achievements.

Additionally, game-framework as a model promotes and supplies a view of comprehensive data on the driving force of what makes games engaging and entertaining. Elements such as pedagogy and learning are introduced to adapt the overall framework into applications of education. Although, a central and key element in the design of games includes experience.

In the context of higher education, research has highlighted the efficiency and effectiveness of gamification. Furthermore, in the settings of blended learning, gamification is seen to have positive attitudes towards the experience of learning. In addition to that, a real opportunity is identified and seen in gamification to improve the interaction of learners and students while utilizing the systems of management. In the next section, investigations will be performed through the empirical study of gamification effects and the influence gamification has on higher education students.

After the theoretical background have been identified for the research, a part of the research is outlined which guided this study. Firstly, the process of gamification was described and then the process of data analysis and collection was emphasised.

## 2.5 Gamifying HR Practices

Some modern practices have adopted the use of gamification in the day-to-day practices of the HR within businesses and corporate organisations. One of these can be seen in the Marriot HR recruitment strategy. The *My Marriot* was developed as a game by the management of the Marriot group which is used to recruit new staff members. A virtual hotel can be executed by the applicants and their experience of how to run a hotel is recorded and documented accordingly. Another example of the gamified learning can be seen in CISCO's learning platform and development. In the development and learning process of CISCO, gamification is usually adopted. In the training on social media, the skillset of their employees is trained using gamification.



Source: *Marriott.com*



Source: *Cisco*

Finally, the on-boarding process of Deloitte has been gamified. Starters and new employees form teams and their privacy compliance and other procedures and ethics are studied.

There exist many challenges when implementing the experience of gamification. Since there is complexity and newness of the methods of gamification always requires context and research, the outcomes of gamification is highly dependent on design process and implementation. As a result of this, the following steps have been adopted to address the issues and challenges faced by the principles of gamification.



Step 1: Defining the objectives of the course

Step 2: Selection of the key context & concepts of the course

Step 3: The designing of the experience of gamification

Step 4: Plan of the course

Step 5: Evaluation of the learning experience of the student

The objectives of the course were first defined and these comprises of the target learnings which the professor wishes to attain. When these goals are met, this means that the purpose of the course in terms of accomplishment have been met. Secondly, the course content was selected because the core element's contents are highlighted by the concepts. Finally, the experience is designed by the use of gamification techniques and elements while taking into consideration, the context of the study. Furthermore, the planning of the course was conducted by the allocation of different activities which were required by students to

successfully pass the course. Finally, the learning experience of each student was evaluated by means of research data. By this procedure, the effectiveness of gamification was measured as well as the perception to students towards gamification.

## **2.6 Defining the Course Objectives**

The definition of the objectives of the course is one of the most important steps which helps to determine the design of the course along with the elements of gamification to be implemented. Since the GRH Modialisation is an interesting and exciting course, the objectives of this course were defined before the research commenced. It also remains applicable to the entire experience of gamification. These objectives were as follows:

- To improve the understanding across the globe
- Understanding the migration in social challenges, globalization, ad economic challenges.
- Identification of the elements of context which has a great impact on the human resource management of the entire workforce within organisations
- Communicating and sharing of ideas with other members if a group

## **2.7 Selecting the course content and key concepts**

Since the objectives of the course have been defined, the main concept which outlines the subject of the course will be assessed. The content of the course emphasises on issues of human resources and the concept of globalisation. This meant that students should be aware of the challenges that might be encountered within business organisations since the students will be future managers.

Numerous concepts have been identified along with the frameworks which explains the learning needs and objectives in the following ways: professional gender equality, sustainable development goals, globalisation, corporate social responsibility, and corporate governance

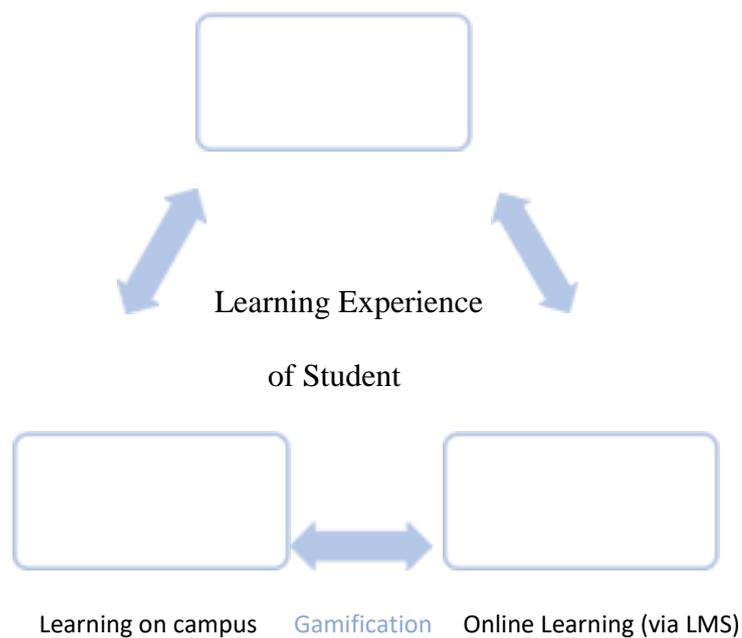
## **2.8 Designing the gamified experience**

The process of designing the experience of gamification requires the purpose to be defined in the first phase since the process of gamification does not involve the introduction of game mechanics which are arbitrary. It is very for every objective which is behind the utilisation of tools of gamification to be defined, even though the aim of using gamification is to improve the learning experience of students. This means that some aspects of experience will be improved by the elements of gamification. After the rationale have been defined, the objectives were defined which were to attain the experience of gamification. These objectives which were defined are as follows:

- To foster the long-term motivation of the student with respect to the course
- To enhance the course's usefulness
- To increase the engagement of the students in activities performed both on-campus and online throughout the entire duration of the course
- To improve the learning objectives of the course
- To stimulate an atmosphere of challenge within the environment and atmosphere of the students

The approach of gamification supplies different techniques and tools which can be used to attain these objectives which are mentioned above and identified by the review of literature. Before any of the techniques which have been used in the current research are selected, the effectiveness and importance of each of the tools were first reflected upon while considering

the listed objectives of gamification on the context of higher education. The choice of the mechanics and rules being chosen for the gamification is very important if a successful experience for gamification must be designed. Nonetheless, the outcomes seen when the elements of gamification are used rests completely on the design implementation of gamification. In our experiment conducted, the mode of blended learning prompted for the utilisation of multiple tools for on campus and online experience of instruction in the University of Liege.



**Figure 6.** *The design of blended learning of the study*

The study conducted was based on the framework of DPE. Since the experience and learning elements are integrated by this framework, it has been considered suitable for the purpose of our conducted experiment. The overall components of learning encompasses the objectives if the course of gamification as seen above. Similarly, the component of storytelling was illustrated using the character in the course. This setting will help to stimulate learners to assist the character in reaching the end of the process by adopting different mechanics in the game such as missions, levels badges, rewards, and flashcards. Finally, the parameter of the user experience which have been described in the framework of the PDE will be determined

by the utilisation of graphics which are *gameful* on the interface of the e-Campus in order to improve and enhance the engagement and interactivity. The version of the GRH Modialisation et Innovation which has been gamified comprises of three levels. The aim of the student player would be to accomplish the mission of the course in order for the next level to be unlocked. Students are rewarded with a definition of course completion.

## 2.9 Planning the course

Different course missions in time were allocated after completing the experience design of gamification. The structuring of the sections of the course have been the objective and this must be done in a harmonious and balanced way.

In order for the fatigue and boredom of the students to be effectively handled, missions are made clear and understandable through their expression in a concise manner. They are represented graphically to assist the individuals engage in the action. The type of mission being played has been designated at the top right hand corner. Whether or not the mission requires a group action or an individual action – this can be found here.

**NIVEAU 1**  
**MISSION 3**

- Discutez des différentes thématiques sur le pays/continent
- Choisissez une thématique directement ou indirectement liée à la GRH
- Postez ci-dessous la thématique choisie par le groupe

Ci-dessous les étapes pour poster le travail

13/02

**NIVEAU 1**  
**MISSION 2**

- Chaque membre du groupe visionne soigneusement la vidéo sur le pays/continent choisi par le groupe
- Chaque membre du groupe met en commentaire de **minimum 10 lignes** ce qu'il a appris et ce qui l'a surpris dans la vidéo

Ci-dessous les instructions pour créer un commentaire (un billet de blog)

11/02

### **2.9.1 Evaluating the student learning experience**

In order for the learning experience of the student to be evaluated, we require various aspects and elements to be measures as well. The perception of the student must first be explored with respect to the use if elements of game. Next thing to do is to assess the student's satisfaction with respect to the experience of learning and finally, the attitude of the teacher will be evaluated towards gamification.

The evaluation process of learning experience will comprise of the appreciation of both the objectives and course of gamification. In that way, the elements if gamification will be assessed to show the effectiveness if this technique. B evaluation of the student, we will be able to detect the constraints and limitations of gamification.

## Chapter 3

### Research Methodology

#### 3.1 Data Collection

#### 3.2 The mixed methods research

In order for the research questions to be addressed so that a comprehensive and complete understanding and knowledge about the overall problem of the research would be derived, the mixed method design was chosen. This type of research combines the elements of both qualitative and quantitative research approaches. Many researchers have accepted the mixed method as the best method of research methodology. Therefore, the data and results which are quantitative helps to ensure the provision of an overview for the entire research problem whereas the data collection method of qualitative tries to explore all the findings and refines the findings derived quantitatively.

The advantages and limitations of the mixed method have been discussed and argued by many researchers. Some argue that the overall procedures of this approach always reflects on the appropriate point of view of the participants and provides some form of methodological flexibility to the researcher. In contrast to this, the mixed method is seen as a procedure that wastes time and more financial resources and work is needed for this type of research. The complexity of evaluations have been increased significantly as a result of different soft skills

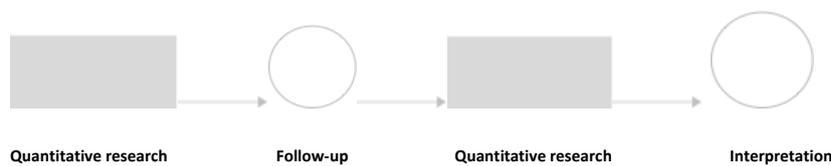
#### Advantages

#### Limitations

<ul style="list-style-type: none"><li>• Compares between qualitative and quantitative data</li><li>• Reflects the point of view of the participants</li><li>• Methodological flexibility is ensured.</li><li>• Rich data which are comprehensive are collected.</li></ul>	<ul style="list-style-type: none"><li>• The complexity of evaluations are increased.</li><li>• The multidisciplinary team of Researchers are relied on</li><li>• Increased resources are needed</li></ul>
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Although these limitations were mentioned, the relevance to the context of our research exists for this research method and approach. Since the sample size or participants used for our study is limited, the complexity of the overall analysis which might lead to biases have been eliminated.

The type of mixed method selected was the sequential design of explanatory. This design of our research comprises of these quantitative data which have been summarised along with an insight which is qualitative. The qualitative insight enabled us to contextualize, interpret, and explain the findings of the quantitative data



### **3.2.1 The quantitative research**

The research of quantitative analysis tries to explain the issues by the collection of numerical data which can be studied and analyzed by the use of mathematical methods of statistics. The approach of quantitative analysis provided the necessary data for this study which enabled us to understand and determine the robustness, and effectiveness if the gamified version of gamification in a course.

Survey was used for data collection in this research. One of the tools utilised was a questionnaire. A questionnaire provided the researcher with the right and efficient platform and channel for the collection of data and for the easy generation of response which can be easily analyzed, tabulated and recorded. Information were gathered from participants which aimed at understanding and predicting the overall behaviour of the entire interest of the population. In this study, the utilised questionnaire was administered online to each and every participant of the survey. 23 questions were asked and these questions focused on the

aspects of evaluation. Different types of questions were asked such as binary questions requiring an answer of yes or no, score-based questions, multiple choice questions, etc. similarly, some open hand questions were asked which allowed respondents to type their response. In order for the individual elements of the game to be evaluated, the items of interest were graphically illustrated. This was then succeeded by a bi-polar attributed matrix



How do you perceive the use of levels and missions in the course ?

Useful	<input type="radio"/>	Useless						
Boring	<input type="radio"/>	Exciting						
Demotivating	<input type="radio"/>	Motivating						
Attractive	<input type="radio"/>	Unattractive						

*Figure 17. A sample question from the questionnaire*

The scale of the questions is shown above with three scales, specifying the level, attributes, and opinion of the respondents. The user experience evaluation which is related to the e-Campus was included with a principal attribute. The utilised software for the conduction of the survey to administer and design the entire questionnaire was Qualtrics and available at ([www.qualtrics.com](http://www.qualtrics.com)). A diverse and robust wide range of functionalities were provided by this tool with intuitive and meaningful features and collection of design. Furthermore, the results derived were generated in real-time with reports which were personalised.

### **3.2.2 The qualitative research**

As stated earlier, the current study's qualitative approach tries to validate the data derived by quantitative means and to define those areas which were unexplored. In contrast, the method of qualitative analysis helped to refine the entire responses from the questionnaire. A focus group was contained in the qualitative research along with 7 participants or correspondents. A focus group usually comprises of individuals between the range of 6 to 12 who discuss among themselves in an informal way regarding some topics which are specific and have been provided by the researcher of the study. This tool of research is synergistic in nature. The interaction of our 7 participants was used to generate insight and data. In order to promote the interaction that should exist between the correspondents, some semi-directed questions were carefully crafted and used. The broad and central themes were defined in the guide of the focus group. Several questions were identified for each there so that the maximum number of insight can be gathered.

### **3.2.3 Validity & Reliability**

Since the validity and reliability are two key factors which ensures quality, rigor, and the trustworthiness of any research, these were ensured in the qualitative research during sampling. The judgemental or expert method of sampling is considered as one which attracts a lot of biases since the opinion of the researcher can affect the study. This research eliminated these biases by increasing my truthfulness of the propositions specified in the social aspect and experience. In other words, these biases were eliminated using triangulation in order to ensure validity and reliability of the research.

### **3.2.4 Participants**

The participants comprised of 10 students, 10 elite faculty members or teachers, and 10 principals from different institutions and one more executive principal of a private school who I made the face to face interview. The number of participants were kept small in order to eliminate biases in the study – the higher the number of participants, the higher the ambiguities and bias that would affect the study. A focus group of 7 participants were also included in the study. The sampling method used to recruit these participants was the expert or judgemental sampling method. This method was used because I needed to gain insight and delve deeply into the target population of the study. Furthermore, there was a need to increase the validity of the population sample to those correspondents who perfectly fit the description and ideal profile of students, teachers, and principals (only those who have experienced or adopted a system of gamified learning were contacted)

### **3.3 Method for data analysis**

After the quantitative data have been gathered, the results are analyzed. Some key important and significant findings were provided by means of descriptive statistics. Furthermore, some meaningful patterns were explored in our quest to refine the analysis of the quantitative results. After the finalisation of the quantitative method of data analysis, the qualitative method of data analysis was initiated. A thematic analysis was accomplished independently after different themes of focus were analyzed. In that way, the output of two methods were generated as the results were discussed. The table below shows the interpretation and comparison of similarities along with dissimilarities gathered from the results of the questionnaire and the focus group. Finally, the results were concluded by the presentation of the most significant insights and findings.

<b>Phase</b>	<b>Procedure</b>	<b>Output</b>
<i>1- Quantitative data collection</i>	Survey research (Questionnaire)	Numeric Data
<i>2- Quantitative data analysis</i>	Use of descriptive statistics	Meaningful measures
<i>3- Connecting quantitative and qualitative data phase</i>	Select themes purposefully to refine quantitative data	Focus group questions guide
<i>4- Qualitative data collection</i>	Focus group	Textual data (transcribed group discussions)
<i>5- Qualitative data analysis</i>	Thematic analysis	Qualitative insights
<i>6- Integration of qualitative and quantitative results</i>	Interpretation and explanation of the qualitative and quantitative results	Discussion of results and future perspectives of research

*Table 2. Data collection and analysis procedures and outputs*

### **3.3.1 Ethical Considerations**

The two most important ethical considerations in this research were informed consent and confidentiality. The aim of the research were fully described and specified to the participants and their consent were derived before starting the interview and survey along with data collection. Secondly, the handling of data was another important ethical and moral value which was considered. The information about the affairs and how the universities of the principals under survey adopts gamification can be used by other rival institutions to gain a competitive advantage if it falls in the wrong hands. The personal information of the correspondents were not collected in order to ensure anonymity.

## Chapter 4

### Findings and Discussion

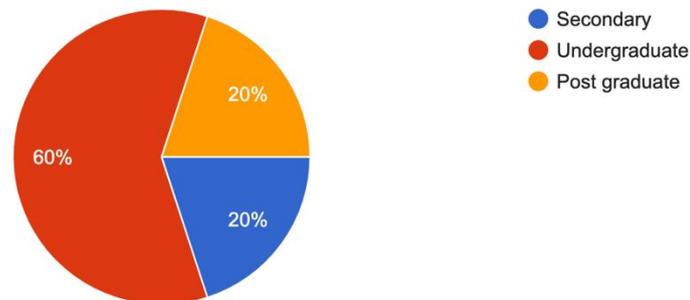
In this section, the qualitative and quantitative research will be analyzed. For the part of the quantitative research, the charts which are essential will be displayed. The entire graphs can be found in the appendices section which can provide better insight (*Appendices A*)

#### 4.1 Quantitative Results

In this survey, 30 correspondents were contacted and responses were generated from students, teachers, and principals. The number of respondents shows more than 80% of the entire population of the study with respect to interest.

Which of the following best describes your educational standard?

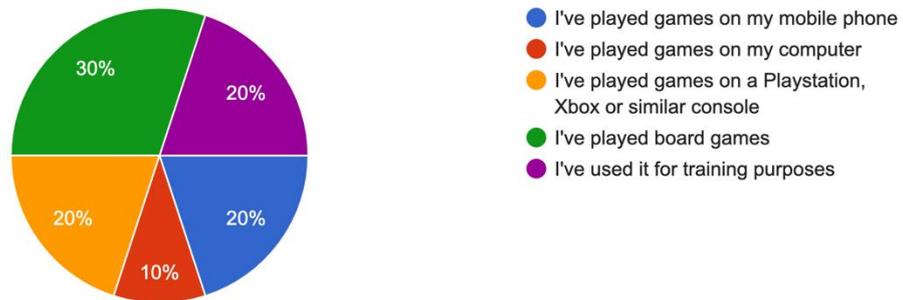
10 responses



The chart above shows that out of 100% of the respondents, 60% were undergraduates and 20% percent represents both secondary school and post graduates respectively.

### What experience have you personally had with gamification?

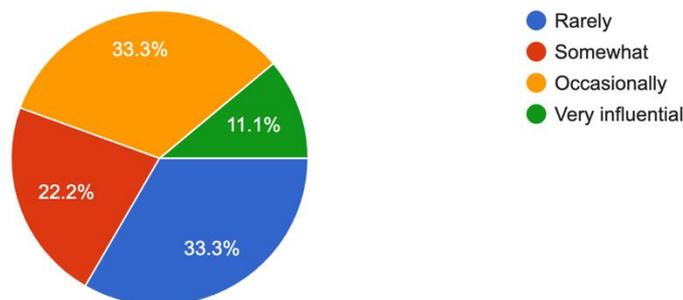
10 responses



Furthermore, we can see that 30% of these students have played board games which was interactive, 20% have played games on their mobile phones, 20% played on their PlayStation or Xbox console, 10% have played on their computer, while 20% have been trained through the use of game.

### How well does gamification influence your commitment in class?

9 responses

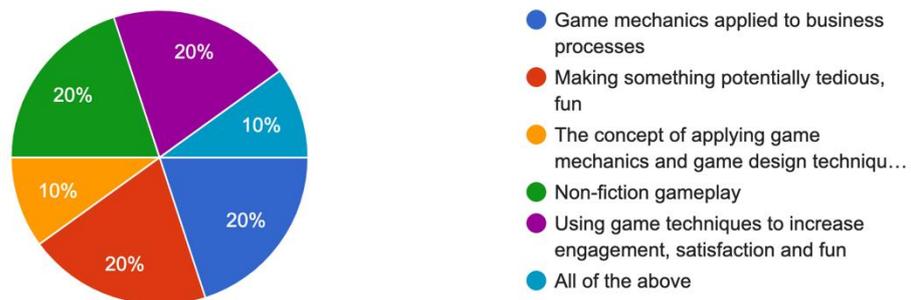


In the stats above, 33.3% of the correspondents reports that their commitment have been influenced by gamification occasionally while another 33.3% have not been influenced. 22.2% are somewhat influenced while 11% have recorded gamification as a very influential factor for their commitment in class (*See Appendices A for more details*)

In a similar survey conducted for teachers the following statistics were derived:

### Gamification is.....

10 responses

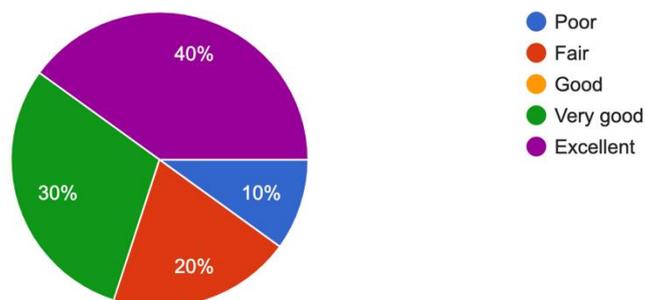


The chart above shows that 20% of the teachers believe gamification to be form of mechanics which is applied to the process of business while another 20% considers it as a tool which can simplify the process of learning. Other responses can be seen on the pie chart displayed above. (See Appendices B for more details)

The survey conducted for the principals of different schools yielded the following results:

### How efficient has the exercise been so far?

10 responses



40% of the principals have recorded an excellent experience from the use of gamification and gamified learning in their respective institutions. 30% rates the experience as very good since its adoption in their schools while another 20% seems to think the experience and exercise have yielded a fair result. 10% of the principals believe it has been a poor experience and exercise since its commencement (See Appendices C for more details)

## 4.1.2 Qualitative Results

The interview conducted for the students, teachers, and principals were as follows:

### Student Survey Questions

1- Which of the following best describes your educational standard?

- A- Secondary
- B- Undergraduate
- C- Post graduate

2- What experience have you personally had with gamification?

- A- I've played games on my mobile phone
- B- I've played games on my computer
- C- I've played games on a Playstation, Xbox or similar console
- D- I've played board games
- E- I've used it for training purposes
- F- All of the above
- G- Other (please specify)

3- How well does gamification influence your commitment in class?

- A- Rarely
- B- Somewhat
- C- Occasionally
- D- Very influential

4- Do you like rewards and badges in game?

- A- No
- B- Yes
- C- I don't care

5- Does your faculty utilise gamification when instructing you?

- A- No
- B- Sometimes
- C- Most often
- D- Always

*(See Appendices D for more details)*

## Teacher's Survey Questions

1- Gamification is . . . .

- A- Game mechanics applied to business processes.
- B- Making something potentially tedious, fun.
- C- The concept of applying game mechanics and game design techniques to engage and motivate people to achieve their goals.
- D- Non-fiction gameplay.
- E- Using game techniques to increase engagement, satisfaction and fun.
- F- All of the above
- G- Other (please specify)

2- Does your organisation currently use any of the following?

- A- Classroom training
- B- On-the-job learning
- C- LMS/Online courses
- D- Mobile learning
- E- Video training
- F- Gamified learning
- G- Social learning
- H- Virtual classrooms
- I- VR
- J- Other (please specify)

3- What percentage of students have you taught using gamification?

- A- < 5%
- B- 6-20%
- C- 21- 40%
- D- 41-60%
- E- >=61%

*(See Appendices D for more details)*

## Principals' Survey Questions

1. How often does your school carry on gamified learning?

- A- Rarely
- B- Sometimes
- C- Always

2. How efficient has the exercise been so far?

- A- Poor
- B- Fair
- C- Good
- D- Very good
- E- Excellent

3. Gamification vs hands-on coaching...

- A- Gamification
- B- Hands-on coaching

*(See Appendices D for more details)*

## **Principal Interview Questions**

*The purpose of the interview was to gain an insight on the role and influence of gamification from the perspective of the principal*

### **Question 1.**

How many teachers do you have in your school ?

**Answer:**

...I have 267 teachers ....

### **Question 2.**

What do you understand by the term **gamification**?

**Answer:**

gamification in the class is about transforming the classroom environment into a game ..

### **Question 3.**

Have you implemented the concept of gamification in your school?

**Answer:**

Some of my teachers did. We did not implement.

The interview session narrated above was conducted for a principal who had over 260 teachers in his school. The results from the interview shows that gamification theory was partially implemented in his school by some of the teachers. (*Please see appendices E for more*)

## **4.2 Discussion of the results**

The objective for the conduction of this study was to gain insight and explore all the elements of games that can foster the motivation of students to improve and enhance their learning experience. The implementation and experiment of the elements of the game in a higher level of education aimed at rejecting or proving this theory. The main findings will be discussed by the combination of both qualitative and quantitative results derived. According to the derived findings, students exhibit a positive mindset and attitude towards the utilization of gamification in their studies. Both the focus group and questionnaire have effectively shown that gamification has different benefits and usefulness in the settings of higher education.

### **4.2.1 Engagement of Students & Motivation through Gamification**

According to the findings, there exist various effects on the motivation and engagement of students as a result of gamification. Most of the students have expressed gamification as an engaging and motivating impact. As a result of this, the highlighted qualitative results were able to approve the results of the questionnaire which specifies the motivational power of the elements of the game (See Appendices D). Although some elements have been perceived to influence and stimulate the students' engagement and motivation, the fairness and newness of this concept in universities and higher education are new. The familiarity with the

elements of the game by students is lacking. As a result of this, these students become impressed with elements proposed in this new environment of learning. As a result, their curiosity is triggered by this factor along with their interest; which further promotes their engagement and motivation.

#### **4.2.2 Gamification on Cognitive, Emotional, and Social aspects of motivation**

As earlier identified in the review of literature, the basis for the motivation of students comprises of their emotional, cognitive, and social areas. We thus, examine the influence and impact that gamification has on these three areas. As seen in our findings, some aspects which are related to the generation of these millennials students are identified. As a result, students are drawn closer to the management system of learning as a result of gamification in higher education. The study also discovered that there has been a great contribution to the way students interacted. Although the impact of gamification on the interaction with faculty members and perception is not far-fetched. Interaction has become more dynamic and improved as a result of the game. Hence, the impact of the social aspect of students' learning by gamification has been positive.

With respect to the emotional aspect, it is evident that gamification has fostered emotions in the learning experience of students. As seen in the results (see appendices A), the mechanics of game and reward enhances and fosters a sense of satisfaction and accomplishment among students. Similarly, we see that gamification became a major source of amusement and entertainment for most of the participants.

With respect to the cognitive area, we see that a majority of the students attained the objectives of the course. These students have claimed that there was no distraction during the course of gamified learning. Although the missions were not intriguing and challenging and

this may have caused some form of demotivation. As a result of this, we cannot say that the cognitive aspect was stimulated by gamification since the results were inconclusive and divergent.

### **4.2.3 Effectiveness of the elements of Game**

Although the elements of the game had a significant effect on the motivation of students, the results, however, display an entire and overall acceptance of the elements of the game in the gamified experience. Most of the mechanics of the game can be seen as amusing, motivating, captivating, and useful. The attitude of students towards the adoption of elements of the game was observed consistently except for the use of the character. The results from the questionnaire show an average that is low in terms of the usefulness of characters when used in courses. There was no report of any attitudes which was negative about the character in the qualitative results. Its effectiveness was approved by all the characters. Its effects of motivation were highlighted along with how it has enabled and ensured the accomplishment of different missions and easily.

Similarly, the utilization of missions and levels was perceived as motivating and useful. Therefore, missions and levels added accomplishment and challenge aspects. Feedback was seen as a form of mission that enabled students to better engage with the main activity of the course.

A milestone was the element of the game that was more acknowledged in the present study. It was evident that the visualization of the milestone was useful because it ensured proper follow-up for the students. Similarly, badges and ranks were seen as rewarding and enriching more than other elements of the game. Therefore, those elements that are rewarding and

related to the content of the course were more effective and efficient than the rewards which were fun-centered.

Nevertheless, the attitude of learners in terms of the use of rewards was unanimous. The score associated with its usefulness is very low when compared to other elements of the game

#### **4.2.4 Roles of Teachers in Gamified Learning and Course**

There seems to be a perceived difference and function of the role of teachers in gamified learning and course. The conventional interactions in the traditional course are seen as a top-down approach and formal. In contrast to this, the derived results in the context of gamified learning are open-minded and informal. In that way, teachers are seen to be closer to their students. The interpersonal characteristics of the teachers enhanced the perception linked to the use of gamification by the students.

Therefore, we see that the role of teachers in the gamified learning and course is well sensed and perceived to be minimized. A lot of the students reported that the communication made with the management system of learning was effective and sufficient. Therefore, the learning environment was informalized by gamification which improved the interaction made with teachers.

#### **4.2.5 Gamification and Blended Learning**

The observed blended learning in this study can be seen as engaging and diversifying. When it is combined with gamification, a complementarity effect was suggested by the findings. Since gamification focuses on the learning management system which is done online, the activities which are face-to-face helped to compensate for the human interaction which ensured the excitement of the learning. However, the merging of both the offline experiences

of gamification and online is not significant. The learning environment which is blended offered interactivity and flexibility in the activities of the course. Thus, we can say that the use of gamification in the blended environment for learning can enhance the entire experience of students since learners and students are not ready to forfeit the interactions of face-to-face learning with their teachers and peers. Therefore, there was a report by students that technology can never drive out or substitute the dimensions of humans in learning.

#### **4.2.6 Perception of Students about the Gamified Experience**

The experience of learning by students so far can be perceived as overly positive. Elements of gamification have added value and improvements to the learning experiences of students. Therefore, the experiences of students have been characterized as engaging, motivating, entertaining, and interactive. But these attitudes have been mentioned in the utilization of gamification in education.

The gamification was perceived by participants as a practice that should be given a higher priority over other courses since the satisfaction of students has been proven as a result of many elements in the experience of gamification.

#### **4.2.7 Limitations of Gamification**

The potential limitations that gamification may have were not addressed in the literature review. Similarly, many research articles and journals have shown and addressed the positive and optimistic aspects of the practical use of gamification. According to our findings and results, some limitations were noted which should be considered and taken seriously when gamification is to be adopted as an approach in higher educational settings. Based on our findings, the use of gamification in the context of higher education might be discriminatory.

When we look at one angle, gamification is not enjoyed and welcomed by all students. When we look at those students who are not familiar and comfortable with the elements and characteristics of the game, gamification becomes a constraint. When we look at another angle, the mechanism of rewards might be seen as unfair by students.

Since rewards are usually automated in the environment of gamification, individual involvement is not considered by them. Therefore gamification is performed in the system of learning management as a gamified experience that is online and more beneficial to individuals who are tech-savvy. Some students may find it very difficult to grasp and understand the concepts of the course.

Furthermore, the choice of the mechanisms and rules of the game substantially depends on the theme and context of the course. The phase of implementation is very time-consuming for the teacher and this time can efficiently be devoted towards the improvement and enhancement of the activities and contents of the course. The results of this study show that the implications of teachers can greatly be minimized by gamification in the process of learning. The outcome of learning might be impacted by this fact as well as the interaction of the student and the teacher.

Finally, one of the most significant issues in the approach of gamification is the lack of a framework that is systematic for the creation of experiences that are gamified (Chevtchenko, 2013). The design of the experience of the game is very far from being objective and the implementation and design greatly depend on the unique and subjective characteristic which includes imagination and creative spirit. Additionally, the capabilities of graphic design are required to improve the engagement of students and to meet their expectations.

## **CHAPTER 5**

### **Conclusion and Recommendations**

This thesis has explored all the potentials that gamification has and how it enhances the experience of learning for students in the higher educational setting. In conclusion, we can clearly say that the elements of the game seen in this experiment have greatly improved the overall experience of students. The attitude of students at different levels with respect to the mechanism of the game has been favorable. The engagement and motivation of students have been fostered by gamification. There was great effectiveness witnessed in the social area of the interaction of students with the LMS, other students, and the teachers. In terms of the emotional aspects, entertainment has been evoked by gamification along with the challenge and interest among students.

#### **5.1 Theoretical Implications**

There has been a usual mention of motivation, fun, and engagement in the literature when gamification was referred to. These elements have been identified by the current research from an empirical perspective. The element of “Fun” which has been mentioned in this literature has been seen as a major source of positive emotions and enjoyment. Just as Deterding Sicart et al., (2011) mentioned, the use of gamification has been adopted with the aim of improving the engagement of individuals. The playful environment which was ensured by the mechanics of the game increased the perceived motivation and engagement of students. As a result of this, this research has been able to explore three key areas which were earlier specified by Lee & Hammer (2011). According to our findings, gamification influences both the social and emotional areas of individuals positively. Although, we lack sufficient items to identify the effect that gamification has on the aspect of cognitive thinking.

Even though much research exists which focuses on the concepts of gamification and its use in the context of higher education, few researchers and authors have been able to specify the application in the environment of blended learning. This research has been able to combine from an empirical standpoint, two aspects. I hope that future researchers are encouraged by this work for them to best explore blended learning and gamification more profoundly and to best identify all the potential synergies that can be derived from the combination of these two.

## **5.2 Practical Implications**

In the world we live in today, the generation has cultivated a dream of an effective and enjoyable learning experience. There exist a real challenge of moving from the traditional methods of teaching which is obsolete to an approach that is innovative to promote and foster learning. This work has encouraged tutors and instructors in the higher level of education to adopt different approaches which aim at optimizing the learning experience of students through the analysis of their needs of motivation and the requirements for user experience. This research work provides a better overview of the process and implementation of an experience of gamification in the context of higher education. It specifies the utilization of different elements of the game which has the motivating and engaging potential on students.

## **5.3 Limitations**

This thesis tried to explore the enhancement made by gamification on the learning experience of students. The attitude of students towards the elements of the game has been explored but there are some limitations in the work which will be analyzed accordingly.

One of the limitations can be seen in the section of the research methodology. In order for the variables to be isolated which are related to gamification, the initial environment of learning

would have been observed and treated as a control group. Similarly, other variables which existed such as the characteristics of the LMS platform or the interpersonal skills of the instructor or teacher may have caused some bias which may have impacted some prejudice and affecting the sharpness and accuracy of the results. If a control group was used, more elements that are comparative would have solidified this research.

Secondly, the research and analysis questions seem to focus directly on the students and the teachers and instructors in the gamified experience were overlooked. The attitude and perception which was reported in this work have exclusively referred to students' experience of learning. I believe that many other key actors should have been included and involved in performing the analysis so that the perspective would be more comprehensive. The implementation and design of the research and interview questions were modified by the Professor. When I consider the perception of the Doctor in the survey, his biased judgment could have affected the results since he may not have been aware of the research objectives and he constantly supervised the project.

The third limitation encountered can be seen in the quantitative study. Some aspects of the experience were not included in the qualitative findings. The required elements were provided by the focus group to draw conclusions that were preliminary. Furthermore, the size of the sample utilized for the quantitative research was limited and not large. The significance of the results which are statistical does not ensure complete findings for the larger population in the context of generalization.

The final limitation can be seen in the implementation and design of gamification. The gamification outcome solely relies on the design process and implementation (Hamari et al., 2014). But in this present research, the entire effort of implementation was ensured by

myself, the research student. It would have been more relevant and applicable if this work utilized the multidisciplinary skills to enhance the entire experience

## **5.5 Reflection on sustainable development**

When we look at the relationship that exists between sustainable development and gamification, the view looks subtle. Nonetheless, each and every notion can be linked to the dimension of sustainability. I try to explore the connection between gamification in education with sustainability. Sustainability involves all principles which involve developing for today without compromising the availability of the resources of tomorrow (United Nations General Assembly, 1987 p.43)

The world today is faced with many challenges which span through sustainability. There is a great need for education that fosters education and pushes it into initiatives that are socially responsible, eco-friendly, green entrepreneurship, and sustainable development. One of the most important and underpinning points is education on such topics. Weybrecht (2010) explains that the principal application of sustainability in businesses as well as in education ensures many benefits. According to the researcher, some of the advantages include the reduced cost, preservation of resources, gaining of profits and new opportunities, and the meeting of the needs of stakeholders while reducing the carbon and energy emissions. Hence these new technologies provide genuine opportunities which close the gap between the principles of sustainability and education. For example, the LMS can be seen as a key commodity for students but it can also ensure the preservation of some resources when assignments are uploaded by students instead of the utilization of methods of printing. As a result, we see that this approach reduces carbon emission, energy, and costs.

Similarly, the discussed concepts in this research paper have some aspects of sustainability. There is a tremendous potential of blended learning when it comes to the attainment of the

needs of the learner since it offers some environmentally engaging education that is collaborative and practical. The face-to-face activities and online activities are greatly optimized by this learning approach. When we consider the face-to-face human interactions, all activities which are secondary are moved to an environment of online activities. When this is done, the cost, energy, and carbon emissions are reduced while a responsible and diversified framework of learning is offered. Thus, for my needs and the needs of every other student in the e-learning environment to be fulfilled, effectiveness and enjoyability should be considered for the learning experiences. As a result, gamification has the capability to engage and motivate students. Just as seen in the results derived for this thesis, the elements of the game enhance the students' experience and ensure enjoyable learning.

## **5.5 Reflection on the COVID-19 health crisis**

The severe pandemic is affecting the world today and this has presented different logistic, economic, and social challenges. At a scale that is unprecedented, the health crisis of the Covid-19 affects all walks of life and affects the normal system of interaction of humans and their lifestyles.

One of the most affected aspects and areas is education since there is a great potential risk of the spread of the virus. Therefore, there has been a closure of schools in more than 188 countries and students amounting to over 1.5 billion have been forced to stay home (Kupferschmidt, 2020). Colleges and universities are faced with a new situation that requires a spirit of innovation and wisdom to best manage this crisis which is global. No doubt, the present situation encompasses insight that is meaningful and lessons can be drawn easily.

Hence, since universities are busy with the designing of emergency schedules and plans so that the academic year can be saved, new methods of disruptive learning are being adopted by students on different online platforms since the solution of distance learning might lack

user-friendliness and interactivity. We can see that more than usual, the content of education on social media has greatly risen substantially, offering a democratized and innovative environment of learning. Thus, the opportunities of e-learning have emerged as an approach that is reliable at these moments of great tumult and crisis and also in normal situations.

This method of distance learning which is online-based disrupts the role of the instructor as well as the process of learning. Teachers are beginning to act as curators (Verpoorten, 2020). During the global lockdown, the motivation and psychology of students may yield negativity, stress, and even depression. The productivity of students in the activities of learning presents issues of serious challenges nowadays. Therefore, the measures to improve the learning experience of students are very necessary and more valuable in the Covid-19 context. Just as this thesis suggests, the potential to evoke emotions that are positive among learners can be ensured by gamified learning. It could be an opportunity that is genuine to empower and enhance the online learning environments of students. The power of motivation which is possessed by gamification will improve the learning experience of students and ensures it becomes more enjoyable, and importantly, more effective.

Finally, the crisis of the Covid-19 provides an opportunity for the actors in the educational sector to implement and develop new technological and pedagogical approaches which are student-centric and considers the long-term motivation and engagement factors.

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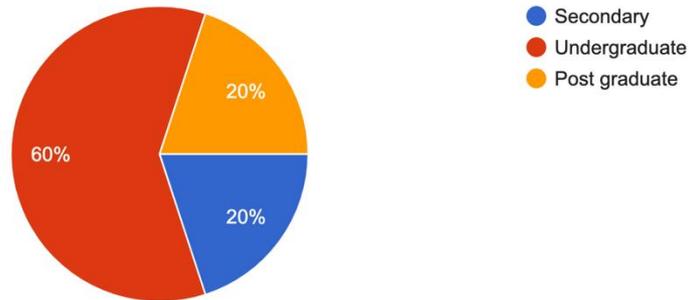
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## APPENDICES

### APPENDICES-A

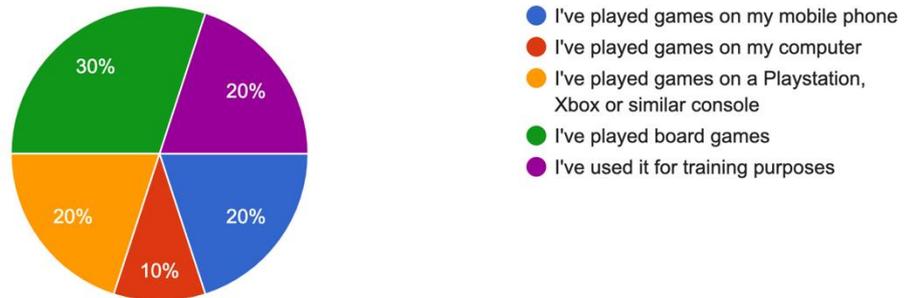
Which of the following best describes your educational standard?

10 responses



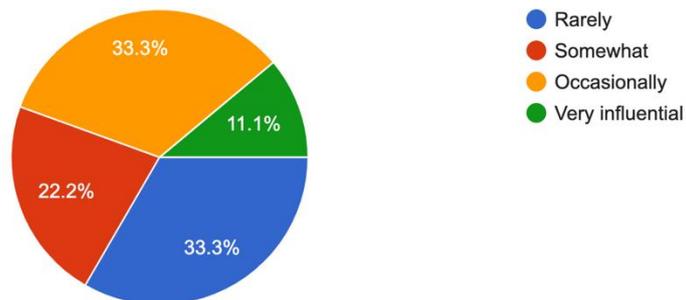
What experience have you personally had with gamification?

10 responses



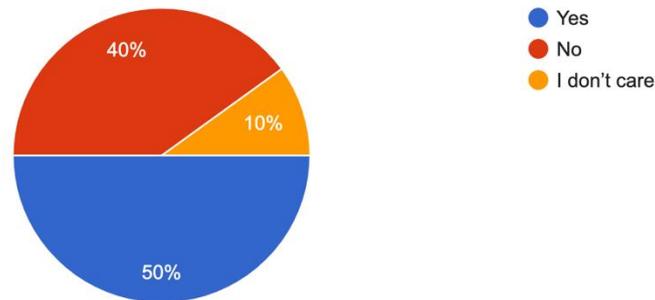
How well does gamification influence your commitment in class?

9 responses



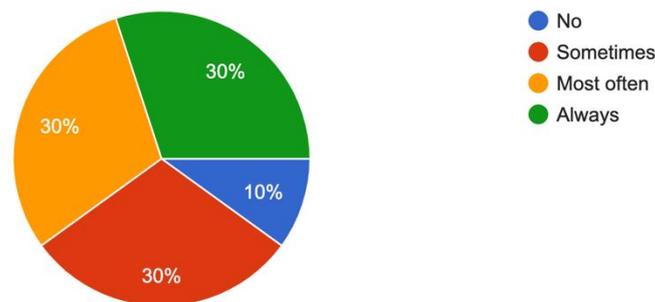
Do you like rewards and badges in game?

10 responses



Does your faculty utilise gamification when instructing you?

10 responses



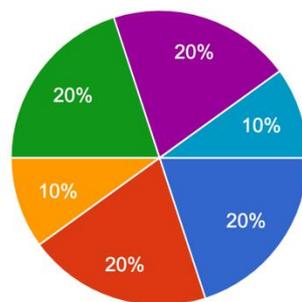
Timestamp	Which of the following best describes your educational standard?	What experience have you personally had with gamification?	How well does gamification influence your commitment in class?	Do you like rewards and badges in game?	Does your faculty utilise gamification when instructing you?
2021/05/08 9:06:42 PM GMT+1	Undergraduate	I've played games on a Playstation, Xbox or similar console	Occasionally	Yes	Sometimes
2021/05/08 9:07:01 PM GMT+1	Secondary	I've played games on my mobile phone	Very influential	No	Sometimes
2021/05/08 9:07:18 PM GMT+1	Undergraduate	I've played board games	Occasionally	No	Most often
2021/05/08 9:07:35 PM GMT+1	Post graduate	I've played board games	Rarely	No	Always
2021/05/08 9:07:51 PM	Secondary	I've played games on my mobile phone	Rarely	I don't care	Always

GMT+1					
2021/05/08 9:08:09 PM GMT+1	Undergraduate	I've played games on my computer	Somewhat	Yes	No
2021/05/08 9:08:22 PM GMT+1	Undergraduate	I've played games on a Playstation, Xbox or similar console	Rarely	Yes	Most often
2021/05/08 9:08:56 PM GMT+1	Post graduate	I've played board games	Somewhat	No	Always
2021/05/08 9:09:20 PM GMT+1	Undergraduate	I've used it for training purposes		Yes	Sometimes
2021/05/08 9:09:35 PM GMT+1	Undergraduate	I've used it for training purposes	Occasionally	Yes	Most often

## APPENDICES-B

Gamification is.....

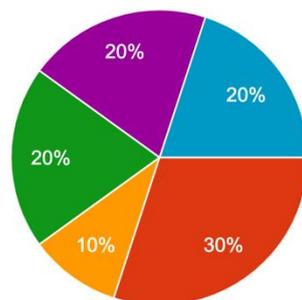
10 responses



- Game mechanics applied to business processes
- Making something potentially tedious, fun
- The concept of applying game mechanics and game design techniques
- Non-fiction gameplay
- Using game techniques to increase engagement, satisfaction and fun
- All of the above

Does your organisation currently use any of the following?

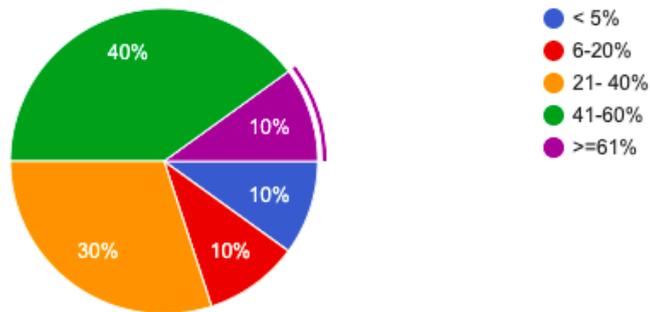
10 responses



- Classroom training
- On-the-job learning
- LMS/Online courses
- Mobile learning
- Video training
- Gamified learning
- Social learning
- Virtual classrooms
- VR

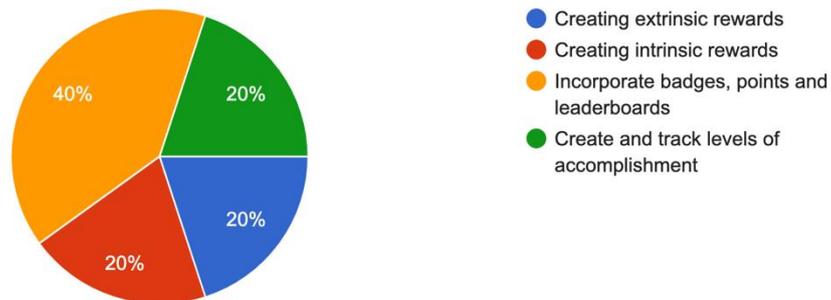
### What percentage of students have you taught using gamification?

10 responses



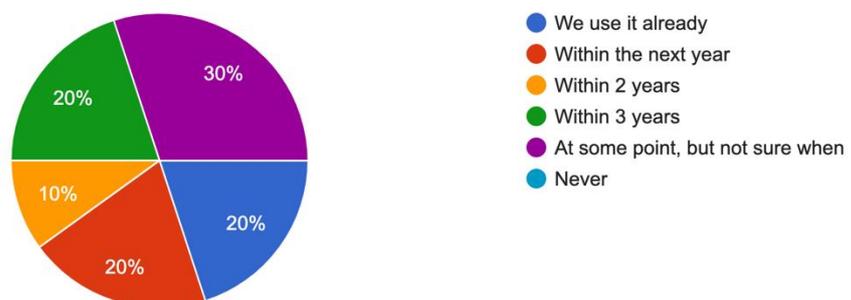
### What is the most effective way of gamifying a process?

10 responses



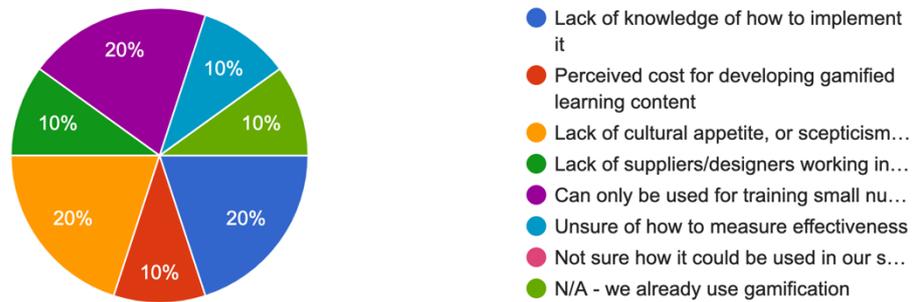
### When do you expect to use gamification for L&D within your educational Institution?

10 responses

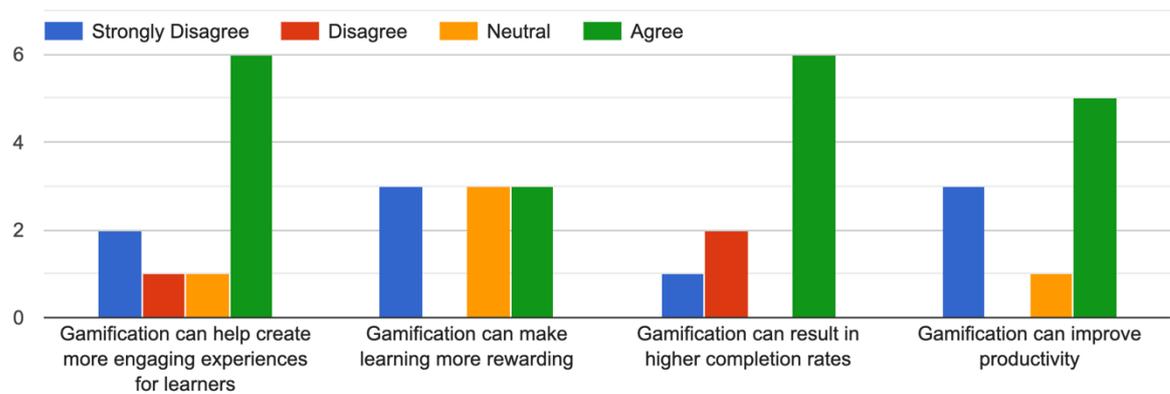


What, if any are the specific barriers to adopting gamification within your organisation?

10 responses

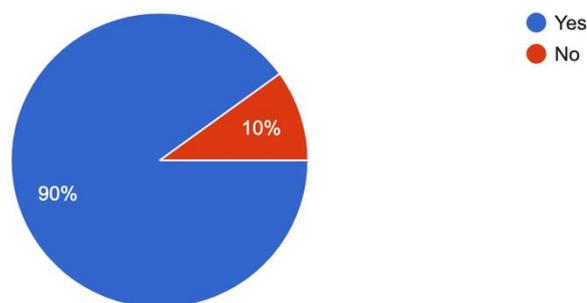


How strongly do you agree with the following statements about gamification?



Can you see gamification being useful for enhancing learning and development?

10 responses



Timestamp	Gamification is...	Does your organisation currently use any of the following?	What percentage of students have you taught using gamification?	What is the most effective way of gamifying a process?	When do you expect to use gamification for L&D within your educational Institution?
2021/05/08 9:27:05 PM GMT+1	Game mechanics applied to business processes	Gamified learning	< 5%	Creating extrinsic rewards	We use it already
2021/05/08 9:27:39 PM GMT+1	Making something potentially tedious, fun	On-the-job learning	6-20%	Creating intrinsic rewards	Within the next year
2021/05/08 9:28:10 PM GMT+1	The concept of applying game mechanics and game design techniques to engage and motivate people to achieve their goals	LMS/Online courses	21- 40%	Incorporate badges, points and leaderboards	Within 2 years
2021/05/08 9:28:39 PM GMT+1	Non-fiction gameplay	Mobile learning	41-60%	Create and track levels of accomplishment	Within 3 years
2021/05/08 9:29:16 PM GMT+1	Using game techniques to increase engagement, satisfaction and fun	Video training	41-60%	Creating extrinsic rewards	At some point, but not sure when
2021/05/08 9:45:42 PM GMT+1	All of the above	On-the-job learning	21- 40%	Incorporate badges, points and leaderboards	Within 3 years
2021/05/08 9:46:13 PM GMT+1	Game mechanics applied to business processes	On-the-job learning	41-60%	Incorporate badges, points and leaderboards	At some point, but not sure when
2021/05/08 9:46:43 PM GMT+1	Making something potentially tedious, fun	Mobile learning	>=61%	Create and track levels of accomplishment	We use it already
2021/05/08 9:47:13 PM GMT+1	Non-fiction gameplay	Video training	21- 40%	Incorporate badges, points and leaderboards	At some point, but not sure when
2021/05/08 9:48:01	Using game techniques to increase engagement,	Gamified learning	41-60%	Creating intrinsic	Within the next year

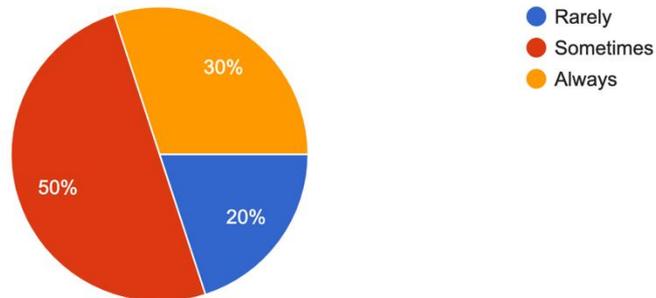
PM GMT+1	satisfaction and fun			rewards	
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How strongly do you agree with the following statements about gamification? [Gamification can help create more engaging experiences for learners]	How strongly do you agree with the following statements about gamification? [Gamification can make learning more rewarding]	How strongly do you agree with the following statements about gamification? [Gamification can result in higher completion rates]	How strongly do you agree with the following statements about gamification? [Gamification can improve productivity]	What, if any are the specific barriers to adopting gamification within your organisation?	Can you see gamification being useful for enhancing learning and development?
Agree				Lack of knowledge of how to implement it	Yes
Agree	Neutral	Agree	Agree	Perceived cost for developing gamified learning content	Yes
Disagree	Agree	Agree	Agree	Lack of cultural appetite, or scepticism from leaders	Yes
Agree	Neutral	Disagree	Strongly Disagree	Lack of suppliers/designers working in this area	Yes
Agree	Strongly Disagree	Strongly Disagree	Neutral	Can only be used for training small numbers of people	Yes
Strongly Disagree	Strongly Disagree	Agree	Agree	Can only be used for training small numbers of people	Yes
Agree	Agree	Agree	Agree	Lack of cultural appetite, or scepticism from leaders	Yes
Neutral	Neutral	Disagree	Agree	Lack of knowledge of how to implement it	Yes
Strongly Disagree	Agree	Agree	Strongly Disagree	N/A - we already use gamification	No
Agree	Strongly Disagree	Agree	Strongly Disagree	Unsure of how to measure effectiveness	Yes

## APPENDICES-C

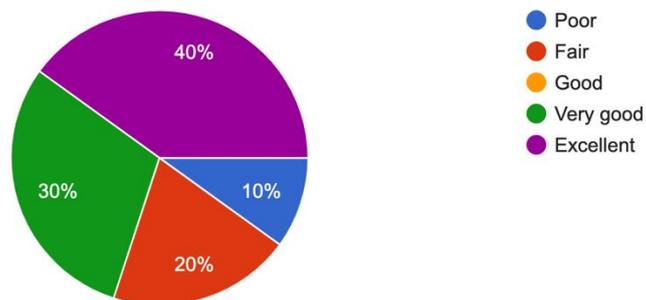
How often does your school carry on gamified learning?

10 responses



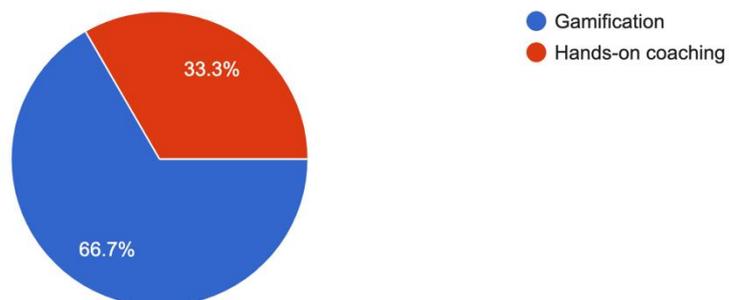
How efficient has the exercise been so far?

10 responses



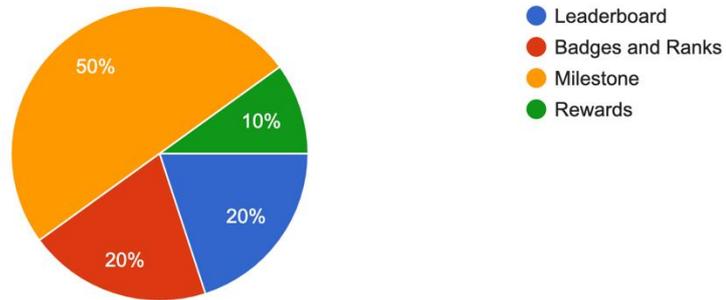
Gamification vs hands-on coaching

9 responses



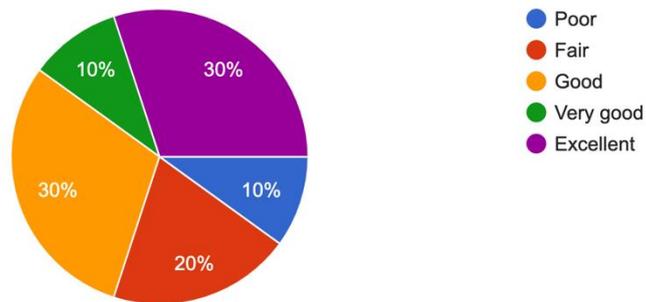
What criteria does your school consider during gamification?

10 responses



Rate the experience of students in your institution so far

10 responses



Timestamp	How often does your school carry on gamified learning?	How efficient has the exercise been so far?	Gamification vs hands-on coaching	What criteria does your school consider during gamification ?	Rate the experience of students in your institution so far
2021/05/08 9:10:15 PM GMT+1	Sometimes	Very good	Gamification	Milestone	Very good
2021/05/08 9:10:56 PM GMT+1	Sometimes	Very good		Milestone	Good
2021/05/08 9:11:16 PM GMT+1	Rarely	Excellent	Hands-on coaching	Badges and Ranks	Good
2021/05/08 9:11:28 PM GMT+1	Sometimes	Fair	Gamification	Milestone	Fair
2021/05/08 9:11:44 PM GMT+1	Always	Excellent	Gamification	Leaderboard	Excellent
2021/05/08 9:12:04 PM GMT+1	Always	Excellent	Gamification	Badges and Ranks	Excellent
2021/05/08 9:12:21 PM GMT+1	Always	Excellent	Gamification	Milestone	Excellent
2021/05/08 9:12:42 PM GMT+1	Sometimes	Poor	Hands-on coaching	Leaderboard	Poor
2021/05/08 9:12:58 PM GMT+1	Rarely	Fair	Hands-on coaching	Rewards	Fair
2021/05/08 9:13:19 PM GMT+1	Sometimes	Very good	Gamification	Milestone	Good

## APPENDICES-D

### Student Survey Questions

1- Which of the following best describes your educational standard?

- A- Secondary
- B- Undergraduate
- C- Post graduate

2- What experience have you personally had with gamification?

- A- I've played games on my mobile phone
- B- I've played games on my computer
- C- I've played games on a Playstation, Xbox or similar console
- D- I've played board games
- E- I've used it for training purposes
- F- All of the above

G- Other (please specify)

3- How well does gamification influence your commitment in class?

- A- Rarely
- B- Somewhat
- C- Occasionally
- D- Very influential

4- Do you like rewards and badges in game?

- A- No
- B- Yes
- C- I don't care

5- Does your faculty utilise gamification when instructing you?

- A- No
- B- Sometimes
- C- Most often
- D- Always

### **Teacher's Survey Questions**

1- Gamification is . . . .

- A- Game mechanics applied to business processes.
- B- Making something potentially tedious, fun.
- C- The concept of applying game mechanics and game design techniques to engage and motivate people to achieve their goals.
- D- Non-fiction gameplay.
- E- Using game techniques to increase engagement, satisfaction and fun.
- F- All of the above
- G- Other (please specify)

2- Does your organisation currently use any of the following?

- A- Classroom training
- B- On-the-job learning
- C- LMS/Online courses
- D- Mobile learning
- E- Video training
- F- Gamified learning
- G- Social learning
- H- Virtual classrooms
- I- VR
- J- Other (please specify)

3- What percentage of students have you taught using gamification?

- A- < 5%
- B- 6-20%
- C- 21- 40%
- D- 41-60%
- E- >=61%

4- What is the most effective way of gamifying a process?

- A- Creating extrinsic rewards
- B- Creating intrinsic rewards
- C- Incorporate badges, points and leaderboards
- D- Create and track levels of accomplishment

5- When do you expect to use gamification for L&D within your educational Institution?

- A- We use it already
- B- Within the next year
- C- Within 2 years
- D- Within 3 years
- E- At some point, but not sure when
- F- Never

6- How strongly do you agree with the following statements about gamification?

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
Gamification can help create more engaging experiences for learners					
Gamification can make learning more rewarding					
Gamification can result in higher completion rates					Agree
Gamification can improve productivity					

7- What, if any are the specific barriers to adopting gamification within your organisation?

- A- Lack of knowledge of how to implement it
- B- Perceived cost for developing gamified learning content
- C- Lack of cultural appetite, or scepticism from leaders
- D- Lack of suppliers/designers working in this area
- E- Can only be used for training small numbers of people
- F- Unsure of how to measure effectiveness
- G- Not sure how it could be used in our sector
- H- N/A - we already use gamification
- I- Other (please specify)

8- Can you see gamification being useful for enhancing learning and development?

- A- Yes
- B- No

### **Principal's Survey Questions**

1. How often does your school carry on gamified learning?

- A- Rarely
- B- Sometimes
- C- Always

2. How efficient has the exercise been so far?

- A- Poor
- B- Fair
- C- Good
- D- Very good
- E- Excellent

3. Gamification vs hands-on coaching...

- A- Gamification
- B- Hands-on coaching

4. What criteria does your school consider during gamification?

- A- Leaderboard
- B- Badges and Ranks
- C- Milestone
- D- Rewards

5. Rate the experience of students in your institution so far...

- A- Poor
- B- Fair
- C- Good
- D- Very good
- E- Excellent

## Appendices E

### **Principal Interview Session**

*The purpose of the interview was to gain an insight on the role and influence of gamification from the perspective of the principal.*

#### **Question 1.**

Good evening Sir and thank you for taking some time out of your busy schedule to speak with me today. My first question for today is, 'How many teachers do you have in your school ?

#### **Answer:**

...I have 267 teachers ....

#### **Question 2.**

What do you understand by the term **gamification**?

#### **Answer:**

gamification in the class is about transforming the classroom environment into a game ..

#### **Question 3.**

Have you implemented the concept of gamification in your school?

#### **Answer:**

Some of my teachers did. We did not implement.

**Question 4.**

What is the engagement rate so far?

**Answer:**

I don't have the actual rate because we never measured. I can estimate 60% engagement overall

**Question 5.**

What has been the greatest problem for the organisation since this exercise started?

**Answer:**

As stated above, we did not implement

**Question 6.**

When it comes to choosing between spending more time instructing by gamified means compared to the traditional means, why settle for gamified?

**Answer:**

Gamification in education aims to make learning more engaging and appealing to students, and goes beyond traditional learning methods as traditional learning tends to be boring. Many organizations have borrowed the main tools and concepts from games to motivate people.

**Conclusion:**

The benefits of good gamification are numerous, but like many things in life, if it were easy, everyone would do it. Doing it right takes effort and time, but it is worth it in the end as it comes with many benefits which improves the skills, talent, motivation, knowledge, specialty, technicality, and mindset of students, driving them towards the attainment of productivity and success