

# **Game Changer: Gamification of Teachers' Lessons During the COVID-19 Pandemic**

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## **Abstract**

*The COVID-19 pandemic has caused such an unprecedented disturbance to the world, particularly on the economy, and caused significant disruption to the education ecosystem. It has affected school organizations and forced school leaders to adopt alternative ways of learning.*

*The transition to online education posed many challenges in engaging students to participate actively, and one of the solutions is for teachers to create better digital lessons using gamification elements. But despite the prevalence of technology, educators lack the knowledge and skills to captivate students' interest to participate actively in online learning.*

*At present, there is a dearth of studies on the application of gamification to teachers' online lessons during the COVID-19 pandemic. Educators must capitalize on new engaging technological trends as a form of techno-structural OD intervention to complement their pedagogies, teaching processes and encourage students' online participation. This concept paper highlights the benefits of applying gamification to education, particularly on how teachers can utilize game elements in creating, managing, and updating digitalized lessons to motivate students amidst the pandemic. The paper also explores fostering a healthy culture for students' heightened level of motivation, increased acquisition of knowledge, and learning new skills. It encourages schools to adopt the appropriate type of gamification and suggests future researchers on the various types and elements of gamification that can be adapted by selected schools.*

**Keywords:** Gamification, Game Elements, Techno-structural intervention, Reengineering OD Intervention

## **1. Introduction**

The world was engulfed in uncertainties and chaos when the COVID-19 pandemic started in Huan Province, China, last 2020 (WHO, 2020). It has devastated 219 countries, killed over 2.3million people, and infected 108.2million all over the world (WHO, 2021).

The COVID-19 pandemic has caused such an unprecedented disturbance to the world, particularly on the economy, and caused significant disruption to the education ecosystem. It has left all school leaders

and teachers to hurriedly implement alternative ways of learning to respond to the health situation (UN, 2020).

Contrary to the harmful effects of the health crisis, it has produced some silver linings. Educators' roles in the community and learning have been acknowledged to be essential in this dire time. Educators have collaborated, which resulted in increased creativity and innovation among them. This paved the way for using different forms of learning platforms (UN, 2020).

Most schools and universities were forced to utilize online learning, altering the traditional way of face-to-face classroom teaching and changing students' learning habits. With the transition to remote education, a new school curriculum anchored in gamification or game-based learning is one solution to create a better digital curriculum and student engagement (Cahill, 2020). Unfortunately, despite the prevalence of technology during this pandemic, educators lack the pedagogies and skills to create digital lessons that captivate and encourage students to learn (Pakinee & Puritat, 2021).

At present, there is a dearth of studies on the application of gamification to teachers' online lessons during the COVID-19 pandemic. Educators must capitalize on new engaging technological trends as a form of techno-structural OD intervention to complement their pedagogies, teaching processes and encourage students' online participation. This concept paper highlights the benefits of applying gamification to education, particularly on how teachers can utilize game elements in creating, managing, and updating digitalized lessons to motivate students amidst the pandemic. The paper also explores fostering a healthy culture for students' heightened level of motivation, increased acquisition of knowledge, and learning new skills.

## **2. Literature Review**

### **2.1 Gamification**

For centuries games have always been a tool used in learning. Friedrich Froebel, the proponent for Kindergarten, first espoused learning through play during the mid-1800s, and it is based on repetition, the accomplishment of goals, and failures. These same concepts were adopted by video games (Cahill, 2020). As for the term gamification, it first entered the mainstream in 2008 when Brett Terril used it in his blog to describe the integration of game mechanics to web applications to intensify engagement (Terril, 2008 as cited by Huotari & Hamari, 2017).

Moreover, Huotari & Hamari (2017) suggested three distinct levels of abstraction in defining gamification. The first level centralizes in games as systems with interacting sets of actors (systemic condition) and involvement of a player or players (experiential condition). The second level requires the utilization of design elements: a set of rules, goals, and outcomes. At the same time, the third level is the game uniqueness compared to others.

Deterding et al.'s (2011) notion of gamifying lessons is its application of game-based elements in non-game contexts. But not all that use game elements can be considered gamification, such as examinations

(non-game context) with points (game elements). While Ofosu-Ampong et al. (2019) stressed that gamification is not the building of a new game application; instead, it is placing only game elements in the application to make a lesson fun and engaging. This idea was supported by Landers et al. (2018), arguing that gamification is not a product but the inclusion of game elements to an existing application that eventually solicits reactions from users. For others, gamification is a "process of making activities more game-like" (Werbach, 2014, cited by Gallego-Durán et al., 2019).

Similarly, gamification employs challenges and achievements as it engages and encourages continuous participation (Bilgin, 2020).

Furthermore, gamification popularity became widespread in 2010 when it eventually became a trend used by diverse domains such as commerce, marketing, healthcare, and human resources, etc. (Bilgin, 2020; Dichev & Dicheva, 2017; Huotari & Hamari, 2020). Its popularity stemmed from its ability to foster motivation, collaboration, competition, changes in behavior, even engagement of staff and clients. However, it is yet to be fully utilized in education (Dichev & Dicheva, 2017).

## ***2.2 Reengineering Gamification for Education During the Pandemic***

Prior to the COVID-19 pandemic, digital games were perceived to be a distraction to learning. In 1985 it was all about fun and achieving the highest score (Bilgin, 2020).

But this changed dramatically in the later '90s with the beginning of the internet creating a techno-structural reengineering organizational development intervention. This intervention focused on the technological change affecting organizations' processes (Fuu, 2017). With the internet, it enhanced the performance of organizations to effectively network worldwide faster and efficiently. Hence, providing opportunities for designers of games to create digital games with a ranking system and global leaderboard tables (Bilgin, 2020).

Recently, gamification has been used informally and formally in education, bridging play and learning using game-based design elements (Ofosu-Ampong et al., 2019). However, due to the pandemic, there has been an exponential increase in technology usage in education to support online learning (Yang et al., 2020). The universities in Africa have employed techno-structural reengineering OD intervention to achieve dramatic improvements in engaging and motivating students by considering the potential of technology, particularly in gamifying or integrating digital game-based elements in learning (Sawahel, 2020). They are taking advantage of gamifying education for its significance to covertly teach collaboration, culture, critical thinking, creativity, various skills, and values applied to learners' cognitive, affective, and psychomotor domains (Ng'ambi as cited by Sawahel, 2020).

## ***2.3 Leveraging Gamification Elements During the Pandemic***

The question of many education leaders is how do we modernize education curriculum to respond to the pandemic, and according to Cahill (2020), "to cope with the reality of the pandemic, teachers used different E-learning applications to conduct their online teaching since face-to-face teaching is prohibited." Although online learning is one way to cope with the possible learning loss during the pandemic,

regrettably, teachers are not well equipped to use the technology to facilitate effective teaching (Fauzi & Khusuma, 2020).

Technology such as online videos and games has become part and staple of teachers' online lesson delivery during this pandemic (Yang et al., 2020). Ofosu-Ampong et al. (2019) argued that leveraging gamification to the schools' learning management system (LMS) can enhance education to be fun and motivating. However, the challenge is the inability of developing countries' educational institutions to use game-based design in their LMS (Ofosu-Ampong et al., 2019), particularly on the relevance of digital games articulated in the curriculum aligning it to the lessons (Pakinee & Puritat, 2021; Sawahel, 2020). O'Connell et al. (2020) stressed the importance of maintaining consistency with the curriculum using gamification in the lessons.

To design gamified lessons, Pakinee & Puritat (2021) adopted in their research the framework of Alcivar and Abad (2016). It consists of five stages wherein; the first stage focuses on setting the learning objectives and outcomes and the game system requirements. The second stage incorporates the different students' characteristics and personalities. The third stage identifies game mechanics, such as the flow and schedule of learning materials and activities. The fourth stage involves selecting the appropriate game elements complementing the lesson and relevant to the students' capabilities and learning needs. The last stage requires creating a prototype of the gamified lesson to test and refine it.

Moreover, Puritat (2019) suggested that teachers should be knowledgeable in choosing game elements to complement their gamified lessons to engage students to produce better performance.

Huotari & Hamari (2017) proposed the following game elements that educators can utilize: a dashboard with a list of players, accomplished levels, progress metrics, awards, points system, or implicit cues. In addition, Bilgin (2020) suggested using achievements, challenges, stories with goals to accomplish, motivation, rewards, and punishments as mechanics or rules to make any digital subject game-like. The author added that badges, ranking, leaderboards help capture and encourage active participation. Furthermore, Pakinee & Puritat (2021) enumerated points, levels, leaderboard, progress bar, avatar, and challenges as game elements to include in the designs of lessons to facilitate greater engagement.

The points awarded to students serve as virtual feedback on the quality of their task, and these can be rank in the global leaderboard to show the list of students' scores where the highest scorer is placed on the top. In addition, badges and awards are given to students who accomplished assignments or activities abiding by the rules and within the timeframe. Progress bar, levels, challenges, and avatars can be added to increase motivation and reinforce learning (Pakinee & Puritat, 2021; Ding et al., 2020; Puritat, 2019).

The research of Ofosu-Ampong & Boateng (2018) incorporated game elements in their Higher Education lessons. The study results showed that students prefer to have game-based features in their lessons. The school use of gamification motivates students to also frequently use the school's LMS. In

addition, Shabrina et al. (2020) study integrated gamification in their Mathematics Curriculum. The result was an increase in students' engagement and retention of learning.

Similarly, educators can avail of free applications that use gamification to enhance their online lessons. O'Connell et al. (2020) applied gamification to the curriculum of post-graduate year levels in emergency medicine using the Kahoot online application but changing the game mechanics. A quiz format game show similar to "So You Think You Can Dance" was created, and the game consisted of multiple rounds of eliminations and a final face-off. The result of the study showed that students enjoyed the learning experience. According to the students' survey, the gamified lesson was engaging, educational, and fun compared to the traditional lesson format.

Another educational platform that uses gamification is Edmodo. Bilgin (2020) identified that Edmodo is a free application that teachers can use to enhance and manage their online classes. This helps teachers greatly by being in contact with their students, reviewing their work, creating and awarding badges for the accomplished mission like homework or performance tasks.

The gamified educational application Khan Academy supported by Bill Gates, was used extensively during the pandemic. This open online application had a 300% registration during the pandemic. It offers free digital learning tools and video classes using game elements such as visual constellation level, points, awards, and RPF skill tree to improve students' learning experience (Chamberlain, 2020; Puritat, 2019).

#### ***2.4 Gamification Enhancement of Healthy Culture in Students' Learning***

There is an exponential rise of digital games culture (Gallego-Durán et al., 2019). In recent years, studies have shown that digital games effectively enhance students' learning and positively affect students' behaviors and enhance motivation to accomplish tasks (Puritat, 2019; Huotari & Hamari, 2017). Likewise, it has also improved students' decision-making, critical thinking, and problem-solving (Hussein et al., 2019) skills.

In building a healthy culture, Gallego-Durán et al. s' (2019) research showed that the challenging nature of using digital games provides students opportunities depending on their capabilities to learn from failing, repeating, and winning. Students eventually build confidence, reinforce self-sufficiency and persistence from their constant engagement in their desire to master the topic or get the highest score. On a positive note, they will understand that committing mistakes and failing are parts of the process of learning where they can bounce back, employ critical and creative thinking and better problem-solving techniques. Gamification encourages experimentation where learning from failure is essential. It also helps sustain the continuous flow of creative lesson contents renewing students' interest in learning.

Applied to the Higher Education, Ofosu-Ampong et al. (2019) study affirmed that gamification inclusion to the learning process helped students' learning and researching and contributed to successful teaching.

Although the positive effects of gamification have been proven in different studies, according to

Landers et al. (2018), the inclusion of varying game elements may directly influence individuals' psychological state, which may affect behaviors and outcomes. The authors cited research on games and learning by Garris et al. (2002), where it was identified that students' behaviors facilitated the learning outcomes based on the game elements used in the lesson. One such game element used by the researcher was the leaderboard which resulted in students' increased motivation and confidence in accomplishing tasks and goals. Thus, teachers must choose appropriate game elements to be design-relevant to the gamified lessons (Gallego-Durán et al., 2019). Doing this will ensure increased engagement, active participation, and positive behaviors from their students (Landers et al., 2018).

Equally, Cahill (2020) pointed out that using games in digital lessons is a way to approach online education, wherein the objective is to promote joy and fun in learning. Once students are engaged in gamified lessons, learning retention dramatically improves. On the contrary, if students fail a level, they can always try again and choose a different strategy or answer, cultivating critical thinking, problem-solving, and creativity.

### **3. Conclusion and Future Directions**

The COVID-19 has significantly altered the face of education. It is time to rethink and rebuild education that provides acceleration of equitable and technologically driven change without compromising the quality of education and student engagement. It does require a paradigm shift to acknowledge and optimize gamification in education.

Indeed, the inclusion of gamification elements in creating and implementing lesson plans during this pandemic can significantly contribute to increasing the engagement and motivation of students to participate and accomplish their online activities actively. Similarly, it can facilitate and improve students' mental health and socialization skills. Aside from this, it can develop technology-related competencies and foster enjoyment, fun, and a healthy culture.

Given this health crisis, education institutions have to adopt technology and create innovative opportunities to have a competitive edge while ensuring students' readiness for the learning environment in the 21<sup>st</sup> century.

This pandemic is an opportunity to create engaging lessons to relieve students with mental, social, and emotional challenges. Schools are enjoined to:

1. provide ICT training or upskilling of teachers, particularly in using gamified applications or game-based elements in their digital lesson plans or online instruction; and
2. integrate gamified lessons formally tailored into the curriculum.

The possible avenue for future research can be on the type of the current gamification applications best suitable for specific subjects or appropriate for a particular grade level. Another one is finding out the best



game elements teachers can easily incorporate in their lesson plans and online instruction to motivate students' engagement and increase their focus on learning.

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