GAMIFICATION IN VIRTUAL ECOLOGY (GIVE): ENHANCING CLASSROOM ENGAGEMENT IN PHYSICAL EDUCATION

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ABSTRACT (Font-12 Bold)

The study was geared towards determining the influence of integrating Gamification in a Virtual Ecology (GIVE) in enhancing the classroom engagement in physical education among Senior High School students at a state university in Pampanga, Philippines. This qualitative-descriptive study included a complete enumeration of the Grade 12 Technical-Vocational-Livelihood (TVL) students who voluntarily participated in this qualitative investigation (n = 58) by responding to an open-ended questionnaire. Results of the open-ended questionnaire decipher the influence of gamification on student's level of engagement and the barriers encountered upon its inclusion. The study utilized Braun and Clarke's Thematic Analysis strategy, which was aided by a computer-assisted qualitative analysis, MAXQDA Analytics Pro 2022. The study revealed two emerging themes that described the influence of gamification in the students' virtual ecology, namely: (1) the effects of the integration of gamified instruction on students' engagement; and (2) students' problems in using gamified instruction. Findings of this study may predate the institutionalization of the prospective enhancement of the teacher's capabilities through the aid of gamification to improve the classroom engagement of the students in a virtual ecology towards a better understanding of the lesson in physical education settings.

Keywords: gamification, physical education, student engagement, virtual ecology

INTRODUCTION

Recent events—a global pandemic, widespread school closures, and the hurried implementation of distance learning—have heightened the urgency of changing the classroom learning environment, which has had a continuous impact on teaching and learning processes that brought students to feel isolated which leads them becoming discouraged, demotivated, and disengaged towards learning. As a result of these changes and challenges, teaching and learning interventions are significantly important in providing students with optimal education in improving their virtual classroom engagement. According to [1] Kahu (2013), student engagement is regarded as the pinnacle of learning, with significant implications for perseverance, student satisfaction, in-depth learning, and academic success, which are influenced by contextual factors such as the teacher's learning environment, strategies, and method. However, in the context of online learning, students' engagement appeared to be more difficult than face-to-face learning. According to [2] O' Shea et al. (2015), student engagement manifests differently as a result of the pedagogical shift from a physical context to an online

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context, as well as the strategies in which teaching and learning are facilitated by advanced technologies where students feel less integrated, motivated and engaged. Considering the presence of technology in today's current learning environment, the use of interactive methods, such as gamification method, will be an effective strategy in uplifting the mood, motivation and engagement of the students towards learning.

Gamification, as defined by [3] Llorens-Largo et al. (2016), is a learning strategy that uses aspects of games or interactive media to empower students and enhance their engagement and enjoyment in the learning process. Furthermore, it is regarded as a means of activating engagement and enthusiasm, facilitating and resolving challenges and issues through the use of game aesthetics, mechanics, and thinking methods, and has been used by teachers in designing a more interactive learning environment for their learners. And since games have the potential to increase student engagement, learning, and motivation, integrating gamified learning websites into online information literacy instruction will undoubtedly provide students with an excellent opportunity to build and rebuild their engagement as well as increase their motivation to participate in e-learning. Considering the presence of technology in today's current learning environment, the use of interactive methods, such as gamification method, will be an effective strategy in uplifting the mood, motivation and engagement of the students towards learning. Therefore, to meet the needs of learners and minimize the negative effects of the new normal set up. Students learning setup, gamification, featuring game-based elements is essential in the optimization and increment of students' motivation, performance and engagement.

RESEARCH METHODOLOGY

This study utilized qualitative research to present a framework and to provide an in-depth and interpreted understanding of concepts, experiences, and opinions among Senior High School students about the influence of Gamification in a Virtual Ecology (GIVE) in enhancing the classroom engagement in physical education. According to [4] Bhandari (2021), qualitative research is well-suited to better understand concepts, experiences, and opinions by collecting and evaluating non-numerical data to gain a deeper understanding of a topic and generate new research ideas.

The study included a complete enumeration (census) of Grade 12 students (n = 58) pursuing a Technical-Vocational-Livelihood track at a state-funded higher education institution in Pampanga, Philippines. An open-ended questionnaire as a primary tool of data collection in this qualitative research. The open-ended questionnaire was distributed to participants through a multimedia platform, specifically Google Classroom, as an assignment with two aspects of inquiry: (1) to identify the influence of the integration of gamified instruction on students' engagement; and (2) to identify the students' problems with gamified instruction. The open-ended questionnaire supported the researchers in gathering authentic responses and interpreting the influence of gamification on student engagement in Health-Optimizing in Physical Education (HOPE) 4. In terms of data gathering procedure the research began with the creation of a letter of consent to the school head, as per academic protocol, requesting permission to conduct a study in enhancing the classroom engagement and participation of the Senior High School students through Gamification in a Virtual Ecology (GIVE). In light of their status as partners in the study rather than simply recipients of

information, participants were given informed consent about the study's intent and goals, the rationale for conducting the research, and its confidentiality. The open-ended questionnaire was administered through google classroom, a learning management system designed to simplify the creation, distribution, and grading of assignments, as well as engaging students in online learning. It likewise allows students and teachers to organize and manage assignments, collaborate, go paperless, and, above all, communicate.

The data derived from the participants' responses were methodologically gathered, transcribed, organized, analyzed, and examined yielding valuable conclusions using Braun and Clarke's (2006) Thematic Analysis strategy. According to [5] Braun and Clarke (2006), this method is frequently used in qualitative research because it provides insightful and comprehensive results. These key steps include "familiarization, coding the data, generate initial themes, reviewing the themes, naming and defining the themes, and writing up the report".

RESEARCH FINDINGS

Using the Thematic Analysis of Braun and Clarke, 2007. This study has come up with the following themes and subthemes. The themes are as follows: ***Efects of the Integration of Gamified Instruction on Students' Engagement*** and ***Students' Problems in Using Gamified Instruction***.

DISCUSSIONS

Theme 1: Effects of the Integration of Gamified Instruction on Students' Engagement

The integration of gamified instructions in education have provided several positive outcomes in terms of the learning acquisition of the students. Since the education sector has been severely impacted by the COVID-19 pandemic, one of the serious issues a teacher may face is low learner engagement and motivation to learn. To address the latter, gamification is important to consider since it allows learners to build and rebuild their engagement and motivation for learning. In this study, as recounted by the participants, the presence of gamification in physical education during online class increased their motivation and engagement while also allowing them to improve their learning abilities and styles. The presence of competition in the classroom as part of gamified instruction piqued students' interest while also empowering them to participate and be engaged in the lesson, which became their motivation to learn. Not only that, but it also assisted them in developing adequate classroom skills such as collaboration, creativity, and critical thinking. Surprisingly, numerous studieshave found that using gamification improves student engagement as well as motivation to learn. In the study of [6] Papp (2017), students who took gamified classes revealed to have an increased classroom engagement and motivation, as well as drive to learn and understand the lesson shared with them, where the inclusion of game-like features such as rewards, challenges, and even experience points had a significant impact on student engagement. This study discovered five positive effects of Gamification in a Virtual Ecology (GIVE) in physical education classes: (1) increases student motivation to learn, (2) capturing the learner's interest,

(3) enhances the students' learning styles,
(4) competition can pique motivation, and
(5) promotes higher order thinking skills.

Subtheme 1.1: Increases Students' Drive to Learn.

This subtheme emanated as a result of the effects of integrating gamification and its features in physical education settings. As recounted by the participants, the use of the gamification in physical education classes has a significant impact

in incrementing their hurl towards learning. The latter discovered that gamified instruction has provided both students and teachers with an avenue toward better teaching-learning processes. Furthermore, the intervention assisted students in becoming more actively engaged with the lesson, as evidenced by increased attentiveness in listening and speaking, participation, and motivation to learn. As reviewed, a myriad of literature has shown that employing gamification serves as a tool in encouraging the students to learn. This sentiment was backed up by the study of [7] Sailer and Homner (2020), who discovered that the use of gamification had a significant impact on steering students' motivation and interest in learning. Meanwhile, in terms of metacognition, gamified instructions brought a promising effect on it. In support of that, the inclusion of gamification in classroom instruction cultivates a perspective that enables learners to uplift their engagement and drive to learn by providing them not just sole learnings but also a fun way to learn and acquired knowledge [8] (Su & Cheng, 2015). Furthermore, [9] Klabbers (2018) concluded that the use of gamification in learning helps to escalate the attention and interest of the students towards learning.

Subtheme 1.2: Capturing the Learner's Interest.

This subtheme arose as a result of the influence of integrating gamification in a virtual ecology in physical education. As recounted by the participants, the use of gamified learning websites piqued their interest, causing them to be engaged with the lesson. It likewise uplifts their motivation to learn as well as their ability to comprehend the lesson completely as it provides fun in learning, making even the most difficult lessons more enjoyable. Gamified instruction has also been shown to keep students awake, energized to participate, and entertained throughout the session. Various findings across the context have shown that a teacher who incorporates game-like elements into the teaching process is more likely to pique the learners' interest and attention. [10] Zainuddin et al. (2020), presumed that the use of gamification can potentially assimilate the students' interest to learn by improving the student achievement, fostering collaboration among the learners, and allowing them to build self-directed learning skills. Meanwhile, [11] Gómez-Carrasco et al. (2019) found out that the used of gamified instructions among the students has statistically provided a positive effect in driving the students' interest to learn and comprehend with the lesson shared to them. To corroborate, [12] Korkmaz & Öztürk (2020), found out on their study that the use of gamification in the educational context has been a good way to attract the interests of the students and making the classroom discussion an interesting avenue to learn.

Subtheme 1.3: Enhances the Students' Learning Styles.

This subtheme ensued as an implication of integrating gamification in the teaching-learning process of physical education. Learning styles are generally viewed as a group of factors, behaviors, and attitudes that facilitate one's learning in a specific context. It likewise refers to student's method of absorbing, comprehending, processing, and remembering information in solidifying their ideas. The findings of this study, as uncovered by the participants, revealed the presence of the game-based activities in this new modality as one of the key factors that allow them to enhance their learning abilities and styles. [13] Jarvis (2020) supported the idea that gamification can facilitate learning by providing meaningful experiences in the form of non-competitive play. Subsequently, students' knowledge and skill mastery were further enhanced by additional readings, video viewings, and practice activities. Correspondingly,

according to the findings of the study by [14] Barata et al. (2013), students who participated in gamified instruction toward gamified learning experience became more participative, vigilant in the forums, and paid close attention to the lecture slides, indicating a deeper engagement capturing different learning styles, which was also supported by students' feedback, denoting that the lesson is more motivating and interesting if it incorporates game-based elements.

Subtheme 1.4: Competition Can Pique Motivation.

This subtheme arose as a result of the influence of gamification in teaching physical education on student learning. It was discovered that competition in the classroom as part of gamified instruction piqued students' interest that empowered the participants to participate and engage in the lesson. The presence of competition in the classroom was recognized by the participants as an important part of their learning, as it also became their motivation to learn. This idea was supported by a study conducted by [15] Sepehr and Head (2013), who investigated the role of competition and discovered that while most students found competition to be very motivating, losing a competition caused them to feel less satisfied and enjoy the activity less. Similarly, [16] Ejsing-Dunn and Karoff (2014) discovered that competition motivates some students but that it is dependent on the gamified setting. Henceforth, [17] Muntean (2011) concluded that gamified instruction helps students gain motivation to study, and because it provides positive feedback, it pushes them forward, causing them to become more interested in, and stimulated by, the material being learned, as it becomes a powerful motivator for students to learn while having fun.

Subtheme 1.5: Promotes Higher Order Thinking Skills.

This subtheme emanated as a result of the game-based features employed by the teacher in the class. The influence of gamification, as recounted by the participants, has empowered them as it gives them an avenue to improve their higher order thinking skills. The participants disclosed the notion that the use of game-based activities in teaching physical education helped them transform as students with sufficient skills in the classroom such as collaboration, creativity, problem-solving, logical, and analytical thinking, which pushes them to think critically and smartly. As evidently supported by [18] Asigigan and Samur (2021), game-based activities positively and significantly influenced students' problem-solving skills such as analysis, synthesis, and evaluation. Subsequently, [19] Smiderle et al. (2020) discovered that the gamified system changed students' behavior, resulting in a significant improvement in the quality of their submitted solutions and greater accuracy of the answers submitted, implying that when students participate in gamified instruction, they will be encouraged to do better by engaging in deeper thinking in order to achieve good results.

Theme 2: Students' Problems in Using Gamified Instruction

In a world shattered by COVID-19, the development of gamified teaching strategies may appear to be a promising option for imparting knowledge and increasing student engagement. In this day and age, there are also factors that make gamified instruction appear difficult to students. In this new mode of learning, it is inevitable to experience unfaithful moments where the continuity of learning is jeopardized. The abrupt shift in learning with the integration of gamified instructions discloses a few unfavorable elements that significantly impact on students' classroom engagement in acquiring physical education skills and

knowledge. As recounted by the participants, these consequences include insufficient access to technology and time limits of the initiated game. First, the initiated game using an application or software does not always work properly on their devices, making participation in class more difficult. Second, the game's duration also appears to be a barrier to students' gamified experiences, performance, and engagement in class. These moments can be linked to students' financial situations, technology, connection, environment, and learning strategies and styles.

Students' Challenges in Gamified Instruction

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Subtheme 2.1: Inadequate Access to Technology.

This subtheme emerged as student's problem in using gamified instruction in physical education. Inadequate access to technology in online learning in gamified instruction is regarded as a negative factor influencing students' classroom engagement. In this day and age, one of the requirements for survival in online learning is having sufficient gadgets with advanced specifications and a stable internet connection. In addition, students' inability to obtain these resources is a major issue for students' continuity of learning. This notion was supported by the study of [20] Noor et al. (2020) that the most pressing issue confronting students in these difficult times is a lack of gadgets, online study materials, and no access or slow internet speed, as well as load shedding. Correspondingly, inadequate access to technology can have negative consequences in education, such as low motivation, low student engagement, and low classroom participation, all of which can hinder students' understanding of the lesson [21] (Ogbu, 2015). Furthermore, according to the study of [22] Dridi et al. (2020), a poor and persistent internet connection was identified as a problem that both the teacher and the student faced. Aside from that, limited access to technology, bandwidth issues, and insufficient telecommunication devices can be a hindrance to students and teachers, particularly when it comes to learning.

Subtheme 2.2: Time Limits of the Initiated Game. This subtheme emerged as one of the difficulties encountered by students while participating in gamified instructions in their respective physical education classes. Since then, the concept of limitation has become contentious, whether with or without the use of games in the classroom, due to its impact on student coping ability. The presence of limitations in game-based features

prevents students from processing important information at a faster rate; some are left behind due to time limits; and some are unable to understand the instruction or the entire activity. As recounted by the participants, the time constraints of the initiated game have become a disadvantage that has significantly impacted their classroom engagement and participation in the gamified instruction. This contestation was experienced by the participants, leaving them with a sense of confusion, rattling, and even pressure, which influenced their level of participation, classroom engagement, and performance. In support of this, [23] Yildirim (2016) stated that a game's time limit can cause the player to feel pressed for time. It may also be a challenge in the sense that it may provide "perceived poor satisfaction" among users. Correspondingly, [24] Widmer et al. (2012) supported the claim that time pressure can bring about a number of negative attributes that the user may perceive. These include stress, discomfort, and even user impediments.

CONCLUSION

Gamification was discovered to be a key factor in increasing classroom engagement in physical education classes among Senior High School students, capturing aspects of motivation from competition, learner interest, styles, and higher-order thinking skill. However, due to a lack of devices and game duration, students perceived gamified instruction to be difficult, which had a significant impact on their classroom engagement in acquiring physical education skills and knowledge which were linked to students' financial situations, technology, connection, environment, and learning strategies and styles. This implies that the intervention using gamification could be advantageous or disadvantageous to some. However, in terms of the teaching-learning process, gamification does increase students' motivation to learn and keeps them engaged, active, and responsive in the classroom, resulting in more meaningful learning comprehension and improved overall performance. It likewise has had a synergistic impact on students' grades and overall performance in physical education settings. Not only that, but the intervention of this study deciphers a more enjoyable and efficient classroom discussion, and became synergistic pedagogical relief, particularly to the current normal learning setup in education, which deteriorates learner motivation and engagement.

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