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Effectiveness Of Using Gamification As A Teaching Strategy On Learners' Academic Performance In Cabiao, Nueva Ecija

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Abstract

This research study investigated the effectiveness of using a gamification teaching strategy on the academic performance of Grade 6 students in selected public elementary schools in Cabiao, Nueva Ecija. Utilizing a quantitative descriptive research design, with simple random sampling, data were collected through validated instruments by experts, and responses from 201 randomly selected Grade 6 students. The result showed that the teacher's gamification teaching strategies used by the teacher were rated "Agree" with a weighted mean of 3.76. The academic performance of the students in English and Mathematics, revealed of (WM= 3.86), and in Science (WM= 4.01), which fell into the "Very Satisfactory" category. However, the result of the correlation analysis revealed (Pearson r = 0.098, p = 0.168), showing that there is no statistically significant correlation between the academic performance of students in the investigated subjects and the use of gamification in teaching strategy. Based on the results and related implications, one can suggest that teachers should continue to incorporate gamified tasks, like role-playing, interactive games, group challenges, and problem-solving, into their learning materials. These interventions can make the classroom more dynamic, engaging, and constructive with regard to learning by promoting teamwork and engagement, and expanding student understanding of the content.

Article Info

Keywords:
Polytechnic University of the Philippines, Cabiao Campus, Bachelor of Elementary Education, Gamification Teaching Strategy, Academic Performance, English, Mathematics, Science

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INTRODUCTION

Gamification defines the approach of applying game-based elements, including points, badges, challenges, and leaderboards, into educational scenarios and aims at increasing the level of engagement and interactivity in the student (Hamari, Koivisto, and Sarsa, 2014). The given pedagogical method has become very popular in various countries, especially in the Philippines, where a number of institutions have reported successful adoptions of this strategy (Smiderle et al., 2020). Besides, the results of Caballero et al. (2022) support this review, which shows favorable results in urban environments. As a result, several Philippine schools have embraced the concept of gamification thus encouraging increased rates of student engagement and performance. On the other hand, many students faced the challenge of being engaged and getting good academic results, which can be explained by the low effectiveness of traditional instructional practices (Munna, 2021). Gamification, which is considered a new pedagogical tool, has shown potential in alleviating these problems and increasing student engagement and a sense of purpose in the learning setting (Surendeleg et al., 2024). The understanding of the role of gamification was paramount since the systems of learning evolve to embrace a digital future. Gamification in education has both positive and negative implications along with opportunities and possible risks that transform the educational design. The interactive learning modalities have been found to encourage and involve students. Nakic (2024) believes that gamification has used the natural desire to achieve and be rewarded by students, which increases retention and engagement in learning. However, gamification has a number of drawbacks especially in rural settings where there is a limited amount of technology. Even in these environments, students might not have the necessary devices or access to internet to participate in digital gamified forms of learning. In addition, introducing gamified techniques to current curriculums may be faced with barriers that are based on teacher resistance, which, in many cases, is caused by the lack of experience in using these teaching instruments (Araujo, 2022). Although the concept of gamification has rapidly gained popularity, there is a lack of empirical studies that could investigate how this tool affects educational achievements, particularly in rural schools where resources are scarce, and the conventional approach to education is used by the majority of teachers. Several factors including low student motivation, outdated curriculum and poor individualized instruction are some of the challenges that are commonly faced in such institutions. This meant that a large number of students were not able to achieve their potential in academics (Yanyan, 2024). This unoptimistic situation has highlighted the necessity to explore other pedagogical methods, such as gamification as one of the possible solutions. Based on this, this research study aimed to investigate the effectiveness of using gamification as a teaching strategy on the academic performance of learners in the rural areas such as Cabiao, Nueva Ecija.

LITERATURE REVIEW

Over the last several years, the topic of gamification as a means of student motivation, engagement, and academic performance has grown in educational research. The fact that the concept of game-like elements, which include leaderboards, badges, and points, are gaining increased focus in the traditional learning settings is an indicator of more scholarly interest in the field. As Lee (2023) showed, gamification can be used to develop creativity and cooperation among students in educational institutions. The research also found out that the academic performance impact depends on the situation of instruction and the arrangement of the game components hence the need to have strategically designed implementations depending on the educational setting. As Luo and Lajoie (2020) argued, the method is popular because of the ability to replace the passive learning environments with the interactive ones. It was suggested by Sahoo and Pany (2021) that through gamification teachers can use a range of strategies which can be implemented to suit different student learning styles. Alshaikhi (2020) also supported the argument that gamification encourages students through the development of competitive and interactive environment. Tokan and Imukulata (2019) noted that to attain positive results in education, intrinsic and extrinsic motivation should be balanced. On the other hand, Majeed and Shoaib (2019) noted that gamification practices that are not properly considered can lead to a lack of interest in the strategy or an increased rate of dropout, especially when the differences between individuals are ignored. According to Codish and Ravid (2014), it is possible to promote the use of personalized gamification

since it is possible to adjust the game to the unique learning characteristics of students to improve the effectiveness of the strategy.

METHODOLOGY

The methodology of our demonstration aimed to present the research design, findings, and the practicality of our study on the efficacy of implementing gamification as a teaching strategy and the academic performance of learners. The methodology will be organized in the following main steps:

1. Objective Definition

The researchers sought to investigate the effectiveness of using gamification as a teaching strategy on the Grade 6 students on academic performance in the selected public elementary schools in Cabiao, Nueva Ecija. It attempted to establish the association between gamification strategies like interaction games, group competition, challenging problems, and role-playing games. It aimed to address issues such as maintaining student motivation, greater engagement, and participation in English, Mathematics, and Science subjects. The study also emphasized game-based aspects, such as leaderboards, points, badges, group competitions, and problem-solving challenges, which were employed by the teacher as a combination of activities based on games as a pedagogical approach. The quantitative assessment of success was based on the statistical analysis of correlation, interpretations of weighted mean scores, and validation of the teachers on the practical applicability of gamified strategies to classroom teaching.

2. Scenario Development

The design of the research was such that to simulated the real teaching situation in the four public schools in Cabiao, Nueva Ecija that were used in the research. These were classroom activities in which the teachers combined interactive games, role plays, problem-solving activities and group competition to accommodate varying learning styles and keep the students entertained. The targeted students were Grade six (6) students. The situations revealed the ways the gamification was exploited in the lessons of English, Mathematics, and Science, indicating that it can be used to meet the requirements of the curriculum, promote teamwork, involvement, and instant feedback.

3. Setup and Configuration

This study was conducted at four elementary schools in Cabiao Nueva Ecija namely San Fernando Sur, San Fernando Norte, Palasinan and Entablado Elementary Schools. A group of 201 Grade 6 pupils out of 417 students, selected using the method of simple random sampling by the fishbowl method based on Cochran formula with a 0.05 margin of error. The extent of gamification strategies applied by teachers was measured using a validated researcher-designed Likert-scale questionnaire, with school-provided grades in English, Mathematics, and Science used as a measure of academic performance. The research tool was expert-validated and pilot-tested, and reliability calculated using the JAMOVI statistical package, which had a Cronbachs alpha of 0.875, which is strong internal consistency. Before data collection, formal consent was received with Dr. Ronaldo A. Pozon, Division Superintendent of Nueva Ecija (March 5, 2025), Dr. Noemi C. Sagcal, District Supervisor (March 27, 2025), and the rest of the school principals who participated (April 4, 2025). To ensure compliance with ethics and guard the privacy of the participants, parental consent and school approval were gathered to collect the data. The University Research Ethics Committee gave ethical clearance.

4. Step-by-Step Execution

The study was conducted in a systematic manner in order to have clarity and validity. After obtaining the necessary approvals and agreeing on data collection times with the school administration, the researchers handed out the questionnaires personally to the selected students during regular classes with clear instructions. They were accompanied by teachers to maintain order and comprehension but they never influenced the reaction of the students. The completed questionnaires were retrieved immediately to avoid loss or manipulation, encoded later and then processed to be subjected to statistical analysis to find a correlation between use of gamification teaching stragey and academic performance.

5. Data Collection

The researchers used both primary and secondary sources to collect the information on the research study. Primary data was provided in the form of responses of students to the questionnaire developed by the researcher on the gamification teaching strategy of the teacher. The grades of the students on the other hand are secondary data provided by the teacher. The teachers ensured that the responses were correct and ethical even to the time when the data was being collected. The researchers obtained the weighted mean scores, Pearson-r to compare the scores, and p-value to establish statistical significance.

6. Evaluation and Iteration

The results of correlation analysis revealed that the academic performance of students in these subjects and the use of the gamification teaching strategy has no statistically significant relationship with the overall findings of (Pearson-R = 0.098, p = 0.168). In English, (Pearson-R = 0.088, p= 0.217), Mathematics (Pearson-R= 0.075, p= 0.293), and Science (Pearson-R= 0.109, p= 0.122). This finding implies that teachers still consider using gamified activities in their pedagogical approach, as promoting collaboration, facilitating student engagement, and increasing the level of knowledge about the subject matter can make the classroom more active and stimulating for students.

7. Conclusion and Next Steps

The results showed that Grade 6 students in Cabiao, Nueva Ecija tended to “Agree” with the application of gamification strategies in teaching with their teachers and that there was a “Very Satisfactory level of performance in English, Mathematics, and Science but no significant relationship was built between application of gamification teaching method and academic performance. Nevertheless, the use of group competitions, problem-solving tasks and role-playing were rated favorably as a way of increasing learner interest, encouraging them to interact and making the lesson more interesting and enjoyable. These advantages imply that, used in accordance with the aims of the curriculum, gamification can facilitate active interaction and permanent engagement in the learning process. It is suggested that the strategies should still be used by teachers to enhance classroom experiences, whereas researchers in the future can consider additional variables, grades, subjects, or more significant sample sizes to acquire a more detailed picture of the efficacy of gamification.

RESULTS & DISCUSSION

The study found that Grade 6 students generally agreed with the use of gamification strategies (overall WM = 3.76), with group competitions rated highest. Academic performance was “Very Satisfactory” in English (WM=3.86), Mathematics (WM=3.86), and Science (WM=4.01), with science slightly leading. Statistical analysis showed no significant correlation between gamification use and academic performance, aligning with previous studies (Almeida and Simoes 2019; Dikmen, 2020) that emphasize context and implementation quality. However, high engagement levels support findings by Muji et al. (2021) and Mora (2020) that gamification boosts motivation and participation. While gamification may not directly improve grades, it fosters a more engaging, collaborative, and dynamic learning environment, making it a valuable complementary teaching strategy.

CONCLUSION

The results showed that, despite the students indicating that they rated their academic performance in three subjects, English, math, and science, as Very Satisfactory and that they all agreed that their teacher utilized gamification to explain lessons, the statistical analysis indicated that there was no significance between the two. This implies that despite gamification potentially enhancing motivation and engagement, it may not necessarily lead to better academic outcomes among students when the other teaching variables are incorporated or facilitated.

RECOMMENDATIONS

Teachers must adopt highly gamification teaching strategies, such as group competitions, problem-solving challenges or puzzles, and role-playing games, to get the student interested and motivated. Teachers must continue to maintain the use of interactive games to meet the needs of their students and make sure they effectively reinforce what they have learned. When aligned with curriculum objectives, interactive games can enhance student learning and contribute to improved academic performance. For future researchers, find a mitigating variable to determine if this will help to correlate the gamification teaching strategy and academic performance. As the study found that there is no significant relationship between the three core subjects, which are Mathematics, English, and Science, to academic performance, future studies should consider using different grade levels, other subjects, or larger sample sizes to better understand the effectiveness of the gamification teaching strategy on learners' academic performance.

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