GAMIFICATION AND ITS EFFECTIVENESS IN LEARNING OUTCOMES OF ACCOUNTING INFORMATION SYSTEM STUDENTS

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Abstract

This study examined the effectiveness of gamification as a learning strategy in enhancing the learning outcomes of Accounting Information System (AIS) students at Laguna University. The research focused on three key learning outcomes: student engagement, motivation, and academic performance, in response to the need for innovative instructional approaches that can effectively support complex and technical AIS concepts. A quantitative descriptive-correlational research design was employed to determine both the level of effectiveness of gamification and its relationship with learning outcomes.

Data were collected through a structured, validated questionnaire administered to selected AIS students who were exposed to gamified instructional activities. The data were analyzed using descriptive statistics and Pearson Product-Moment Correlation Coefficient. Findings revealed that gamification significantly increased students' engagement and motivation, as evidenced by higher participation levels, sustained interest, and positive learning experiences. Students reported that gamified lessons were more interactive, enjoyable, and encouraging compared to traditional teaching methods.

Results further showed a significant positive relationship between student engagement and motivation, indicating that well-designed gamified activities enhance learners' willingness to participate and persist in academic tasks. However, improvements in academic performance varied, suggesting that while gamification effectively promotes engagement, it must be carefully aligned with instructional objectives to ensure meaningful learning gains.

Overall, the study concludes that gamification is an effective supplementary instructional strategy in AIS education. The findings support the integration of structured gamified learning modules aligned with AIS competencies to promote a more student-centered, interactive, and motivating learning environment.

Keywords: Gamification, Accounting Information System, Student Engagement, Motivation, Academic Performance

1. Introduction

Gamification has emerged as an innovative teaching and learning strategy that integrates game elements such as points, rewards, leaderboards, and challenges into educational settings. In higher education, particularly in Accounting Information System (AIS) courses, students often encounter difficulties in maintaining engagement and motivation due to the technical and analytical nature of the subject. Traditional teaching approaches may not always address these challenges, resulting in reduced participation and limited interaction during learning activities.

In the context of AIS education, students are expected to develop not only technical competence but also critical thinking, problem-solving skills, and sustained motivation to perform academic tasks effectively. As learning environments continue to evolve alongside technological advancements, educators are encouraged to adopt strategies that promote active learning and meaningful student involvement. Gamification offers a potential solution by transforming learning activities into more interactive and engaging experiences.

Given these considerations, this study examined the effectiveness of gamification as a teaching and learning strategy among AIS students at Laguna University. Specifically, it aimed to assess the influence of gamification on student engagement, motivation, academic performance perception, and problem-solving skills. The findings of this study seek to provide insights into how gamification can enhance learning outcomes and support improved instructional practices in AIS education.

1.1. Research Problems

This research seeks to determine the effectiveness of gamification as an instructional and learning technique in enhancing the participation, motivation, and performance of Bachelor of Science in Accounting Information System (BSAIS) students in Laguna University. Specifically, the study seeks to answer the following questions:

1. How effective is gamification in learning AIS course in terms of the following as perceived by the respondents:
   1.1 Engagement levels
   1.2 Motivation
   1.3 Changes in General Weighted Average (GWA)
2. How do the respondents perceived the level of the effectiveness of gamification in terms of the following:
   2.1 Engagement rating scales
   2.2 Academic performance perception surveys
   2.3 Problem-solving skills self-assessment
3. Is there a significant relationship between the perceived level of Effectiveness and assessment of Gamification in Student Learning in AIS Courses ?
4. What evidence-based Action Plan may be formulated based on the results of the study to further enhance the engagement, motivation, and academic performance of Accounting Information System (AIS) students through gamification at Laguna University?

2. Literature Review

Previous studies have shown that gamification can significantly influence students' academic performance, engagement, and motivation, particularly in technical courses such as Accounting Information Systems (AIS). By integrating game elements such as points, badges, leaderboards, and challenges into the learning environment, gamification encourages active participation and improves students' overall learning experience. According to Anwar and Mulyadi (2025), gamification supports learners' autonomy, competence, and relatedness, which are essential in addressing low motivation and disengagement among students. Similarly, Wan, Tahir, and Mohd Noor (2025) emphasized that students are more likely to adopt gamified learning tools when they perceive them as useful and easy to use.

Student engagement is one of the most commonly studied effects of gamification. Research has shown that gamified learning environments promote behavioral, emotional, and cognitive engagement. Rivera and Garden (2021) explained that elements such as rewards, challenges, and collaboration can sustain students' participation when properly aligned with learning objectives. In addition, Chukwuani (2024) highlighted that platforms like Kahoot! and MonsoonSIM effectively increase student motivation and participation in accounting-related subjects. In the Philippine context, studies by Magallanes et al. (2024) and Valderama et al. (2022) confirmed that gamification enhances classroom interaction, participation, and critical thinking skills among students.

Gamification has also been linked to improvements in academic performance, although results vary depending on implementation. A meta-analysis conducted by Zeng et al. (2024) revealed that gamified learning has a moderately

positive effect on student achievement. Similarly, studies in other disciplines, such as medical and language education, found that students exposed to gamified teaching methods performed better than those in traditional learning environments. However, Pajarito, Salcedo, and Fernando (2023) found no significant difference between gamified and traditional approaches, suggesting that gamification may not always guarantee improved academic mastery. These findings indicate that the effectiveness of gamification depends largely on how well it is designed and integrated into the curriculum.

In terms of skill development, gamification has been shown to enhance students' problem-solving abilities and critical thinking skills. Asigigan and Samur (2021) found that gamified STEM activities improved students' intrinsic motivation and problem-solving perceptions. Likewise, Suwanvapee and Kanjug (2020) reported that students exposed to gamified learning environments demonstrated significantly higher problem-solving performance. Local studies further support these findings, indicating that gamification promotes creativity and analytical thinking through interactive and collaborative tasks.

Motivation is another key factor influenced by gamification. Studies suggest that game-based elements such as rewards, feedback, and challenges can increase students' interest and willingness to participate in learning activities. Zhang, Yu, and Yu (2021) found that gamified platforms enhance motivation through collaborative and personalized learning experiences. Similarly, Sevidal (2021) reported that gamification improved students' engagement and understanding of financial concepts in the Philippine setting. These findings highlight that motivation plays a crucial role in achieving positive learning outcomes.

Despite its advantages, gamification also presents certain challenges. Some studies indicate that students may experience pressure or stress due to competition and performance expectations. However, other research suggests that when properly implemented, gamification can help students manage these challenges by providing immediate feedback and structured learning pathways. Additionally, the alignment of game mechanics with course objectives remains a critical factor in ensuring its effectiveness.

Overall, the reviewed literature suggests that gamification can positively impact student engagement, motivation, academic performance, and problem-solving skills. However, its success depends on careful design, proper implementation, and alignment with learning objectives. These findings support the potential of gamification as an effective instructional strategy in AIS courses, while also highlighting the need for further research in specific educational contexts.

3. Methodology

3.1. Research Design

The study will employ a quantitative research design to determine the effectiveness of gamification in improving the learning outcomes of Accounting Information System (AIS) students at Laguna University. This approach allows for a systematic and data-driven analysis of the impact of gamified learning on student engagement, motivation, and perceived academic performance. Data will be gathered using a researcher-made, five-point Likert scale questionnaire ranging from strongly disagree to strongly agree. The questionnaire was validated and pilot-tested prior to its administration to ensure clarity and reliability.

The study will utilize purposive sampling. From approximately 600 Bachelor of Science in Accounting Information System (BSAIS) students, a total of 170 respondents will be selected. The participants will consist of BSAIS students who are currently enrolled in or have previously completed AIS subjects, ensuring that the respondents have relevant exposure to the instructional strategies examined in the study. The findings are expected to provide insights into the effectiveness of gamification and serve as a basis for recommendations for its improved integration in AIS education.

3.2. Research Locale

This study was conducted at Laguna University, located in Calabarzon (Region IV-A). The university offers various academic programs, including the Bachelor of Science in Accounting Information System (BSAIS), which integrates accounting principles with information technology. Laguna University was chosen as the research site because it offers AIS courses that combine both theoretical and technical competencies, making it suitable for examining the effects of gamification on learning outcomes. The survey was conducted during the first semester of the 2025–2026 academic year, with the cooperation of faculty members and the availability of BSAIS students ensuring an accessible and relevant respondent base. The university's openness to innovative learning strategies also provided a conducive environment for the implementation and assessment of gamification in enhancing student learning outcomes.

3.3. Research Population

The population of this study consisted of all Bachelor of Science in Accounting Information System (BSAIS) students, from first year to fourth year, who were enrolled at Laguna University during the academic term in which the research was conducted. The total population included approximately 600 students across all year levels. These students were considered for the study because they are directly involved in Accounting Information System (AIS) courses, where gamification strategies were applied and assessed. Focusing on BSAIS students allowed the researchers to obtain accurate insights into how gamification influenced student engagement, motivation, and academic performance, providing a meaningful basis for evaluating the effectiveness of gamified learning in AIS courses.

A purposive sampling technique was adopted to select the actual respondents from the total population. From the 600 BSAIS students, a total of 170 students were chosen as the final sample. Only those students who were currently enrolled in or had previously completed AIS courses were included, ensuring that all respondents had relevant exposure to the instructional strategies being studied. This approach was considered appropriate because it allowed the researchers to focus on participants with direct experience in gamified learning, increasing the accuracy and relevance of the data collected. The inclusion of students from different year levels provided a wide range of learning experiences, engagement levels, and motivational responses, while participation depended on availability, willingness to participate, and accessibility through schedules coordinated with classes and faculty members.

The purposely selected sample of 170 students provided a representative group from the larger population, offering comprehensive insights into how gamification affected learning outcomes in AIS courses. By focusing solely on BSAIS students who had experienced AIS subjects, the study ensured that the data reflected direct observations and perceptions of gamified learning in practice. This approach contributed to evidence-based conclusions on the role of gamification in enhancing engagement, motivation, and academic performance, as well as providing actionable recommendations for improving the design and delivery of AIS courses at Laguna University.

3.4. Research Instrument

The primary instrument used in this study was a structured survey questionnaire designed to assess the impact of gamification on the learning outcomes of Accounting Information System (AIS) students. The questionnaire was carefully developed by the researchers based on the objectives of the study and relevant literature on gamification, student engagement, motivation, and academic performance.

The instrument consisted of four main parts. Part I gathered the demographic profile of the respondents, including age, sex, and year level. Part II focused on the extent of exposure to gamification strategies, such as the use of points, badges, leaderboards, and challenges in classroom activities. Part III measured students' level of engagement and motivation in gamified learning environments. Part IV assessed the perceived impact of gamification on students' academic performance and problem-solving skills.

A 4-point Likert scale was used to measure the responses of the participants. The scale was structured as follows: 4 – Strongly Agree, 3 – Agree, 2 – Disagree, and 1 – Strongly Disagree. This scale was used to avoid neutral responses and encourage respondents to express a clear opinion.

Table 1. The Likert's Rating Scale

Scale	Range	Descriptive Equivalent
4	3.25 - 4.00	Strongly Agree
3	2.50 - 3.24	Agree
2	1.75 - 2.49	Disagree
1	1.00 - 1.74	Strongly Disagree

3.5. Data Gathering Procedure

The data for this study was collected using a questionnaire designed to assess the effectiveness of gamification in learning outcomes of accounting information system students. The questionnaire was validated by academic experts, including research professors, to ensure content relevance, clarity, and reliability. A formal request letter, signed by the research adviser, was submitted to the dean, program chair, and registrar of Laguna University to obtain approval for data collection.

Following approval, the validated questionnaire was distributed via Google Forms to a randomly selected sample of first-year to third-year BSAIS students. This digital format provided a convenient, accessible, and time-efficient way for respondents to complete the survey at their own pace, promoting thoughtful and honest responses. To maximize participation and minimize non-responses, the researchers coordinated with course instructors, who allowed time for survey completion during or after class sessions.

Before accessing the questionnaire, participants were presented with an introductory section explaining the study's purpose, along with a consent form aligned with the Data Privacy Act of 2012 (Republic Act No. 10173). This ensured voluntary participation and emphasized confidentiality and ethical responsibility throughout the research process. The survey consisted of structured questions using a 4-point Likert scale, specifically crafted to capture students' perceptions and experiences regarding gamified learning in AIS courses. Once responses were collected, the data was tabulated, organized, and prepared for statistical analysis and interpretation to address the study's objectives.

3.6. Statistical Treatment of Data

The data collected from the respondents will be analyzed using appropriate statistical methods to ensure accurate and meaningful interpretation aligned with the study's objectives. The statistical tools to be used are mean, standard deviation, and Pearson's Product-Moment Correlation Coefficient (Pearson's r).

To describe the levels of student engagement, motivation, and perceived academic performance in relation to gamification, mean and standard deviation will be employed. The mean provides a measure of central tendency by summarizing the average response of participants for each variable.

Formula of Mean $\bar{X} = \frac{\sum x}{n}$

Where:

$\bar{x}$ = mean

x *or* xi = stands for each individual score

n = is the total number of observations

The standard deviation indicates the degree of variability or dispersion of responses from the mean, providing insight into the consistency of the data.

Formula of Standard Deviation $\sigma = \frac{\sqrt{\sum(x - mean)^2}}{n}$

Where:

x = *is a set of numbers*

mean = is the average of the set of numbers

n = *is the size of the set*

$\boldsymbol{\sigma}$ = *is the standard deviation*

To examine the relationship between gamification and learning outcomes, Pearson's Product-Moment Correlation Coefficient (Pearson's r) will be used. This statistical tool measures the strength and direction of the linear relationship between two continuous variables. In this study, it will determine the correlation between the level of gamification implemented in AIS courses and the students' engagement, motivation, and perceived academic performance.

The results of these statistical analyses will provide insights into the effectiveness of gamification in improving learning outcomes of AIS students at Laguna University and will support evidence-based recommendations for enhancing instructional strategies in the program.

Formula of Pearson's r $r = \frac{\sum(x - \bar{x})(y - \bar{y})}{\sqrt{\sum(x-\bar{x})(y - \bar{y})^2}}$

3. Results and Discussion

Effectiveness of Gamification in Student Learning in AIS Courses

To determine the effectiveness of gamification in student learning in Accounting Information System (AIS) courses in terms of engagement levels, motivation scores, and gamification scores and rankings, the data were treated statistically using the mean and standard deviation.

Table 2 presents the level of effectiveness of gamification boosts student learning in Accounting Information System (AIS) courses, focusing on three key indicators: engagement levels, motivation scores, and gamification scores and rankings. Looking at the data, motivation scores stood out with the highest average at 3.36 and a standard deviation of 0.56, which is interpreted as "highly effective." Engagement levels and gamification scores and rankings both averaged 3.35, with standard deviations of 0.56 and 0.55 respectively, and were also seen as "highly effective."

Overall, gamification proved to be "highly effective" for student learning, with a weighted average of 3.35 and a standard deviation of 0.55. These results suggest that adding gamified features like points, rankings, and rewards can really amp up students' motivation, engagement, and learning outcomes in AIS courses.

This result is supported by existing literature on the positive effects of gamification on learning outcomes. Li et al. (2023) explain that incorporating game-based elements creates a more engaging and interactive learning

environment, which in turn boosts persistence and motivation during the learning process. In a similar vein, Jaramillo-Mediavilla et al. (2024) show that gamification strengthens intrinsic motivation and fosters deeper learning, particularly in technical areas like accounting and information systems. These insights align closely with the findings of this study, indicating that gamification is a valuable teaching tool for enhancing student engagement and academic success in AIS education.

S*ummary of Effectiveness of Gamification in Student Learning in AIS Courses*
Table 1

Gamification Engagement	Mean	SD	Verbal Interpretation
Engagement Levels	3.35	0.56	Highly Effective
Motivation Scores	3.36	0.55	Highly Effective
Gamification Scores & Rankings	3.35	0.55	Highly Effective
Overall Mean	**3.35**	**0.55**	**Highly Effective**

**3.26-4.00 Highly Effective, 2.51-3.25 Effective, 1.76-2.50 Moderately Effective, 1.00-1.75 No Effect*

Engagement Levels

Shows the respondents' assessment of Engagement Levels in relation to the effectiveness of gamified learning strategies among AIS students of Laguna University. It also presents the statements, mean, standard deviation, and remarks.

The respondents conceded that the introduction of gamification aspects in the AIS course makes them more involved, entertained, and engaged in the learning processes. The average and the standard deviation (M = 3.44 and SD = 0.56) suggest that gamification is quite robust (Highly Effective) towards encouraging active participation and interactive classroom activities. The most significant indicators were noted in the statement with the highest mean (3.50), which is that I believe that gamification elements will make the AIS lessons more enjoyable and interactive because it was possible to observe that students consider the elements of gamification as the main factors that will make the lessons more interesting and engaging.

Table 2. Effectiveness of Gamification in Student Learning in AIS Courses in terms of Engagement Levels

Statements	Mean	SD	Remarks
1. I expect that I will actively participate in gamified activities in the AIS course.	3.45	0.53	Strongly Agree
2. I believe gamification elements will make the AIS lessons more enjoyable and interactive.	3.50	0.54	Strongly Agree
3. I think I will be more focused during gamified lessons compared to traditional lectures.	3.36	0.63	Strongly Agree
4. I expect that I will look forward to attending AIS classes that include gamified tasks.	3.45	0.55	Strongly Agree
5. I believe gamification will help me engage more deeply with the course content.	3.43	0.54	Strongly Agree
Overall Weighted Mean	**3.44**	**0.56**	**Highly Effective**

Meanwhile,the least mean (3.36) is associated with the statement I think I will be more concentrated during gamified lessons than during the traditional lecture though this range belongs to the Highly Effective category. It means that, although students tend to be interested in gamified environments, the extent of their attention can vary depending on the structure and design of activities.

The total rating of the Engagement Levels was the weighted mean of 3.44, and the standard deviation of 0.56, which was interpreted verbally to mean Highly Effective among the respondents. This means that the use of gamification significantly contributes to increasing student participation, enthusiasm, and interaction within AIS lessons.

The findings are supported by Abu Samah, Ismail, and Hasan (2022), Their research found that learners who were exposed to gamified learning activities recorded better pre- and post-test difference in their mean scores which culminated in better understanding and engagement. In addition, the researchers stated that the incorporation of game-based components into the mobile learning applications makes the learning process more constructive and interactive, which maintains the interest and motivation of the students towards academic achievements.

Motivation Scores

This section presents the respondents' motivation scores regarding the use of gamification in the Accounting Information Systems (AIS) course. The results were analyzed using the mean and standard deviation to determine the perceived effectiveness of gamified learning in motivating students, as shown in Table 4.

Table 3. *Effectiveness of Gamification in Student Learning in AIS Courses in terms of Motivation Scores*

Statements	Mean	SD	Remarks
1. I believe gamification will motivate me to participate more actively in AIS lessons.	3.45	0.54	Strongly Agree
2. I expect gamified activities will encourage me to study consistently	3.40	0.55	Strongly Agree
3. I believe gamification will make me more eager to accomplish AIS-related tasks.	3.43	0.58	Strongly Agree
4. I think gamified lessons will sustain my interest in AIS throughout the course	3.39	0.57	Strongly Agree
5. I expect gamification will make me more enthusiastic about learning challenging topics in AIS.	3.47	0.57	Strongly Agree
Overall Weighted Mean	**3.43**	**0.56**	**Highly Effective**

Table 3 shows the respondents' assessment of Engagement Levels in relation to the effectiveness of gamified learning strategies among AIS students of Laguna University. It also presents the statements, mean, standard deviation, and remarks.

The respondents agreed that the integration of gamification in the AIS course makes them more motivated to be active participants and have regular study patterns. The mean and Standard deviation (M = 3.43 and SD = 0.56) show that gamified learning is Highly Effective in creating interests and engagement in the students. Within the indicators, the greatest mean (3.47) was realized in the statement. I expect gamification will make me more enthusiastic about learning challenging topics in AIS, which indicates that gamified strategies promote enthusiasm and confidence in the ability to play with difficult lessons.

Meanwhile, the least mean (3.39) is associated with the idea that gamified lessons will keep me interested in AIS during the course, though this value is also in the Highly Effective range. This means that the use of gamification significantly contributes to increasing student participation, enthusiasm, and interaction within AIS lessons.

The findings are supported by Jaramillo-Mediavilla, Basantes-Andrade, Cabezas-Gonzalez, and Casillas-Martin (2024) discuss the current knowledge of gamification in education and support their findings with evidence that eventually gamification has a positive effect on motivation and academic achievements of students. This methodology has facilitated their systematic literature review (using PRISMA criteria) to identify that gamified learning is more effective in playing with knowledge assimilation, skills, and academic capabilities. These results confirm that the use of gamification requires creativity and versatility to be utilized well because gamification is what changes the normal lessons into interactive, student-centered learning experiences that will drive students to be motivated and achieve success.

Gamification Scores and Rankings

This section presents the results of the respondents' evaluation of gamification scores and rankings in the Accounting Information Systems (AIS) course. The data were statistically treated using the mean and standard deviation to determine the effectiveness of gamified learning strategies in enhancing student performance and motivation.

Table 4 shows the respondents' assessment of Gamification Scores and Rankings in relation to the effectiveness of gamified learning strategies among AIS students of Laguna University. It also presents the statements, mean, standard deviation, and remarks.

From the students' feedback, it can be understood that including game elements like points, badges, and leaderboards encourages them to participate more actively and stay motivated in their classroom tasks. The analysis of the data, which yielded a mean of 3.37 and a standard deviation of 0.61, shows that the use of gamification is regarded as "highly effective" in improving students' engagement and eagerness to learn. This suggests that the majority of AIS students regard gamified learning as an effective instructional approach that strengthens their concentration, enjoyment, and overall academic performance. However, the slightly higher standard deviation implies that while the majority found it effective, a few students had varied experiences or preferences toward certain gamified strategies.

Table 4. *Effectiveness of Gamification in Student Learning in AIS Courses in terms of Gamification Scores and Rankings*

Statements	Mean	SD	Remarks
1. I expect that earning high scores in gamified tasks will motivate me to study harder.	3.44	0.58	Strongly Agree
2.I believe that rankings or leaderboards will push me to perform better than my classmates.	3.32	0.64	Strongly Agree
3. I expect that receiving badges, stars, or other rewards will make learning AIS more exciting.	3.46	0.57	Strongly Agree
4. I believe that comparing my scores with others will encourage me to improve my results.	3.21	0.73	Strongly Agree
5. I expect that achieving higher ranks in gamified activities will increase my confidence in AIS.	3.40	0.54	Strongly Agree
Overall Weighted Mean	**3.37**	**0.61**	**Highly Effective**

The overall assessment of Gamification Scores and Rankings obtained a weighted mean of 3.37 and a standard deviation of 0.61, which was verbally interpreted as “Highly Effective" among the respondents. This means that the integration of gamified elements in teaching and learning has a strong positive impact on the academic involvement, motivation, and learning satisfaction of AIS students in Laguna University.

The findings are supported by Cruz (2023) and Sylvester (2024), who emphasized that game-based and gamified activities foster higher engagement and active learning by transforming traditional classroom activities into more interactive and rewarding experiences. These results confirm that gamification, when effectively implemented, significantly contributes to improving students’ learning motivation and overall classroom participation, which aligns with the observed engagement levels among AIS students.

Level of the Influence of Gamification

To ascertain the extent of gamification's impact on students' learning experiences in Accounting Information System (AIS) courses regarding engagement, perceived academic performance, and problem-solving abilities, the data were analyzed statistically using the mean and standard deviation.

Table 5.*Summary Level of the Influence of Gamification*

Self-Assessment	Mean	SD	Verbal Interpretation
Engagement Rating Scale	3.35	0.56	Very High
Academic Performance Perception Surveys	3.36	0.55	Very High
Problem-Solving Skills Self-Assessment	3.35	0.55	Very High
Overall Mean	**3.35**	**0.55**	**Very High**

**3.26-4.00 Very High Influence, 2.51-3.25 High Influence, 1.76-2.50 Moderate Influence, 1.00-1.75 Low Influence*

Table 5 shows how gamification affects student learning in Accounting Information System courses. It looks at engagement, how students think about their academic performance, and their problem-solving skills. The data show that all of the indicators were rated very highly, with mean scores between 3.35 and 3.36 and standard deviations between 0.55 and 0.56. This shows that students gave consistent answers. The mean score of 3.36 for academic performance perception was the highest of the three indicators. This suggests that gamified learning environments help students see their academic performance in a better light. Both engagement and problem-solving skills had an average score of 3.35, which means that gamification strongly encourages people to get involved and also helps them think and analyze better. The average score of 3.35 and the standard deviation of 0.55 show that gamification has a big impact on how well AIS students learn overall. This means that gamification is a useful teaching tool that makes students more interested in the subject, boosts their self-esteem as learners, and helps them develop the problem-solving skills they need to do well in accounting-related courses.

The overall mean of 3.35 and standard deviation of 0.55 showed that gamification had a very high level of influence. These results show that adding gamification to Accounting Information System (AIS) classes has been very successful in making learning more enjoyable. The indicator with the highest mean was academic performance perception, which means that gamified strategies help students see how much they have learned and how well they have done. Engagement and problem-solving skills were also very high, which suggests that gamification boosts active participation and improves students' ability to think critically.

Numerous studies corroborate these findings regarding the efficacy of gamification in educational contexts. Hellín-Javier et al. (2023) stressed that adding game elements like points, rewards, and leaderboards to learning activities makes students more motivated and keeps them interested in what they are doing. Setyoadi and Patmanthara (2024) similarly indicated that gamification enhances academic performance and fosters deeper learning by motivating students to engage in goal-oriented behaviors. These results corroborate the current study, affirming that gamification is an effective pedagogical strategy that enhances students' motivation, engagement, and academic perceptions in Accounting Information System courses.

Engagement Rating Scale

This section presents the results of the respondents' engagement rating scale toward gamified learning activities in the Accounting Information Systems (AIS) course. The data were statistically analyzed using the mean and standard deviation to identify the extent of student engagement brought about by the integration of gamification in the learning process**.**Table 6 presents the respondents' evaluation of the Engagement Rating Scale, which measures their level of engagement during gamified learning activities among AIS students of Laguna University. The table also shows the mean, standard deviation, and remarks. The respondents agreed that gamification encourages active participation and consistent involvement in classroom tasks. The computed mean and standard deviation (M = 3.35 and SD = 0.56) were verbally interpreted as "Very High", showing that AIS students maintain strong attention, enthusiasm, and interest in learning activities when gamified methods are applied.

Table 6. *Level of the Effectiveness of Gamification in terms of Engagement Rating Scale*

Statements	Mean	SD	Remarks
1. I actively participated in gamified activities in the AIS course.	3.31	0.58	Strongly Agree
2.The gamification elements made the AIS lessons more enjoyable and interactive.	3.43	0.51	Strongly Agree
3. I was more focused during gamified lessons compared to traditional lectures.	3.24	0.63	Strongly Agree
4. I looked forward to attending AIS classes that included gamified tasks.	3.40	0.53	Strongly Agree
5. Gamification helped me engage more deeply with the course content.	3.36	0.54	Strongly Agree
Overall Weighted Mean	**3.35**	**0.56**	**Very High**

Based on the computed overall weighted mean of 3.35 and a standard deviation of 0.56, the findings reveal that AIS students possess a "very high level of engagement". The results also suggest that students are more likely to stay focused and involved in their academic work when gamified strategies are incorporated into the teaching and learning process. This increased involvement shows how gamification helps students in Laguna University's AIS program not only become more motivated to learn but also improve their study habits and collaborate with their peers.

The result supports the study of Lasala (2023), who pointed out that using game-based and interactive teaching approaches enhances students' attention and participation in class. In line with this, the data indicates that gamification greatly influences student engagement, leading to improved learning performance, heightened interest, and more active involvement among AIS students at Laguna University.

Academic Performance Perception Survey

This section presents the results of the respondents' perception in their academic performance towards the effectiveness of gamified learning in the Accounting Information Systems (AIS) course. The data were statistically analyzed using the mean and standard deviation to identify the overall perception on their academic performance with regards to gamified learning in the Accounting Information Systems (AIS) course.

Table 7. *Level of the Effectiveness of Gamification in terms of Academic Performance Perception Survey*

Statements	Mean	SD	Remarks
1. Gamification motivated me to participate more actively in AIS lessons.	3.38	0.55	Strongly Agree
2. Gamified activities encouraged me to study consistently.	3.38	0.54	Strongly Agree
3. Gamification made me more eager to accomplish AIS-related tasks.	3.35	0.55	Strongly Agree
4. Gamified lessons sustained my interest in AIS throughout the course.	3.34	0.54	Strongly Agree
5. Gamification made me more enthusiastic about learning challenging topics in AIS.	3.37	0.54	Strongly Agree
Overall Weighted Mean	**3.36**	**0.55**	**Very High**

Table 7 presents the respondents' perception of how gamified learning influences their academic performance in the AIS course. The overall weighted mean is 3.36, with a standard deviation of 0.55; thus, it falls under the range of "Very High". This means that perceived gamification is a highly effective approach for bringing about academic motivation, consistency, and performance in the AIS students of Laguna University.Among the indicators, the highest mean, 3.38, was recorded in statements “Gamification motivated me to participate more actively in AIS lessons” and “Gamified activities encouraged me to study consistently.” These results show that gamified activities are effective in bringing out intrinsic motivation and discipline among the students, helping them sustain efforts and attention for the whole course. Indeed, this finding underlines the fact that gamification does not just make learning appealing but also reinforces commitment toward school duties in students.

The lowest mean, 3.34, was from the statement “Gamified lessons sustained my interest in AIS throughout the course,” but still within the range of “Very High.” This means that, although gamification greatly enhances learning interest, maintaining a high degree of enthusiasm may depend on the diversity and design of the gamified elements used. Repetitive or predictable activities may make people less excited over time, and variety or innovation should be ensured in implementing gamified lessons.

Overall, the “Very High” result shows that gamification contributes significantly to students' academic performance and learning attitude in terms of active participation, consistent studying, and more enthusiasm towards learning. These results are supported by the findings from Sevidal 2021, where it was established that rewards and interactivity within game-supported learning environments result in increased motivational engagement, persistence, and achievement of students towards learning. It is, therefore, possible to conclude from this that gamification is indeed a strong pedagogical tool that will positively influence the academic behaviors of students and hence their improvement and engagement in the AIS course.

Problem-Solving Skills Self-Assessment

This section presents the results of the respondents’ self-assessment of problem-solving skills in the effectiveness of gamified learning in the Accounting Information Systems (AIS) course. The data were statistically analyzed using the mean and standard deviation to identify the self-assessment of problem-solving skills in the gamified learning Accounting Information Systems (AIS) course. Table 8 presents the respondents’ self-assessment of problem-solving skills in the context of gamified learning in the AIS course. The overall weighted mean of 3.35 and standard deviation of 0.55, verbally interpreted as “Very High,” indicate that students perceived gamification as a highly effective strategy in developing their analytical, critical thinking, and problem-solving capabilities.

Table 8. *Level of the Effectiveness of Gamification in terms of Problem Solving Skills Self-Assessment*

Statements	Mean	SD	Remarks
1. Gamification helped me approach AIS problems with clearer strategies.	3.37	0.53	Strongly Agree
2. I was able to break down complex problems into smaller, manageable steps during gamified activities.	3.26	0.56	Strongly Agree
3. Gamification improved my logical thinking when solving AIS-related exercises.	3.39	0.55	Strongly Agree
4. I became more confident in finding solutions to problems because of gamified tasks.	3.33	0.56	Strongly Agree
5. Gamification enhanced my ability to think critically and make better decisions in AIS problem-solving	3.40	0.54	Strongly Agree
Overall Weighted Mean	**3.35**	**0.55**	**Very High**

The highest mean of 3.40 is for the statement, “Gamification enhanced my ability to think more critically and make better decisions in AIS problem-solving.” This suggests that gamified activities provide students with ways to apply reasoning and decision-making in solving accounting-related problems. Adding points, levels, or scenario games teaches the learner to consider a situation deeply and select the appropriate solution; this enhances logical reasoning and develops confidence in making decisions. The lowest mean, 3.26, corresponds to the statement "I was able to break down complex problems into smaller, manageable steps during gamified activities." Although this is still in the "Very High" category, the implications would seem to be that through gamification alone, perhaps not all students fully learned systematic problem-solving strategies. This may also suggest further scaffolding or structured guidance could be necessary for making connections between gamified experiences and analytical problem-solving frameworks.

The "Very High" overall rating implies that gamification has a positive effect on students' cognitive engagement and strategic thinking in AIS. It motivates them to methodically approach complex accounting problems and build confidence and creativity when solving the problems. These results were supported by the study of Bai et al. (2020) and Cruz (2023), which indicated that students demonstrated enhanced higher-order thinking and decision making through gamified learning by allowing students to apply theoretical knowledge in an interactive, challenge-based environment.Moreover, since students are not only more involved but also better able to provide rational and well-structured responses to questions related to AIS, the findings confirm that gamified learning enhances motivation and intellectual development. Gamification thus becomes a helpful teaching method that effectively integrates critical analytical skills development with the development of passion and involvement in the study of accounting.

Test of Significant Relationship between Gamification Engagement and Student Learning Outcomes

This section presents the results of the significant relationship between gamification engagement and student learning outcomes among AIS students of Laguna University. The data were analyzed using the Spearman’s Rank-Order Correlation (ρ-stat) to determine the association between gamified learning engagement and students’ motivation, problem-solving skills, and academic performance.

TABLE 9. *Relationship Between Gamification Engagement and BSAIS Students' Self-Assessment in Terms of Engagement Level*

Gamification Engagement	Self-Assessment	ρ-stat	Strength of Relationship	p-value	Analysis
Engagement Levels	Engagement Rating Scale	0.745	Strong	0.000	Significant
	Academic Performance Perception Surveys	0.660	Strong	0.000	Significant
	Problem-Solving Skills Self-Assessment	0.601	Strong	0.000	Significant

0.00-0.019 Very Weak, 0.20-0.39 Weak, 0.40-0.59 Moderate, 0.60-0.79 Strong, 0.80-1.00 Very Strong Relationship
*** p-value<0.05, significant*

The results shown in Table 9 reveal that gamification engagement has a strong and statistically significant relationship with students' self-assessed outcomes, including engagement level (ρ = 0.745), academic performance perception (ρ = 0.660), and problem-solving skills self-assessment (ρ = 0.601), with all p-values recorded at 0.000. These findings indicate that students who are more engaged in gamified learning activities tend to report higher levels of engagement, perceive improvements in their academic performance, and demonstrate stronger confidence in their problem-solving abilities. The results suggest that gamification positively influences students' self-perceptions of learning by promoting active participation, sustained interest, and cognitive involvement. This aligns with the study of Bai, Hew, and Huang (2020), which found that gamification significantly enhances students' engagement and perceived learning outcomes in higher education. Similarly, Zainuddin et al. (2020) emphasized that gamified instructional approaches contribute to improved self-assessment of learning performance and problem-solving skills by fostering motivation and learner autonomy.

TABLE 10. *Relationship Between Gamification Engagement and BSAIS Students' Self-Assessment in Terms of Motivation Scores*

Gamification Engagement	Self-Assessment	ρ-stat	Strength of Relationship	p-value	Analysis
Motivation Scores	Engagement Rating Scale	0.779	Strong	0.000	Significant
	Academic Performance Perception Surveys	0.768	Strong	0.000	Significant
	Problem-Solving Skills Self-Assessment	0.740	Strong	0.000	Significant

0.00-0.019 Very Weak, 0.20-0.39 Weak, 0.40-0.59 Moderate, 0.60-0.79 Strong, 0.80-1.00 Very Strong Relationship
*** p-value<0.05, significant*

The results presented in Table 10 indicate that gamification engagement has a strong and statistically significant relationship with students' motivation in terms of engagement level (ρ = 0.779), academic performance (ρ = 0.768), and problem-solving skills self-assessment (ρ = 0.740), with all p-values recorded at 0.000. These findings suggest that higher levels of engagement in gamified learning activities are associated with increased student motivation,

improved academic outcomes, and enhanced self-perceived problem-solving abilities. The strong correlations imply that gamification serves as an effective instructional strategy that positively influences both cognitive and affective learning domains. This result is consistent with the findings of Bai, Hew, and Huang (2020), who reported that gamification significantly enhances learner motivation and academic achievement in higher education. Similarly, Zainuddin et al. (2020) emphasized that gamified learning environments promote active engagement and higher-order thinking skills, including problem-solving, by increasing student participation and sustained interest in academic tasks.

TABLE 11. *Relationship Between Gamification Engagement and BSAIS Students' Self-Assessment in Terms of Gamification Scores & Rankings*

Gamification Engagement	Self-Assessment	ρ-stat	Strength of Relationship	p-value	Analysis
Gamification Scores & Rankings	Engagement Rating Scale	0.713	Strong	0.000	Significant
	Academic Performance Perception Surveys	0.701	Strong	0.000	Significant
	Problem-Solving Skills Self-Assessment	0.690	Strong	0.000	Significant

0.00-0.019 Very Weak, 0.20-0.39 Weak, 0.40-0.59 Moderate, 0.60-0.79 Strong, 0.80-1.00 Very Strong Relationship
*** p-value<0.05, significant*

Table 11 reveals that gamification engagement is strongly and significantly related to gamification scores and rankings, as evidenced by its correlations with engagement level (ρ = 0.713), academic performance (ρ = 0.701), and problem-solving skills self-assessment (ρ = 0.690), all with p-values of 0.000. These results indicate that students who are more engaged in gamified learning activities tend to achieve higher scores and rankings, which are likewise associated with improved academic performance and stronger confidence in problem-solving skills. This finding suggests that gamification elements such as points, rankings, and rewards effectively reinforce student engagement and learning outcomes. The results support the study of Sailer and Homner (2020), who found that performance-based gamification elements significantly enhance student engagement and achievement. In addition, Toda et al. (2021) concluded that well-designed gamification systems contribute to improved learning performance and sustained engagement in higher education settings.

5. Summary, Conclusions and Recommendations

5.1. Summary of Findings

The research findings revealed that gamification effectively enhanced students' engagement, motivation, and academic performance among BSAIS students at Laguna University. In general, the responses provided showed strong positive perception in the use of game-based elements in AIS courses, indicating improved participation with better learning experiences. Although perceived effectiveness was higher on engagement and motivation, improvements in certain aspects of academic performance and problem-solving skills were indeed observed.

For assessing the Effectiveness of Gamification in Learning, AIS Courses findings revealed that gamification was highly effective in enhancing the overall learning experience of BSAIS students in Laguna University. Students consistently reported that gamified lessons increased their engagement, motivation, and academic performance. They found lessons more enjoyable, interactive, and easier to understand when game elements such as points, leaderboards, and challenges were integrated. The inclusion of rewards and progress indicators further strengthened their motivation to participate and complete class tasks. Students also perceived improvements in their General

Weighted Average (GWA), suggesting that gamification contributed positively to their comprehension of AIS concepts and their ability to perform better academically.

In terms of Student's Perceived Level of Effectiveness Based on Assessment Tools Based on self‑assessment instruments, it is highly effective in promoting better engagement, academic involvement, and problem-solving skills. Engagement rating scales showed that learners felt more attentive, immersed, and enthusiastic during gamified lessons. Academic performance perception surveys also reflected positive viewpoints, with many respondents acknowledging that game-based activities supported their understanding of complex topics. Students likewise expressed confidence in their problem-solving abilities, reporting that scenario-based challenges and gamified tasks helped them think critically and apply AIS principles more effectively. Although minor variations existed, results consistently indicated that students recognized the value of gamification across these assessment areas.

Finally, determining the Significant Relationship Between Perceived Effectiveness and Gamification Assessment. The study found a moderate to strong positive relationship between students' perceived effectiveness of gamification and their assessment of its impact on AIS learning. Higher perceptions of engagement and motivation were associated with improvements in academic performance and problem-solving skills. Students who believed gamification was beneficial were also more likely to show stronger participation and better learning outcomes. This correlation confirms that students' positive perceptions play an important role in maximizing the success of gamified instructional strategies in AIS courses.

5.2. Conclusion

The findings of this study show that gamification has a positive influence on the learning outcomes of AIS students at Laguna University, particularly in the areas of engagement, motivation, and academic performance. Students demonstrated higher levels of participation and interest when exposed to gamified activities, while instructors observed improved focus and interaction during lessons. Although the results indicate meaningful gains in engagement and motivation, variations in learning preferences and access to technology suggest the need for more consistent implementation and improved instructional design to ensure the full effectiveness of gamification across all AIS classes.

Moreover, the study revealed that students who experienced gamified learning reported increased confidence in problem-solving and a more enjoyable learning environment. These perceptions highlight the capacity of gamification to enhance understanding of complex AIS concepts through interactive and experience-based activities. However, results also emphasize that gamification must be paired with clear learning objectives and appropriate feedback mechanisms to sustain its long-term impact on academic performance.

The correlation analysis indicates that gamification is significantly related to students' engagement, motivation, and perceived academic improvement. Thus, the study's hypothesis—stating that there is no significant relationship between gamification and learning outcomes—is rejected. The data affirm that integrating game-based strategies contributes to better student involvement and learning gains in AIS courses.

In light of these results, the study recommends strengthening the use of gamification through well-structured activities, consistent feedback, and integration with real-world accounting applications. Enhancing technological support and training for instructors would also help improve its implementation. By adopting a more systematic approach to gamified instruction, AIS programs can foster a more engaging, motivating, and effective learning environment for students.

5.3. Recommendations

All the data presented went through processes to derive clear insights of the respondents regarding the use of gamification in Accounting Information System (AIS) courses.. Eventually, the respondents generally provided positive feedback. Despite favorable responses, here are some of the recommendations:

A. For Teachers

Teachers are encouraged to consistently integrate gamification elements such as points, badges, leaderboards, scenario-based challenges, and digital simulations that align with AIS concepts to enhance student motivation and engagement. They should implement structured evaluation phases—before, during, and after gamified activities—to closely monitor student performance and participation. Utilizing digital tools like Kahoot, Quizizz, and LMS platforms with gamification features is recommended to provide continuous feedback and support interactive learning. Teachers are also advised to participate in seminars and capacity-building workshops to improve their skills in designing and implementing gamified lessons. Providing clear objectives, instructions, rules, and reward criteria is essential to keep students motivated, while fostering a supportive and interactive classroom environment that encourages active participation and deeper understanding of AIS topics.

B. For the Institution

The institution is encouraged to invest in a fully equipped AIS laboratory with computers, accounting software, simulation programs, and stable internet connectivity to support the effective implementation of gamified instruction. Adopting a university-wide learning platform with built-in gamification features—such as badges, leaderboards, and progress-tracking systems—can help standardize and enhance the use of game-based learning across departments. Continuous technical support, updated digital resources, and regular training for faculty members are recommended to ensure long-term sustainability and successful implementation. Furthermore, collaborating with educational technology developers can help the institution integrate innovative, discipline-aligned gamification tools. Through these initiatives, the institution can foster a technologically enriched learning environment that promotes engagement, motivation, and academic growth.

C. For Future Researchers

Future researchers are encouraged to expand the sample size to include additional year levels, programs, or institutions to increase the generalizability of findings. Using mixed-method approaches such as interviews and focus group discussions may provide deeper insights into student experiences, challenges, and perceptions regarding gamified learning. Researchers may also examine the individual impact of specific gamification elements—such as competition, collaboration, rewards, or simulations—to determine which components most effectively enhance learning outcomes. Conducting longitudinal studies is recommended to assess the long-term effects of gamification on student motivation, retention, and mastery of AIS concepts. Additionally, exploring and comparing different gamification models across various learning environments may offer valuable insights for further improving the design and implementation of gamified instructional strategies.

Proposed Action Plan

“GAME-ON AIS: Enhancing Accounting Information Systems Instruction through Gamified Learning”

This action plan focuses on strengthening research-based instructional practices through the integration of gamification in Accounting Information System (AIS) courses. A seminar-workshop on gamified instruction will be conducted before the start of the semester to equip AIS instructors with practical knowledge on using points, badges, leaderboards, and interactive challenges. Following the training, instructors will collaboratively develop structured gamified lesson plans, quizzes, and simulations aligned with AIS learning outcomes. Throughout the semester, these strategies will be implemented through regular gamified activities and assessments to enhance student engagement, motivation, problem-solving skills, and academic performance. Continuous monitoring through feedback sessions and performance tracking will be conducted, and the effectiveness of the gamification approach will be evaluated at the end of the semester using research-based surveys and data analysis. Funding for these activities will be sourced from university, departmental, student development, and research funds to support training, material development, implementation, and evaluation.

Budget Justification

The proposed budget of ₱38,000 is realistic and appropriate for the implementation of gamification strategies in AIS courses at Laguna University. The largest portion of the budget is allocated to faculty training to ensure instructors are adequately prepared to integrate gamification effectively. Funds for module development and digital tools support the creation of structured, competency-based learning materials. Student incentives are kept minimal and non-monetary to promote motivation without compromising academic integrity. Monitoring and evaluation expenses ensure continuous assessment of the program's effectiveness. Overall, the budget prioritizes instructional quality while making efficient use of existing institutional resources.

Table 12

Objectives	Planned Activities / Strategies	Persons Involved	Time Frame	Expected Outcomes	Estimated Budget (PHP)	Source of Funds
To equip AIS instructors with knowledge and skills in gamified instruction	Conduct a seminar-works hop on gamification strategies for AIS courses, focusing on points, badges, leaderboards, and interactive challenges	Program Chair, AIS Instructors, IT Personnel	Before start of semester	Instructors are competent and confident in applying gamification in AIS classes	₱18,000	University academic development fund
To develop structured gamified learning materials aligned with AIS competencies	Develop gamified lesson plans, quizzes, and accounting simulations aligned with course learning outcomes	AIS Instructors, Curriculum Committee	1 month	Availability of standardized gamified instructional materials	₱6,000	Department operational fund
To increase student engagement and motivation in AIS classes	Implement weekly gamified activities such as accounting challenges, team-based quizzes, and	AIS Instructors, Students	Whole semester	Improved student participation, motivation, and classroom interaction	₱5,000	Student development fund

	leaderboard rankings					
To enhance students' problem-solving skills and academic performance	Use gamified assessments and simulations that require application of accounting and system concepts	AIS Instructors, Students	Whole semester	Improved understanding of complex AIS topics and better academic performance	₱4,000	University instructional resources
To monitor and provide feedback on student learning progress	Conduct monthly feedback sessions and progress monitoring using surveys and performance tracking	AIS Instructors, Students	Monthly	Timely feedback and continuous improvement of teaching strategies	₱2,000	Research-related expenses
To evaluate the effectiveness of gamification implementation	Administer post-implementation evaluation surveys and analyze results for future improvements	Researchers, Program Chair	End of semester	Evidence-based evaluation and refined gamifications	₱3,000	Research fund

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