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Teachers' Digital Gamification Practices

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Abstract

Digital gamification is catching on fast in classrooms because it makes learning feel more interactive and motivates students to perform better by incorporating game elements into lessons and tests. Aligned with Sustainable Development Goal 4 (Quality Education), this descriptive study assessed the extent of teachers' use of digital gamification and provided a solid empirical basis for an Educational Technology Enhancement Plan. The study focused on Key Stage 1 teachers (N = 71) in one of the districts in a large division in Negros Island Region during the School Year 2026–2027. Census sampling (total enumeration) was employed to capture the full population of local practitioners. Data were gathered using a validated, highly reliable, researcher-developed 5-point Likert-scale questionnaire (Cronbach's alpha = 0.959). Descriptive statistical analysis revealed high overall execution levels across the four core dimensions of practices: Instructional Goals Alignment (M = 4.00), Game Mechanics Design (M = 3.88), Teaching Approaches in Gamified Context (M = 3.91), and Assessment Integration (M = 3.83). Non-parametric inferential analyses using the Mann-Whitney U test indicated that teachers' profile variables (age, educational attainment, and number of ICT training sessions attended) do not significantly influence gamification practices ($p > 0.05$). However, a statistically significant difference was observed in Instructional Goals Alignment based on length of service ($U = 421.000$, $p = 0.032$), indicating that teaching tenure directly shapes the technical integration of pedagogical objectives. The weakest practices identified were aligning activities with the Most Essential Learning Competencies (MELCs), integrating mechanics with digital tools, utilizing storytelling/situational contexts, and gamifying summative/large-scale evaluations. Practical implications underscore the need for targeted professional development through hands-on workshops on digital gamification platforms and peer mentorship to translate practices into optimized student engagement and achievement.

Keywords: *Assessment integration, digital gamification, educational technology enhancement plan, game mechanics design, instructional goals alignment, teaching*

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Introduction

Rationale

The Department of Education continuously promotes the integration of modern learning tools to enhance academic performance, aligning with Sustainable Development Goal 4 (SDG 4) on inclusive and quality education. National data from the OECD Program for International Student Assessment (PISA) reveal that 67% of Filipino students regularly use digital tools for learning in school, reflecting a structural shift toward technology-driven environments. To support this transition, DepEd emphasizes digital gamification to boost engagement and literacy outcomes. While the Philippine professional standards push for technology integration across Key Stage 1 classrooms, operational disparities persist in the effectiveness with which educators apply complex digital strategies.

Despite high baseline technology adoption among teachers, targeted pedagogical gaps remain evident in foundational early-grade settings. National ICT implementation reviews indicate that teachers demonstrate functional mastery over basic productivity tools, yet encounter significant hurdles when embedding digital applications into advanced instructional tasks. Within Key Stage 1 environments, educators face challenges in blending digital narratives, incorporating game mechanics into summative assessments, and aligning gamified activities with specific learning standards. This gap suggests that surface-level digital exposure does not automatically translate into structured, outcome-driven gamification practices.

A critical empirical gap exists in understanding how Key Stage 1 teachers integrate digital gamification across specific districts within the Negros Island Region. Existing literature often evaluates macro-level ICT capacity or isolated teaching performance. However, it lacks localized empirical data examining the interaction between demographic profiles, such as age, educational attainment, ICT training frequency, and length of service, and specific gamification dimensions. Furthermore, current studies fail to quantify how gamified assessment integration and game mechanics design are implemented by primary-grade educators across regional divisions, leaving policymakers without actionable local baselines.

This investigation relies on Self-Determination Theory (SDT), developed by Deci and Ryan, which posits that intrinsic motivation thrives when environments satisfy learners' needs for autonomy, competence, and relatedness. In early-grade classrooms, digital gamification serves as a structural framework to fulfill these psychological needs through interactive challenges, choice, and systematic feedback loops. By examining gamification practices through the lens of SDT, the study evaluates how teachers intentionally construct learning environments that leverage points, badges, and collaborative dynamics to drive engagement, rather than relying on unstructured digital play.

To systematically evaluate these classroom practices, the study organizes digital gamification into four functional dimensions: instructional goals alignment (Kapp, 2012), game mechanics design (Sailer et al., 2017), teaching approaches in a gamified context (Hamari et al., 2014), and assessment integration (Landers, 2015). Evaluating these practices across teacher profile variables—specifically age, educational attainment, length of service, and volume of ICT training—enables an empirical test of whether professional demographics significantly influence the implementation of gamification. This structural comparison identifies the precise areas where pedagogical practices vary across teacher subgroups.

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https://journals.aloysianpublications.com
Volume 2 Issue 9 (2026)

Direct observations in local public schools confirm that Key Stage 1 teachers frequently encounter structural barriers, including insufficient gamified assessment tools and inadequate targeted professional training. High overall self-ratings in basic ICT integration can create a false sense of instructional readiness, masking unresolved deficiencies in gamified assessment design and narrative integration. To address these instructional disparities, this study examines digital gamification practices among 71 Key Stage 1 teachers in a large division within the Negros Island Region during School Year 2026–2027.

Literature Review

Digital gamification is grounded on the premise that effective technology integration is a multidimensional process involving technological competence, pedagogical knowledge, and instructional design (Landers, 2015). Foreign conceptual literature indicates that the intentional use of game mechanics, such as point systems, rewards, and challenges, significantly motivates student participation and behavior (Kapp, 2012). These game mechanics satisfy students' basic psychological needs, thereby fostering active involvement and continuous feedback (Sailer et al., 2017). Additionally, gamified teaching approaches encourage learner-centered collaboration and interactive peer learning (Hamari et al., 2014). When integrated with appropriate instructional practices, digital gamification creates dynamic, flexible learning environments that accommodate diverse learning styles and enhance cognitive retention (Landers, 2015).

In the Philippine basic education context, the Department of Education (DepEd, 2020) heavily supports the integration of Information and Communication Technology (ICT) to make classroom learning experiences more effective and meaningful. Local conceptual literature emphasizes that integrating gamified elements, such as rewards, challenges, and leaderboards, substantially improves student motivation and active participation in public schools (Calambuan, 2023; Dela Cruz, 2024). However, successful integration depends on teachers' professional qualifications, training, and ICT experience. Machitar and Francisco (2025) argued that teachers' educational attainment and the frequency of ICT professional development directly impact their capacity to design and execute gamified strategies. Furthermore, local studies at STI West Negros University have identified that while public school teachers exhibit a high willingness to use innovative pedagogies, integrating gamified elements directly with digital tools remains a significant challenge due to limited technical skills and school infrastructure (Panes, 2026). Hence, continuous capacity building is needed to strengthen teachers' technological competencies (Vilog et al., 2023).

Empirical research studies globally and locally further support these claims. Internationally, meta-analyses and surveys by Sailer and Homner (2020) and Liu et al. (2023) confirmed that online and face-to-face teacher training utilizing gamified design enhances teachers' instructional quality, feedback systems, and progress tracking, independent of demographic variables. Locally, research published in the Busilak Journal has examined the technological readiness of Filipino public school teachers. Azarcon et al. (2023) found that teachers face moderate technological challenges ($M = 2.61$) with multimedia and electronic media, indicating an urgent need for training. Bangcaya et al. (2023) demonstrated that teachers' capacity to adopt modern technologies and innovation skills contributes significantly to classroom efficiency and students' motivation, particularly in subjects with historically low student interest (Vilog et al., 2023).

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https://journals.aloysianpublications.com
Volume 2 Issue 9 (2026)

In synthesis, the literature indicates that teachers' digital gamification practices must be analyzed systematically across key operational domains to identify deficiencies and address them with targeted, data-informed intervention plans that optimize instructional efficiency and student outcomes.

Theoretical Underpinnings

This study is theoretically anchored in Self-Determination Theory (SDT), developed by Deci and Ryan (1985; 2000). SDT posits that human motivation is highly dependent on the satisfaction of three basic psychological needs: autonomy (the desire to feel in control of one's actions), competence (the need to experience mastery and feel effective), and relatedness (the need to feel connected and belong to a social group). In educational contexts, when teachers design learning environments that meet these three psychological prerequisites, students exhibit higher levels of intrinsic motivation, engagement, academic performance, and task persistence.

Digital gamification directly aligns with SDT. Properly designed gamified instruction does not merely introduce flashy, non-educational games; instead, it utilizes structured game mechanics to target these basic psychological needs. Specifically, giving students choices in tasks supports autonomy; utilizing point systems, levels, rewards, badges, and immediate feedback builds their sense of competence and mastery; and incorporating cooperative, group-based interactive missions supports relatedness and collaboration. Consequently, this study operationalizes teachers' gamification practices into four functional parameters that reflect these theoretical concepts: (1) instructional goals alignment, (2) game mechanics design, (3) teaching approaches in a gamified context, and (4) assessment integration. Through this theoretical lens, the study evaluated how effectively teachers design educational activities that support learners' autonomy, competence, and connectedness.

Objectives

This study aimed to determine the level of teachers' digital gamification practices among Key Stage 1 Teachers in one of the districts in a large division in Negros Island Region during the School Year 2026–2027. Specifically, it sought to answer the following questions: 1) level of teachers' digital gamification practices in instructional goals alignment, game mechanics design, teaching approaches in gamified context, and assessment integration; 2) teachers' digital gamification practices when grouped according to the aforementioed variables; and 3) the significant difference in the level of teachers' digital gamification practices when grouped and compared according to the aforementioned variables.

Methodology

The section outlines the research methodology, specifying a descriptive design, the geographical locale, and the total enumeration of classroom respondents. It details the construction, validation, and reliability testing of the researcher-developed research instrument, followed by the systematic field administration and the strict ethical protocols observed during

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https://journals.aloysianpublications.com
Volume 2 Issue 9 (2026)

data collection. Finally, it clarifies the statistical tools and data analysis procedures utilized to address the study's specific research objectives.

Research Design

This study employed a descriptive-analytical research design to systematically evaluate and describe the existing level of teachers' digital gamification practices without manipulating any variables. Descriptive research, as noted by McCombes (2019), aims to accurately and systematically describe a population, situation, or phenomenon. This design was highly appropriate because it enabled the researcher to assess and map teachers' current behaviors, practices, and challenges across the four pre-defined dimensions—instructional goals alignment, game mechanics design, teaching approaches in a gamified context, and assessment integration.

Locale of the Study

The study was conducted in one of the public school districts within a large-sized division in Negros Island Region, during the School Year 2026–2027. This city is recognized as a major educational hub on Negros Island, characterized by a diverse population of public schools and students. The public school district is supervised by a Public Schools District Supervisor (PSDS) known for strong leadership and a continuous push for teacher professional development, instructional monitoring, and school quality improvement. Locally, the district has 184 teachers serving a total student population of 5,212. While the district is also highly regarded for its sports program (achieving major wins in basketball, taekwondo, and swimming at the 2025 regional meet), it faces the resource and technology integration challenges typical of public elementary school divisions in the region, making it an ideal microcosm for evaluating localized instructional practices.

Respondents of the Study

The study's respondents were 71 Key Stage 1 (Grades 1 to 3) public school classroom teachers employed in the selected district during the School Year 2026–2027. To ensure the reliability of the quantitative metrics and to capture the district's full baseline, census sampling, also known as total enumeration, was used. This methodology involves including all members of the defined population as active respondents (Nirel & Glickman, 2009). This approach was highly suitable because the total target population was manageable in size, eliminating sampling errors and fractions.

Data Gathering Instrument

The researcher used a structured, researcher-developed questionnaire checklist to gather the required data. The survey instrument was divided into two core parts. Part 1 collected the demographic profiles of the respondents, including age, highest educational attainment, number of ICT trainings attended, and length of service. Part 2 measured the teachers' digital gamification practices. It was operationalized across the four pre-defined core areas: instructional goals alignment (8 items), game mechanics design (8 items), teaching approaches in a gamified context (8 items), and assessment integration (8 items), for a total of 32 items. Each item was rated on a 5-point Likert Scale, where respondents chose from 5 (Always), 4 (Frequently), 3 (Sometimes), 2 (Rarely), and 1 (Never).

Online ISSN: 3082-5121
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https://journals.aloysianpublications.com
Volume 2 Issue 9 (2026)

Instrument Validity and Reliability

To ensure the psychometric soundness and technical quality of the researcher-developed instrument, content and face validity were established. Three professional educators evaluated the instrument: a Grade 3 Master Teacher with an M.A. in Administration and Supervision; a Grade 1 Master Teacher with an M.A. in Educational Administration; and a Ph.D. in Curriculum and Instruction who serves as a university professor and learning coordinator. The validators assessed the instrument using the Good and Scates criteria, rating items from 1 (poor) to 5 (excellent). The instrument achieved a validity index of 5.00, indicating an 'excellent' validity rating, ensuring that the tool measured the intended digital gamification practices.

Following validation, the instrument's reliability and internal consistency were verified through pilot testing. The survey was administered to thirty (30) Key Stage 1 public school teachers in District 5 who were not included in the final 71 actual study respondents. The pilot test results were analyzed using Cronbach's Alpha. An alpha coefficient of 0.70 to 1.00 is generally considered highly reliable. The instrument yielded a Cronbach's Alpha coefficient of 0.959, interpreted as 'Excellent' reliability, confirming its high internal consistency and minimal measurement error prior to full deployment.

Data Gathering Procedure

The data collection process was carried out systematically and in strict compliance with administrative protocols. First, the researcher secured written permission from the School Division Superintendent (SDS) of the division. Upon receiving approval, the permission was coursed through the Public Schools District Supervisor (PSDS) and the school heads of the respective elementary schools within the district. The researcher personally administered the survey questionnaire to the 71 Key Stage 1 teacher-respondents. During administration, the purpose, significance, and mechanics of the study were explained. To ensure complete collection and avoid disruption of ongoing instruction, questionnaires were carefully distributed and retrieved. The collected quantitative scores were coded, tabulated, and analyzed using the Statistical Package for the Social Sciences (SPSS) software.

Research Ethics Protocol

The research strictly adhered to ethical principles throughout the study. The researcher observed honesty, objectivity, integrity, and data confidentiality. The teacher-participants were fully informed about the study's background, objectives, and potential benefits. Participation was voluntary, and all respondents signed a written informed consent form, with the explicit option to withdraw at any stage without any penalty. To protect identity, no personally identifiable information was collected, fully complying with Republic Act No. 10173, otherwise known as the Data Privacy Act of 2012. Data security was maintained, ensuring that only the researcher had access to the raw scores. Hard-copy materials were disposed of via machine shredding and liquefaction after final compilation, and digital files were permanently deleted to prevent unauthorized retrieval.

Online ISSN: 3082-5121
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https://journals.aloysianpublications.com
Volume 2 Issue 9 (2026)

Analytical and Statistical Schemes

Objective No. 1 employed descriptive statistics and mean scores to evaluate the level of teachers' digital gamification practices in instructional goals alignment, game mechanics design, teaching approaches in a gamified context, and assessment integration. Objective No. 2 also used descriptive statistics and mean scores to evaluate the level of teachers' digital gamification practices when grouped by age, educational attainment, number of ICT training sessions attended, and length of service. Objective No. 3 used comparative statistics and the Mann-Whitney U test to determine whether there was a significant difference in the level of teachers' digital gamification practices across groups defined by the aforementioned variables.

Results and Discussion

Level of Teachers' Digital Gamification Practices

Table 1
Level of Teachers' Digital Gamification Practices in Instructional Goals Alignment

Area A. Instructional Goals Alignment	Mean	Interpretation
1. Align gamified activities with the learning competencies (MELCs).	3.87	High Level
2. Clearly define instructional objectives before using gamification.	4.07	High Level
3. Ensure that game-based activities support the lesson objectives.	4.10	High Level
4. Effectively use subject matter content successfully to teach it via gamification.	4.03	High Level
5. Apply gamification to consolidate knowledge and skills.	3.94	High Level
6. Create level-appropriate gamified activities.	3.92	High Level
7. Connect gamified lessons to real-life situations	3.99	High Level
8. Ensure that learning goals are clear in every gamified activity.	4.08	High Level
Overall Mean	**4.00**	**High Level**

As shown in Table 1, the overall mean score for instructional goal alignment is 4.00, indicating a high level of practice. Teachers scored highest on item 3, 'Ensure that game-based activities support the lesson objectives' (M = 4.10) and item 8, 'Ensure that learning goals are clear in every gamified activity' (M = 4.08), indicating a strong pedagogical awareness. Conversely, they scored lowest on item 1, 'Align gamified activities with the learning competencies (MELCs)' (M = 3.87). This indicates that while teachers successfully ensure

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https://journals.aloysianpublications.com
Volume 2 Issue 9 (2026)

general instructional alignment, they face challenges in structurally mapping gamified exercises to the specific national curriculum standards (MELCs) (Sailer & Homner, 2020).

Table 2
Level of Teachers' Digital Gamification Practices in Game Mechanics Design

Area **B. Game Mechanics Design**	**Mean**	**Interpretation**
1. Use point systems to help me motivate students in gamified activities.	4.03	High Level
2. Use badges/rewards to help me recognize the efforts of learners.	3.89	High Level
3. Incorporate leaderboards to encourage healthy competition.	3.83	High Level
4. Work with levels or progression systems In classroom gamification.	3.86	High Level
5. Use levels or progression systems in classroom gamification.	3.86	High Level
6. Use game-based exercises to give quick feedback.	3.82	High Level
7. Combine gamification with digital tools (apps/tools)	3.79	High Level
8. Adjust game mechanics based on the learner needs and responses.	3.97	High Level
Overall Mean	**3.88**	**High Level**

Table 2 illustrates the level of practices in game mechanics design. The overall mean score is 3.88, which is verbally interpreted as a high level. Teachers are highly proficient at using point systems to motivate learners (item 1, M = 4.03) and adjusting mechanics based on learners' needs (item 8, M = 3.97). This indicates that teachers effectively use rewards to foster motivation, aligned with Self-Determination Theory's focus on competence. However, teachers scored lowest on Item 7, 'Combine gamification with digital tools (apps/tools)' (M = 3.79), and item 6, 'Use game-based exercises to give quick feedback' (M = 3.82). This suggests that while teachers are capable of applying conceptual game mechanics, they have less capacity or opportunity to integrate these mechanics into digital applications (Panes, 2026).

Online ISSN: 3082-5121
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https://journals.aloysianpublications.com
Volume 2 Issue 9 (2026)

Table 3
Level of Teachers' Digital Gamification Practices in Teaching Approaches in Gamified Context

Area C. Teaching Approaches in Gamified Context	Mean	Interpretation
1. Raise student involvement by using gamification.	3.96	High Level
2. Motivate aggressive engagement in gamified sessions.	3.97	High Level
3. Encourage group learning by means of game-based exercises.	3.94	High Level
4. Use differentiated instruction in a gamified environment.	3.85	High Level
5. Apply stories or situations in gamified teaching.	3.83	High Level
6. Efficiently control classroom behavior during gamified classes.	3.96	High Level
7. Help students to consider their learning through games.	3.90	High Level
8. Integrate student-centered strategies in gamified instruction.	3.87	High Level
Overall Mean	**3.91**	**High Level**

As shown in Table 3, the overall mean score for teaching approaches in a gamified context is 3.91, indicating a high level. The highest mean was obtained for item 2, 'Motivate aggressive engagement in gamified sessions' (M = 3.97), and item 1, 'Raise student involvement by using gamification' (M = 3.96), indicating that teachers demonstrate a high level of competence in applying learner-centered, engaging collaborative practices. However, they scored lowest on Item 5, 'Apply stories or situations in gamified teaching' (M = 3.83). In real-life situations, rather than merely awarding points for correctly answering problems, developing a contextualized story helps make lessons more relatable and engaging for young learners (Kapp, 2012). This represents a major area for targeted enhancement.

Table 4
Level of Teachers' Digital Gamification Practices in Assessment Integration

Area D. Assessment Integration	Mean	Interpretation
1. Provide a development assessment within a gamified event.	3.83	High Level
2. Track students' development through	3.80	High Level

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https://journals.aloysianpublications.com
Volume 2 Issue 9 (2026)

performance in the game.		
3. Give comments according to how well students do in games.	3.76	High Level
4. Incorporate gamification as part of summative evaluation,	3.75	High Level
5. Use gamified activities to help me match learning goals with evaluations.	3.83	High Level
6. Give fairness to the learners while conducting a gamified assessment.	3.94	High Level
7. Involve gamification through digital media in assessment documentation of results.	3.87	High Level
8. Utilize game-based quizzes to check the An understanding of the student.	3.87	High Level
Overall Mean	**3.83**	**High Level**

Table 4 displays the results of assessment integration practices, which had the lowest overall mean score among the four domains (M = 3.83, high level). Teachers scored highest on item 6, 'Give fairness to the learners while conducting a gamified assessment' (M = 3.94), showing a strong commitment to equitable evaluations. However, they scored lowest on Item 4, 'Incorporate gamification as part of summative evaluation' (M = 3.75). This finding suggests a critical gap in the integration of gamified digital mechanics into higher-stakes grading systems. Developing valid, reliable, and fair gamified summative tests is an essential area for continuous professional development (Landers, 2015).

Level of Teachers' Digital Gamification Practices When Grouped According to the Aforementioned Variables

Table 5
Level of Teachers' Digital Gamification Practices in Instructional Goals Alignment when grouped according to Age

Categories	**Younger**		**Older**	
A. Instructional Goals Alignment	**Mean**	**Interpretation**	**Mean**	**Interpretation**
1. align gamified activities with the learning competencies (MELCs).	3.85	High Level	3.89	High Level
2. clearly define instructional objectives before using gamification.	4.12	High Level	4.03	High Level
3. ensure that the game-	4.15	High Level	4.05	High Level

based activities support the lesson objectives.				
4. effectively use subject matter content successfully to teach it via gamification.	4.03	High Level	4.03	High Level
5 apply gamification to consolidate knowledge and skills.	3.91	High Level	3.97	High Level
6 create level-appropriate gamified activities.	3.88	High Level	3.95	High Level
7. connect gamified lessons to real-life situations	3.94	High Level	4.03	High Level
8. Ensure that Learning goals are clear in every gamified activity.	4.06	High Level	4.11	High Level
Overall Mean	**3.99**	**High Level**	**4.01**	**High Level**

Table 5 presents the level of teachers' digital gamification practices in instructional goal alignment grouped by age, demonstrating a high standard of practice across generations. Older respondents recorded a mean score of 4.01, while younger respondents achieved 3.99, both interpreted as high levels. Older teachers excelled at ensuring clear learning goals (M = 4.11), whereas younger teachers demonstrated strength in supporting lesson objectives (M = 4.15). Lower scores in level-appropriate activities (older) and MELCs alignment (younger) highlight targeted areas for growth. Overall, age does not create operational disparities in the alignment of gamification with instructional goals (Kapp, 2012).

Online ISSN: 3082-5121
Aloysian Interdisciplinary Journal of Social Sciences, Education, and Allied Fields
https://journals.aloysianpublications.com
Volume 2 Issue 9 (2026)

Table 6

Level of Teachers' Digital Gamification Practices in Game Mechanic Design when grouped according to Age

Categories	Younger		Older	
B. Game Mechanics Design	**Mean**	**Interpretation**	**Mean**	**Interpretation**
1. Use point systems to help me motivate students in gamified activities.	3.94	High Level	4.11	High Level
2. Use badges/rewards to help me recognize the efforts of learners.	3.88	High Level	3.89	High Level
3. Incorporate leaderboards to encourage healthy competition.	3.91	High Level	3.76	High Level
4. Work with levels or progression systems in classroom gamification.	3.91	High Level	3.82	High Level
5. Use levels or progression systems in classroom gamification.	3.82	High Level	3.89	High Level
6. Use game-based exercises to give quick feedback.	3.85	High Level	3.79	High Level
7. Combine gamification with digital tools (apps/tools)	3.79	High Level	3.79	High Level
8. Adjust game mechanics based on learner needs and responses.	4.00	High Level	3.95	High Level
Overall Mean	**3.89**	**High Level**	**3.88**	**High Level**

Table 6 presents the level of teachers' digital gamification practices in game mechanics design grouped by age, showing a uniform high standard across generations. Younger respondents recorded a slightly higher overall mean of 3.89 compared to 3.88 for older respondents, with both maintaining high execution levels. Older teachers excelled at using point systems (M = 4.11), whereas younger teachers demonstrated strength in adjusting mechanics to learners' needs (M = 3.89). Lower scores in incorporating leaderboards and combining tools highlight specific areas for improvement. Overall, age does not create a meaningful operational disparity, as both cohorts effectively apply game mechanics to foster student engagement (Kapp, 2012).

Online ISSN: 3082-5121
Aloysian Interdisciplinary Journal of Social Sciences, Education, and Allied Fields
https://journals.aloysianpublications.com
Volume 2 Issue 9 (2026)

Table 7

Level of Teachers' Digital Gamification Practices in Teaching Approaches in Gamified Context when grouped according to age

Categories	Younger		Older	
C. Teaching Approaches in Gamified Context	**Mean**	**Interpretation**	**Mean**	**Interpretation**
1. I raise student involvement by using gamification.	3.91	High Level	4.00	High Level
2. I motivate aggressive engagement in gamified sessions.	3.88	High Level	4.05	High Level
3. I encourage group learning by means of game-based exercises.	3.97	High Level	3.92	High Level
4. I use differentiated instruction in a gamified environment.	3.82	High Level	3.87	High Level
5. I apply stories or situations in gamified teaching.	3.85	High Level	3.82	High Level
6. I efficiently control classroom behavior during gamified classes.	3.94	High Level	3.97	High Level
7. I help students to consider their learning through games.	3.88	High Level	3.92	High Level
8. I integrate student-centered strategies in gamified instruction.	3.91	High Level	3.84	High Level
Overall Mean	**3.89**	**High Level**	**3.92**	**High Level**

Table 7 presents the level of teachers' digital gamification practices in their teaching approaches within a gamified context, grouped by age, showing high levels of execution across cohorts. Older respondents achieved a slightly higher overall mean of 3.92 compared to 3.89 for younger respondents, both interpreted as high levels. Older educators excelled at driving active engagement (M = 4.05), while younger teachers demonstrated strength in encouraging group learning through game-based exercises (M = 3.97). Relative weaknesses in narrative integration and differentiated instruction indicate key areas for refinement. Overall, age does not cause operational disparities, as both groups successfully apply learner-centered strategies (Kapp, 2012).

Online ISSN: 3082-5121
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https://journals.aloysianpublications.com
Volume 2 Issue 9 (2026)

Table 8
Level of Teachers' Digital Gamification Practices in Assessment Integration when grouped according to Age

Categories	Younger		Older	
D. Assessment Integration	**Mean**	**Interpretation**	**Mean**	**Interpretation**
1. provide development assessment within a gamified event.	3.85	High Level	3.81	High Level
2. track students' development through performance in the game.	3.82	High Level	3.79	High Level
3. give comments according to how well students do in games.	3.76	High Level	3.76	High Level
4. incorporate gamification as part of summative evaluation,	3.76	High Level	3.74	High Level
5. use gamified activities to help me match learning goals with evaluations.	3.91	High Level	3.76	High Level
6. give fairness to the learners while conducting a gamified assessment.	4.00	High Level	3.89	High Level
7. involve gamification through digital media in my assessment documentation of results.	3.91	High Level	3.84	High Level
8.utilize game-based quizzes to check on the understanding of the student.	3.97	High Level	3.79	High Level
Overall Mean	**3.87**	**High Level**	**3.80**	**High Level**

Table 8 presents the level of teachers' digital gamification practices in assessment integration, grouped by age, demonstrating high levels of execution across generations. Younger respondents recorded a slightly higher overall mean of 3.87 compared to 3.80 for older respondents, with both groups maintaining high levels of practice. Both cohorts prioritized equity, scoring highest in ensuring fairness during gamified evaluations. However, relatively low scores in the use of gamification for summative assessments indicate a critical area for targeted professional development. Overall, age does not create an operational disparity, as both age groups effectively integrate gamified assessments to foster motivation and learning outcomes (Sailer et al., 2017; Landers, 2015).

Online ISSN: 3082-5121
Aloysian Interdisciplinary Journal of Social Sciences, Education, and Allied Fields
https://journals.aloysianpublications.com
Volume 2 Issue 9 (2026)

Table 9
Level of Teachers' Digital Gamification Practices in Assessment Integration when grouped according to Educational Attainment

Categories	Lower		Higher	
A. Instructional Goals Alignment	**Mean**	**Interpretation**	**Mean**	**Interpretation**
1. Align gamified activities with the learning competencies (MELCs).	3.89	High Level	3.86	High Level
2. Clearly define instructional objectives before using gamification	4.17	High Level	3.97	High Level
3. Ensure that game-based activities support the lesson objectives.	4.17	High Level	4.03	High Level
4. Effectively use subject matter content successfully to teach it via gamification.	4.08	High Level	3.97	High Level
5. Apply gamification to consolidate knowledge and skills.	3.97	High Level	3.91	High Level
6. Create level-appropriate gamified activities.	3.92	High Level	3.91	High Level
7. Connect gamified lessons to real-life situations	3.97	High Level	4.00	High Level
8. Ensure that learning goals are clear in every gamified activity.	4.11	High Level	4.06	High Level
Overall Mean	**4.03**	**High Level**	**3.96**	**High Level**

Table 9 presents the level of teachers' digital gamification practices in instructional goal alignment grouped by educational attainment, demonstrating a high standard of practice across qualification levels. Teachers with lower educational attainment recorded a slightly higher overall mean of 4.03 compared to 3.96 for those with higher educational attainment, both interpreted as high levels. Higher-attainment educators excelled at maintaining clear learning goals (M = 4.06), whereas lower-attainment teachers scored highest in defining objectives and supporting lesson outcomes (M = 4.17). Lower relative performance in MELCs alignment highlights targeted areas for professional growth. Overall, educational attainment does not create a meaningful operational disparity in aligning gamified instruction with learning goals (Kapp, 2012).

Online ISSN: 3082-5121
Aloysian Interdisciplinary Journal of Social Sciences, Education, and Allied Fields
https://journals.aloysianpublications.com
Volume 2 Issue 9 (2026)

Table 10
Level of Teachers' Digital Gamification Practices in Game Mechanics Design when grouped according to Educational Attainment

Categories	Lower		Higher	
B. Game Mechanics Design	**Mean**	**Interpretation**	**Mean**	**Interpretation**
1. I use point systems to help me motivate students in gamified activities.	4.00	High Level	4.06	High Level
2. I use badges/rewards to help me recognize the efforts of learners.	3.92	High Level	3.86	High Level
3. I incorporate leaderboards to encourage healthy competition.	3.92	High Level	3.74	High Level
4. I work with levels or progression systems in classroom gamification.	3.92	High Level	3.80	High Level
5. I use levels or progression systems in classroom gamification.	3.83	High Level	3.89	High Level
6. I use game-based exercises to give quick feedback.	3.83	High Level	3.80	High Level
7. I combine gamification with digital tools (apps/tools)	3.78	High Level	3.80	High Level
8. I adjust game mechanics based on learner needs and responses.	3.97	High Level	3.97	High Level
Overall Mean	**3.90**	**High Level**	**3.86**	**High Level**

Table 10 presents the level of teachers' digital gamification practices in game mechanics design, grouped by educational attainment, showing high levels of execution across qualification levels. Respondents with lower educational attainment achieved a slightly higher overall mean of 3.90 compared to 3.86 for those with higher educational attainment, both interpreted as high levels. Both cohorts demonstrated strong execution of point systems to motivate students (M = 4.06 for higher; M = 4.00 for lower). Relative weaknesses in utilizing leaderboards and combining gamification with digital tools highlight key areas for technical improvement. Overall, educational attainment does not create an operational disparity in the design of effective game mechanics (Sailer et al., 2017).

Online ISSN: 3082-5121
Aloysian Interdisciplinary Journal of Social Sciences, Education, and Allied Fields
https://journals.aloysianpublications.com
Volume 2 Issue 9 (2026)

Table 11

Level of Teachers' Digital Gamification Practices in Teaching Approaches in Gamified Context when grouped according to Educational Attainment

Categories C. Teaching Approaches in Gamified Context	Lower Mean	Interpretation	Higher Mean	Interpretation
1. raise student involvement by using gamification.	3.97	High Level	3.94	High Level
2. motivate aggressive engagement in gamified sessions.	3.94	High Level	4.00	High Level
3. encourage group learning by means of game-based exercises.	4.00	High Level	3.89	High Level
4.use differentiated instruction in a gamified environment.	3.86	High Level	3.83	High Level
5. apply stories or situations in gamified teaching.	3.89	High Level	3.77	High Level
6. efficiently control classroom behavior during gamified classes.	4.00	High Level	3.91	High Level
7. I help students to consider their learning through games.	3.94	High Level	3.86	High Level
8. I integrate student-centered strategies in gamified instruction.	3.94	High Level	3.80	High Level
Overall Mean	**3.94**	**High Level**	**3.88**	**High Level**

Table 11 presents the level of teachers' digital gamification practices in their teaching approaches within a gamified context, grouped by educational attainment, showing high levels of execution across qualification levels. Respondents with lower educational attainment recorded a slightly higher overall mean of 3.94 compared to 3.88 for those with higher educational attainment, both interpreted as high levels. Higher-attainment educators excelled in driving active engagement (M = 4.00), whereas lower-attainment teachers scored highest in promoting group learning and managing classroom behavior (M = 4.00). Lower scores in narrative integration and differentiated instruction indicate key areas for development. Overall, educational attainment does not create operational disparities in the application of learner-centered teaching approaches (Kapp, 2012).

Online ISSN: 3082-5121
Aloysian Interdisciplinary Journal of Social Sciences, Education, and Allied Fields
https://journals.aloysianpublications.com
Volume 2 Issue 9 (2026)

Table 12
Level of Teachers' Digital Gamification Practices in Assessment Integration when grouped according to Educational Attainment

Categories		Lower		Higher
D. Assessment Integration	**Mean**	**Interpretation**	**Mean**	**Interpretation**
1. Provide development assessment within a gamified event.	3.83	High Level	3.82	High Level
2. Track students' development through performance in the game.	3.83	High Level	3.77	High Level
3. Give comments according to how well students do in games.	3.78	High Level	3.74	High Level
4. Incorporate gamification as part of summative evaluation,	3.78	High Level	3.71	High Level
5. Use gamified activities to help me match learning goals with evaluations.	3.89	High Level	3.77	High Level
6. Give fairness to the learners while conducting a gamified assessment.	4.03	High Level	3.86	High Level
7. Involve gamification through digital media in my assessment documentation of results.	3.89	High Level	3.86	High Level
8. Utilize game-based quizzes to check the student's understanding.	3.97	High Level	3.77	High Level
Overall Mean	**3.88**	**High Level**	**3.79**	**High Level**

Table 12 presents the extent of teachers' digital gamification practices in assessment integration, grouped by educational attainment, showing high levels of implementation across qualification levels. Teachers with lower educational attainment recorded a higher overall mean of 3.88 compared to 3.79 for those with higher educational attainment, both interpreted as high levels. Both cohorts demonstrated strong commitment to equity, scoring highest in ensuring fairness during gamified evaluations (M = 4.03 for lower; M = 3.86 for higher). Lower scores in incorporating gamification into summative evaluations highlight a key area for targeted professional growth. Overall, educational attainment does not create an operational disparity, as both groups effectively integrate gamified assessment practices (Sailer et al., 2017).

Online ISSN: 3082-5121
Aloysian Interdisciplinary Journal of Social Sciences, Education, and Allied Fields
https://journals.aloysianpublications.com
Volume 2 Issue 9 (2026)

Table 13
Level of Teachers' Digital Gamification Practices in Instructional Goals Alignment when grouped according to Length of Service

Categories	Shorter		Longer	
A. Instructional Goals Alignment	**Mean**	**Interpretation**	**Mean**	**Interpretation**
1. Align gamified activities with the learning competencies (MELCs).	3.68	High Level	4.00	High Level
2. Clearly define instructional objectives before using gamification.	3.86	High Level	4.21	High Level
3. Ensure that game-based activities support the lesson objectives.	3.79	High Level	4.30	High Level
4. Effectively use subject matter content successfully to teach it via gamification.	3.79	High Level	4.19	High Level
5. Apply gamification to consolidate knowledge and skills.	3.79	High Level	4.05	High Level
6. Create level-appropriate gamified activities.	3.61	High Level	4.12	High Level
7. Connect gamified lessons to real-life situations	3.79	High Level	4.12	High Level
8. Ensure that learning goals are clear in every gamified activity.	3.93	High Level	4.19	High Level
Overall Mean	**3.78**	**High Level**	**4.15**	**High Level**

Table 13 presents the level of teachers' digital gamification practices in instructional goal alignment grouped by length of service, demonstrating a high standard of practice across experience levels. Respondents with longer service recorded a higher overall mean of 4.15, compared to 3.78 for those with shorter service; both were interpreted as high levels. More experienced teachers excelled at clearly defining instructional objectives prior to implementation (M = 4.21), whereas less experienced teachers scored highest in ensuring the clarity of learning goals across activities (M = 3.93). Lower scores in designing level-appropriate activities and aligning with MELCs mark key areas for technical development. Overall, while teaching experience enhances alignment practices, both cohorts effectively integrate instructional goals into gamified instruction (Kapp, 2012).

Online ISSN: 3082-5121
Aloysian Interdisciplinary Journal of Social Sciences, Education, and Allied Fields
https://journals.aloysianpublications.com
Volume 2 Issue 9 (2026)

Table 14

Level of Teachers' Digital Gamification Practices in Game Mechanics Design when grouped according to Length of Service

Categories	Shorter		Longer	
B. Game Mechanics Design	**Mean**	**Interpretation**	**Mean**	**Interpretation**
1. I use point systems to help me motivate students in gamified activities.	3.79	High Level	4.19	High Level
2. I use badges/rewards to help me recognize the efforts of learners.	3.68	High Level	4.02	High Level
3. I incorporate leaderboards to encourage healthy competition.	3.64	High Level	3.95	High Level
4. I work with levels or progression systems in classroom gamification.	3.71	High Level	3.95	High Level
5. I use levels or progression systems in classroom gamification.	3.82	High Level	3.88	High Level
6. I use game-based exercises to give quick feedback.	3.61	High Level	3.95	High Level
7. I combine gamification with digital tools (apps/tools)	3.61	High Level	3.91	High Level
8. I adjust game mechanics based on learner needs and responses.	3.82	High Level	4.07	High Level
Overall Mean	**3.71**	**High Level**	**3.99**	**High Level**

Table 14 presents the level of teachers' digital gamification practices in game mechanics design grouped by length of service, showing a high standard of execution across experience levels. Respondents with longer service recorded a higher overall mean of 3.99, compared to 3.71 for those with shorter service; both were interpreted as high levels. More experienced teachers relied heavily on point systems to motivate students (M = 4.19), whereas less experienced teachers excelled in adjusting mechanics and using progression systems (M = 3.82). Lower scores in combining digital tools and offering quick feedback (shorter service) highlight targeted areas for growth. Overall, experience enhances practice, though both groups effectively leverage game mechanics to boost engagement (Sailer et al., 2017).

Online ISSN: 3082-5121
Aloysian Interdisciplinary Journal of Social Sciences, Education, and Allied Fields
https://journals.aloysianpublications.com
Volume 2 Issue 9 (2026)

Table 15

Level of Teachers' Digital Gamification Practices in Teaching Approaches in a Gamified Context when grouped according to Length of Service

Categories	Shorter		Longer	
C. Teaching Approaches in Gamified Context	**Mean**	**Interpretation**	**Mean**	**Interpretation**
1. I raise student involvement by using gamification.	3.75	High Level	4.09	High Level
2. I motivate aggressive engagement in gamified sessions.	3.75	High Level	4.12	High Level
3. I encourage group learning by means of game-based exercises.	3.79	High Level	4.05	High Level
4. I use differentiated instruction in a gamified environment.	3.61	High Level	4.00	High Level
5. I apply stories or situations in gamified teaching.	3.61	High Level	3.98	High Level
6. I efficiently control classroom behavior during gamified classes.	3.79	High Level	4.07	High Level
7. I help students to consider their learning through games.	3.68	High Level	4.05	High Level
8. I integrate student-centered strategies in gamified instruction.	3.75	High Level	3.95	High Level
Overall Mean	**3.71**	**High Level**	**4.04**	**High Level**

Table 15 presents the level of teachers' digital gamification practices in teaching approaches within a gamified context, grouped by length of service, demonstrating high execution across experience levels. Teachers with a longer length of service attained a higher overall mean of 4.04 compared to 3.71 for those with a shorter length of service, with both interpreted as high levels. Experienced educators scored highest in motivating aggressive engagement (M = 4.12) and raising student involvement (M = 4.09), whereas less experienced teachers scored highest in encouraging group learning and controlling classroom behavior (M = 3.79). Lower scores in using differentiated instruction and applying stories or situations (M = 3.61) highlight areas for improvement among newer teachers. Overall, while teaching experience enhances overall implementation, both groups effectively employ learner-centered teaching approaches in gamified instruction (Kapp, 2012).

Online ISSN: 3082-5121
Aloysian Interdisciplinary Journal of Social Sciences, Education, and Allied Fields
https://journals.aloysianpublications.com
Volume 2 Issue 9 (2026)

Table 16

Level of Teachers' Digital Gamification Practices in Assessment Integration when grouped according to Length of Service

Categories		Shorter		Longer
D. Assessment Integration	**Mean**	**Interpretation**	**Mean**	**Interpretation**
1. I provide development assessment within a gamified event.	3.63	High Level	3.95	High Level
2. I track students' development through performance in the game.	3.57	High Level	3.95	High Level
3. I give comments according to how well students do in games.	3.50	High Level	3.93	High Level
4. I incorporate gamification as part of summative evaluation,	3.61	High Level	3.84	High Level
5. I use gamified activities to help me match learning goals with evaluations.	3.79	High Level	3.86	High Level
6. I give fairness to the learners while conducting a gamified assessment.	3.79	High Level	4.05	High Level
7. I involve gamification through digital media in my assessment documentation of results.	3.79	High Level	3.93	High Level
8. I utilize game-based quizzes to check the students' understanding.	3.68	High Level	4.00	High Level
Overall Mean	**3.67**	**High Level**	**3.94**	**High Level**

Table 16 presents the level of teachers' digital gamification practices in assessment integration, grouped by length of service, demonstrating high levels of execution across experience levels. Teachers with a long length of service attained a higher overall mean of 3.94 compared to 3.67 for those with a short length of service, with both interpreted as high levels. Experienced educators scored highest in ensuring fairness during gamified evaluations (M = 4.05), while less experienced teachers scored highest across items ensuring fairness, aligning goals, and documenting results via digital media (M = 3.79). Lower scores for incorporating gamification into summative evaluation and for providing game-based feedback indicate key areas for development. Overall, experience enhances practice, though both groups effectively integrate gamified assessments to support student learning (Sailer et al., 2017).

Online ISSN: 3082-5121
Aloysian Interdisciplinary Journal of Social Sciences, Education, and Allied Fields
https://journals.aloysianpublications.com
Volume 2 Issue 9 (2026)

Table 17

Level of Teachers' Digital Gamification Practices in Instructional Goals Alignment when grouped according to the Number of ICT Trainings Attended

Categories	Few		Many	
A. Instructional Goals Alignment	**Mean**	**Interpretation**	**Mean**	**Interpretation**
1. I align gamified activities with the learning competencies (MELCs).	3.70	High Level	3.94	High Level
2. I clearly define instructional objectives before using gamification.	3.95	High Level	4.12	High Level
3. I ensure that game-based activities support the lesson objectives.	3.95	High Level	4.16	High Level
4. I effectively use subject matter content successfully to teach it via gamification.	4.05	High Level	4.02	High Level
5. I apply gamification to consolidate knowledge and skills.	3.95	High Level	3.94	High Level
6 I create level-appropriate gamified activities.	3.80	High Level	3.96	High Level
7. I connect gamified lessons to real-life situations	3.90	High Level	4.02	High Level
8. Ensure that learning goals are clear in every gamified activity.	4.00	High Level	4.12	High Level
Overall Mean	**3.91**	**High Level**	**4.03**	**High Level**

Table 17 presents the level of teachers' digital gamification practices in instructional goal alignment grouped by the number of ICT training sessions attended, demonstrating a high standard of practice across training levels. Teachers with many ICT trainings attained a slightly higher overall mean of 4.03 compared to 3.91 for those with few ICT trainings, both interpreted as high levels. Educators with many trainings excelled at ensuring game-based activities support lesson objectives (M = 4.16), while those with few trainings scored highest in delivering subject content via gamification (M = 4.05). Lower scores in aligning activities with MELCs highlight a shared area for targeted improvement. Overall, increased ICT training enhances performance, though both groups effectively align gamification with instructional goals (Kapp, 2012).

Online ISSN: 3082-5121
Aloysian Interdisciplinary Journal of Social Sciences, Education, and Allied Fields
https://journals.aloysianpublications.com
Volume 2 Issue 9 (2026)

Table 18

Level of Teachers' Digital Gamification Practices in Game Mechanics Design when grouped according to the Number of ICT Trainings Attended

D. Assessment Integration	Mean	Interpretation	Mean	Interpretation
1. I provide development assessment within a gamified event.	3.63	High Level	3.95	High Level
2. I track students' development through performance in the game.	3.57	High Level	3.95	High Level
3. I give comments according to how well students do in games.	3.50	High Level	3.93	High Level
4. I incorporate gamification as part of summative evaluation,	3.61	High Level	3.84	High Level
5. I use gamified activities to help me match learning goals with evaluations.	3.79	High Level	3.86	High Level
6. I give fairness to the learners while conducting a gamified assessment.	3.79	High Level	4.05	High Level
7. I involve gamification through digital media in my assessment documentation of results.	3.79	High Level	3.93	High Level
8. I utilize game-based quizzes to check on the understanding of the student.	3.68	High Level	4.00	High Level
Overall Mean	**3.67**	**High Level**	**3.94**	**High Level**

Table 18 presents the level of teachers' digital gamification practices in game mechanics design grouped by the number of ICT training sessions attended, showing high execution across training levels. Teachers with few ICT training sessions recorded a slightly higher overall mean of 3.91 compared to 3.87 for those with many ICT training sessions, both interpreted as high levels. Both cohorts relied heavily on point systems to motivate students, recording the highest scores in this area (M = 4.10 for few; M = 4.00 for many). Lower scores in combining gamification with digital tools and incorporating leaderboards highlight key areas for technical improvement. Overall, training volume does not create an operational disparity, as both groups effectively employ game mechanics to foster learner motivation (Sailer et al., 2017).

Online ISSN: 3082-5121
Aloysian Interdisciplinary Journal of Social Sciences, Education, and Allied Fields
https://journals.aloysianpublications.com
Volume 2 Issue 9 (2026)

Table 19

Level of Teachers' Digital Gamification Practices in Teaching Approaches in Gamified Context when grouped according to the Number of ICT Trainings Attended

Categories	Few		Many	
C. Teaching Approaches in Gamified Context	**Mean**	**Interpretation**	**Mean**	**Interpretation**
1. Raise student involvement by using gamification.	3.90	High Level	3.98	High Level
2. Motivate aggressive engagement in gamified sessions.	3.90	High Level	4.00	High Level
3. Encourage group learning by means of game-based exercises.	3.90	High Level	3.96	High Level
4. Use differentiated instruction in a gamified environment.	3.80	High Level	3.86	High Level
5. Apply stories or situations in gamified teaching.	3.70	High Level	3.88	High Level
6. Efficiently control classroom behavior during gamified classes.	3.95	High Level	3.96	High Level
7. Help students to consider their learning through games.	3.70	High Level	3.98	High Level
8. Integrate student-centered strategies in gamified instruction.	3.75	High Level	3.92	High Level
Overall Mean	**3.83**	**High Level**	**3.94**	**High Level**

Table 19 presents the level of teachers' digital gamification practices in teaching approaches within a gamified context, grouped by the number of ICT training sessions attended, showing high execution across training levels. Teachers with many ICT trainings attained a higher overall mean of 3.94 compared to 3.83 for those with few ICT trainings, both interpreted as high levels. Educators with more training excelled at motivating aggressive student engagement (M = 4.00), while those with fewer sessions scored highest in managing classroom behavior during gamified lessons (M = 3.90). Lower scores in narrative integration, reflective learning, and differentiated instruction highlight key areas for technical development. Overall, increased ICT training enhances performance, though both groups effectively leverage learner-centered gamified teaching strategies (Kapp, 2012).

Online ISSN: 3082-5121
Aloysian Interdisciplinary Journal of Social Sciences, Education, and Allied Fields
https://journals.aloysianpublications.com
Volume 2 Issue 9 (2026)

Table 20

Level of Teachers' Digital Gamification Practices in Assessment Integration when grouped according to the Number of ICT Trainings Attended

Categories	Few		Many	
D. Assessment Integration	**Mean**	**Interpretation**	**Mean**	**Interpretation**
1. I provide development assessment within a gamified event.	3.80	High Level	3.84	High Level
2. I track students' development through performance in the game.	3.75	High Level	3.82	High Level
3. I give comments according to how well students do in games.	3.70	High Level	3.78	High Level
4. I incorporate gamification as part of summative evaluation,	3.65	High Level	3.78	High Level
5. I use gamified activities to help me match learning goals with evaluations.	3.90	High Level	3.80	High Level
6. I give fairness to the learners while conducting a gamified assessment.	3.90	High Level	3.96	High Level
7. I involve gamification through digital media in my assessment documentation of results.	3.85	High Level	3.88	High Level
8. I utilize game-based quizzes to check on the understanding of the student.	3.80	High Level	3.90	High Level
Overall Mean	**3.79**	**High Level**	**3.85**	**High Level**

Table 20 presents the level of teachers' digital gamification practices in assessment integration, grouped by the number of ICT training sessions attended, demonstrating high levels of execution across training levels. Teachers with more ICT training recorded a slightly higher overall mean of 3.85 compared to 3.79 for those with fewer ICT training sessions, both interpreted as high levels. Educators across both cohorts placed the highest emphasis on ensuring fairness in gamified assessments and aligning activities with learning objectives. Conversely, both groups recorded lower scores in providing performance feedback and incorporating gamification into summative evaluations, marking key areas for targeted professional growth. Overall, while additional ICT training enhances practice, teachers across training levels effectively integrate gamified assessments to foster learner engagement (Sailer et al., 2017).

Online ISSN: 3082-5121
Aloysian Interdisciplinary Journal of Social Sciences, Education, and Allied Fields
https://journals.aloysianpublications.com
Volume 2 Issue 9 (2026)

Comparative Analyses in the Level of Teachers' Digital Gamification Practices

Table 21

Difference in the Level of Teachers' Digital Gamification Practices in Instructional Goals Alignment when grouped and compared according to the Variables

Variable	Category	N	Mean Rank	Mann-Whitney U-Test	p-value	*Sig. level*	Interpretation
Age	Younger	33	35.79	620.000	0.935	0.05	Not Significant
	Older	38	36.18				
Educational Attainment	Lower	36	37.00	594.000	0.677		Not Significant
	Higher	35	34.97				
Length of Service	Shorter	28	29.54	421.000	0.032		Significant
	Longer	43	40.21				
No. of ICT Trainings Attended	Few	20	33.53	460.500	0.524		Not Significant
	Many	51	36.97				

Table 21 presents the comparative analysis of teachers' digital gamification practices in instructional goal alignment across demographic profile variables. The statistical analysis revealed no significant differences in practice when teachers were grouped by age (p=0.935), educational attainment (p=0.677), and the number of ICT training sessions attended (p=0.524), leading to the acceptance of the null hypothesis for these variables. In contrast, a significant difference emerged when grouped by length of service (p=0.032), resulting in the rejection of the null hypothesis for teaching experience. These findings imply that while age, qualification level, and the volume of professional development do not create operational disparities, length of service is a key determinant of how effectively educators align gamified activities with instructional goals. This aligns with Landers (2015), who emphasized that the effectiveness of gamification depends on intentional curricular design and pedagogical integration rather than on demographic characteristics.

Online ISSN: 3082-5121
Aloysian Interdisciplinary Journal of Social Sciences, Education, and Allied Fields
https://journals.aloysianpublications.com
Volume 2 Issue 9 (2026)

Table 22

Difference in the Level of Teachers' Digital Gamification Practices in Game Mechanics Design when grouped and compared according to the Variables

Variable	Category	N	Mean Rank	Mann-Whitney U-Test	p-value	*Sig. level*	Interpretation
Age	Younger	33	35.65	615.500	0.894	0.05	Not Significant
	Older	38	36.30				
Educational Attainment	Lower	36	36.21	622.500	0.931		Not Significant
	Higher	35	35.79				
Length of Service	Shorter	28	30.50	448.000	0.067		Not Significant
	Longer	43	39.58				
No. of ICT Trainings Attended	Few	20	36.43	501.500	0.913		Not Significant
	Many	51	35.83				

Table 22 presents the comparative analysis of teachers' digital gamification practices in game mechanics design across demographic profile variables. The statistical analysis revealed no significant differences in practice when teachers were grouped by age (p=0.894), educational attainment (p=0.931), length of service (p=0.067), or number of ICT training sessions attended (p=0.913), as all p-values exceeded the standard 0.05 alpha level. Consequently, the null hypothesis of no significant difference is accepted for all evaluated profile variables. These findings imply that demographic background, teaching tenure, and the volume of professional development do not systematically alter how educators construct and deploy game mechanics in the classroom. This aligns with Liu et al. (2023), who demonstrated that demographic factors do not significantly impact educators' engagement with or implementation of gamified instructional designs.

Table 23

Difference in the Level of Teachers' Digital Gamification Practices in Teaching Approaches in Gamified Context when grouped and compared according to the Variables

Variable	Category	N	Mean Rank	Mann-Whitney U-Test	p-value	*Sig. level*	Interpretation
Age	Younger	33	35.67	616.000	0.898	0.05	Not Significant
	Older	38	36.29				
Educational Attainment	Lower	36	36.97	595.000	0.683		Not Significant
	Higher	35	35.00				
Length of Service	Shorter	28	30.59	450.500	0.071		Not Significant
	Longer	43	39.52				
No. of ICT Trainings Attended	Few	20	34.08	471.500	0.618		Not Significant
	Many	51	36.75				

Online ISSN: 3082-5121
Aloysian Interdisciplinary Journal of Social Sciences, Education, and Allied Fields
https://journals.aloysianpublications.com
Volume 2 Issue 9 (2026)

Table 23 presents the comparative analysis of teachers' digital gamification practices in teaching approaches within a gamified context across demographic profile variables. The Mann-Whitney U test revealed no statistically significant differences in pedagogical execution when teachers were grouped by age (U=616.000, p=0.898), educational attainment (U=595.000, p=0.683), length of service (p=0.071), or number of ICT training sessions attended (U=471.500, p=0.618), as all p-values exceeded the standard 0.05 significance threshold. Consequently, the null hypothesis of no significant difference is accepted across all evaluated profile variables. These findings imply that educators apply gamified teaching strategies to a uniform standard of practice regardless of generational background, formal qualifications, teaching tenure, or the volume of professional development. This supports the need for inclusive, school-wide capacity-building initiatives—such as collaborative workshops and demonstration sessions—to further refine student-centered gamification strategies across the entire teaching faculty.

Table 24

Difference in the Level of Teachers' Digital Gamification Practices in Assessment Integration when grouped and compared according to the Variables

Variable	Category	N	Mean Rank	Mann-Whitney U-Test	p-value	*Sig. level*	Interpretation
Age	Younger	33	37.68	571.500	0.517	0.05	Not Significant
	Older	38	34.54				
Educational Attainment	Lower	36	37.90	561.500	0.425		Not Significant
	Higher	35	34.04				
Length of Service	Shorter	28	30.77	455.500	0.081		Not Significant
	Longer	43	39.41				
No. of ICT Trainings Attended	Few	20	35.18	493.500	0.831		Not Significant
	Many	51	36.32				

Table 24 presents a comparative analysis of teachers' digital gamification practices in the integration of assessment across demographic profile variables. The statistical analysis revealed no significant differences in execution when teachers were grouped by age (p=0.517), educational attainment (p=0.425), length of service (p=0.081), or number of ICT training sessions attended (p=0.831), as all p-values exceeded the standard 0.05 alpha level. Consequently, the null hypothesis of no significant difference is accepted across all evaluated profile variables. These findings imply that educators incorporate gamified assessment practices with consistent proficiency regardless of demographic background, academic attainment, teaching tenure, or the volume of professional development. This aligns with Al Amri et al. (2026), who highlighted that digital gamification systematically enhances educators' assessment strategies and professional practices across diverse teacher profiles.

Conclusion

Based on the provided study of Key Stage 1 teachers during the 2026–2027 school year, the findings indicate a consistently high level of teachers' digital gamification practices across all evaluated domains. Specifically, high mean scores were recorded for instructional goal alignment (mean = 4.00), teaching approaches in a gamified context (mean = 3.91), game mechanics design (mean = 3.88), and assessment integration (mean = 3.83). Despite these high ratings, the data highlight specific areas for development. Teachers demonstrated relatively lower performance in connecting gamified tasks directly to Most Essential Learning Competencies (MELCs), integrating game mechanics with digital applications, applying storytelling or situational contexts, and incorporating gamification into summative evaluations. Statistical analysis using the Mann-Whitney U test at the 0.05 significance level revealed no significant differences in teachers' practices across age, educational attainment, or the number of ICT training sessions attended. Demographic variables generally showed no meaningful impact on game mechanics design (age p=0.894, education p=0.931, ICT training p=0.913), teaching approaches (age p=0.898, education p=0.683, ICT training p=0.618), or assessment integration (age p=0.517, education p=0.425, ICT training p=0.831). Length of service similarly showed no significant difference for game mechanics (p = 0.067), teaching approaches (p = 0.071), or assessment integration (p =ation (p=0.081). The sole statistically significant difference occurred in Instructional Goals Alignment by length of service (cap U equals 421.000, p equals 0.032), with teachers with longer service posting higher mean practice scores (mean=4.15) than those with shorter service (mean=3.78). The study concludes that while teacher engagement with gamification is strong, targeted professional development and an Educational Technology Enhancement Plan are necessary to move beyond basic engagement and strategically align digital gamification with formal curriculum standards and summative assessments.

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Authorship Contribution Statement

Margacenio: primary investigator, data analyst, & primary author. **Sajonia**: thesis adviser, technical consultant, & quality assurance manager

Conflict of Interest

The authors declare no commercial or financial conflicts of interest regarding this research. Data collection, analysis, and overall findings were conducted independently of any personal or institutional affiliations. The authors assume full responsibility for the data integrity and the decision to submit the work for publication.

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