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Gamified Instruction in TLE to Enhance Learners' Engagement and Achievement: Teachers' Viewpoint

Dian Marie D. Geyrozaga, Rufino T. Tudlasan Jr, Ph.D.

Cebu Technological University - Main Campus, Cebu, Philippines

ABSTRACT

This research examined the implementation and impact of gamified instruction in Technology and Livelihood Education (TLE) at Banilad Elementary School during the 2025–2026 school year. The study involved TLE teachers and Grade 6 learners to assess the impact of game-based strategies on motivation, engagement, and learning outcomes. Findings revealed that most teachers were female, aged 31 to 50 years, held bachelor's or graduate degrees, and had six to twenty years of teaching experience, indicating a professionally experienced and mature teaching force. Almost all had attended training related to gamified or ICT-based instruction, reflecting readiness for innovative pedagogy. Learners were predominantly 12 years old, with a balanced gender distribution and moderate access to digital devices and internet connectivity, suggesting they were prepared for technology-enhanced learning. Results indicated a high level of implementation of gamified instruction, showing that gamified strategies significantly enhanced learners' motivation, participation, and collaboration. The highest dimension, Motivation and Feedback, emphasized the positive effects of rewards and constructive feedback. Similarly, learners' engagement and achievement yielded a high overall mean, confirming that gamified lessons encouraged active participation and enthusiasm. Correlation analysis revealed a significant relationship between gamified instruction and learners' motivation and participation, affirming its positive behavioral impact. However, no significant link was observed between performance and peer collaboration. The study concludes that gamified instruction fosters learner motivation and engagement but requires continuous teacher training, adequate ICT resources, and inclusive design to maximize academic and collaborative learning outcomes in TLE.

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KEYWORDS: *Master of Arts in Vocational Education, gamified instruction, motivation, Collaboration, game-based activities, engagement, Mandaue Cebu, Philippines.*

1. THE PROBLEM AND ITS SCOPE

INTRODUCTION

Rationale of the Study

In today's dynamic educational landscape, sustaining learner engagement and improving academic achievement are central challenges in ensuring quality education. The Department of Education (DepEd) continues to advocate for innovative and learner-centered pedagogies that align with the goals of the K to 12 Curriculum, particularly in developing 21st-century skills among Filipino learners. One emerging approach that has demonstrated potential in enhancing both motivation and learning outcomes is gamification, the integration of game design elements into educational contexts (DepEd, 2022).

Gamification in education has gained global attention as an effective strategy for increasing learners' motivation, participation, and knowledge retention. According to Deterding et al. (2011), gamified instruction transforms traditional learning environments by incorporating elements such as points, badges, levels, and leaderboards to promote active engagement and persistence. Studies in various countries have shown that gamification can enhance learners' intrinsic motivation and foster positive attitudes toward learning (Hamari et al., 2016). UNESCO (2023) further emphasizes that technology-enhanced and play-based learning can create inclusive and participatory classroom environments that encourage creativity and collaboration.

Game-based strategies are gaining popularity in modern education because they help learners become more engaged, motivated, and active. Caponetto, Earp, and Ott (2021) argue that incorporating game elements, such as challenges, rewards, and immediate feedback, transforms regular classrooms into interactive learning environments that motivate learners to persist and solve problems. Game mechanics give learners a sense of independence and accomplishment, which makes them less anxious about challenging subjects and more likely to practice repeatedly. This is especially helpful in subjects with a lot of cognitive rigors, like Math and Science. Xu and Chen (2022) also note that game-based learning aligns well with constructivist ideas, as it enables learners to build their knowledge through active participation rather than passive reception.

In addition to increasing motivation, game-based strategies have been shown to enhance academic performance and improve collaboration skills. According to Garcia-Sanjuan et al. (2023), learners who played digital games aligned with their classes demonstrated better memory and understanding of concepts compared to those taught through lectures. Lopez and Hernandez (2020) also stated that multiplayer or cooperative game modes facilitate social learning by promoting communication, teamwork, and peer assistance. These results demonstrate that game-based learning is not merely an enjoyable supplement but an effective method of teaching that fosters growth in both cognitive and social-emotional areas.

In the Philippine context, the integration of gamification remains relatively limited, especially in the area of Technology and Livelihood Education (TLE) at the elementary level. TLE, as a subject that develops practical life skills and work-oriented values, often relies on traditional teaching methods that may not fully capture learners' interests. Learners tend to view the subject as skill-based but less interactive, which may result in reduced motivation and uneven academic performance (Garcia & Cruz, 2020). Thus, there is a growing need to explore pedagogical innovations that can revitalize classroom instruction and make TLE more engaging and meaningful for learners.

Recent studies in the Philippines and abroad have provided strong evidence of the positive impact of gamified learning in basic education. For instance, Reyes and Santiago (2022) found that Grade 6 Science learners who were taught through gamified digital activities exhibited significantly higher motivation and retention than those taught using traditional methods. Similarly, de Guzman (2021) demonstrated that game-based learning improved participation and cooperation among upper elementary learners in public schools, particularly when lessons involved real-life problem-solving tasks. Moreover, Manalo and Dizon (2021) found that gamification increased engagement levels in TLE classes by integrating points, badges, and peer collaboration systems, resulting in improved mastery of practical competencies. A study by Lumbres (2022) also reported that the use of mobile-based gamified tools enhanced learners' enthusiasm and comprehension in Work Education, especially when teachers incorporated visual progress indicators and achievement rewards.

Gamified learning also draws its theoretical foundation from Constructivism, which posits that learners actively construct knowledge through interaction, reflection, and problem-solving (Piaget, 1970; Vygotsky, 1978). This perspective emphasizes that learning becomes more meaningful when learners are given opportunities to explore, collaborate, and apply concepts to authentic tasks. In the context of TLE, gamified instruction supports constructivist principles by allowing learners to engage in hands-on and experiential learning activities where they can make decisions, solve problems, and reflect on outcomes-turning knowledge into practice.

Furthermore, the Department of Education promotes Outcome-Based Education (OBE) and learner-centered instruction as integral components of the K–12 reform. Schools play a vital role in supporting this shift by providing adequate resources, integrating ICT, and offering teacher training to ensure that classroom practices lead to measurable competencies and real-world applications. The adoption of gamified strategies in TLE aligns with this national vision by transforming the learning process into one that prioritizes performance, mastery, and authentic outcomes-consistent with the principles of OBE and the goals of DepEd's quality and inclusive education framework.

Despite these promising findings, research on gamification within Philippine elementary education, particularly in TLE, remains limited. Most studies have focused on junior high school and senior high school contexts, leaving a research gap in understanding how gamified instruction influences engagement and achievement among younger learners. Considering the importance of early motivation and foundational skills at the Grade 6 level, this study aims to fill that gap by examining the potential of game-based strategies in enhancing both engagement and academic performance in TLE.

In the context of Mandaue City and nearby schools in Region VII, teachers have reported challenges in

sustaining learners' attention and enthusiasm during TLE classes due to the repetitive and procedural nature of specific topics. These concerns highlight the importance of incorporating interactive learning strategies that make lessons engaging and improve learning outcomes. The use of game-based strategies may provide a solution by transforming classroom instruction into a more dynamic, learner-centered experience that aligns with DepEd's vision of quality, equitable, and relevant education for all.

This study, titled "Gamified Instruction in TLE: Enhancing Learners' Engagement and Achievement Through Game-Based Strategies," aims to investigate the effects of gamification on learners' engagement and academic performance in TLE. It aims to investigate how game-based instructional strategies can enhance learners' motivation, participation, and mastery of learning competencies. Furthermore, the study aims to develop evidence-based recommendations that enable teachers to effectively integrate gamification into classroom instruction, thereby contributing to the broader goal of enhancing teaching practices and learner outcomes in Philippine basic education.

Theoretical/ Conceptual Background

Gamified instruction and its effects on student engagement and achievement are rooted in educational and psychological theories about motivation, interaction, and reinforcement. These frameworks explain how game-based strategies improve Technology and Livelihood Education (TLE) participation and outcomes.

Gamified instruction incorporates game design principles into classroom learning to enhance motivation, engagement, and achievement. Gamification can encourage active participation and authentic performance in Technology and Livelihood Education (TLE), a hands-on, skill-based subject. Understanding gamification theory is crucial to creating a coherent framework for teaching TLE. Theories in psychology, education, and behavior, such as behaviorism, constructivism, self-determination theory, flow theory, and experiential learning, support this approach. These frameworks show how game-based strategies can improve learning, engagement, and outcomes.

Behaviorism, developed by B.F. Skinner (1953) holds that externally reinforced behaviors influence learning. Gamification reinforces this principle with immediate feedback, rewards, and progress tracking.

Rewards such as points, badges, and leaderboards encourage the repetition and mastery of TLE competency. Behaviorist principles structure tasks in skill-based subjects, such as TLE, to reward persistence, accuracy, and consistent performance. Through systematic reinforcement, learners associate success with effort, thereby forming productive learning habits that extend beyond gameplay.

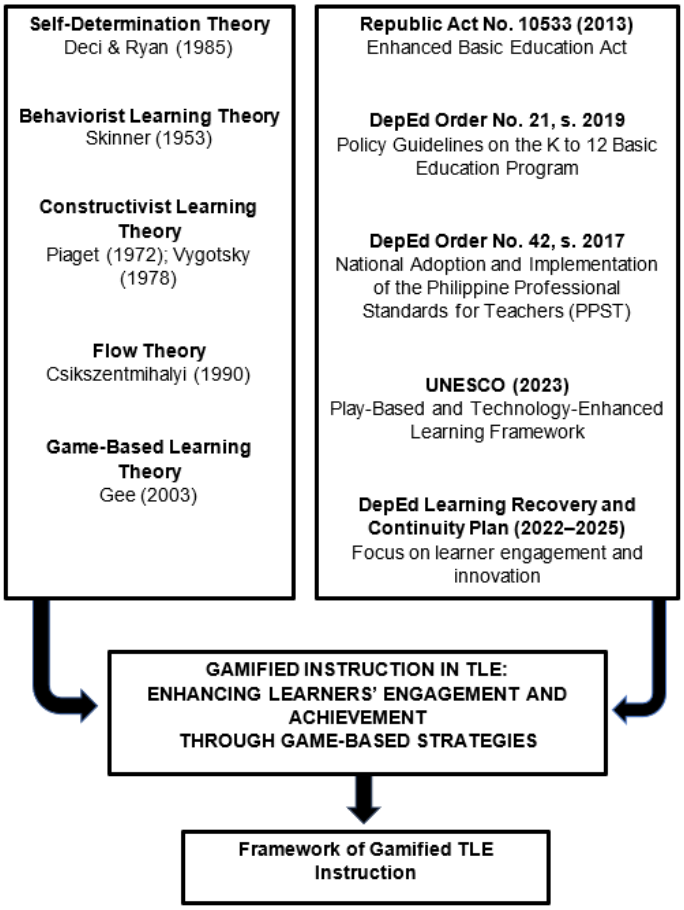

Figure 1 Theoretical Framework of the Study

Piaget (1970) and Vygotsky (1978) believed that learners actively construct knowledge through experiences and social interaction. Gamified learning environments are constructivist because they enable students to make choices, collaborate, and engage in reflective learning. Gamified tasks, such as project-based simulations and digital challenges, help TLE students learn through problem-solving, experimentation, and collaboration. Learners construct meaning and apply concepts to authentic contexts as they overcome challenges, improving comprehension and retention. Gamified instruction turns passive knowledge reception into active construction, empowering learners to shape their education.

The Technology-Enhanced Training Effectiveness Model (Salas & Kozlowski, 2021) shows how digital tools, interactive platforms, and technology-driven features improve instruction and learning. Digital points, interactive simulations, and immediate feedback systems boost motivation and skill acquisition in gamified instruction. Technology enables students to practice and progress at their own pace, which is crucial in TLE, where mastery of procedures is required. Technology-supported learning environments, such as those incorporating gamification, enhance engagement, cognitive processing, and retention. Gamified platforms provide teachers with real-time analytics to adjust their instruction. Multimedia activities, such as virtual workshops, digital quests, and scenario-based challenges, enhance the relevance and authenticity of training. Technology-enabled games improve expectations, interest, and training effectiveness.

Self-Determination Theory (Deci & Ryan, 1985) offers a psychological framework for understanding gamified learning motivation. It states that intrinsic motivation stems from autonomy, competence, and relatedness. Gamified instruction allows learners to choose (autonomy), master progressive challenges (competence), and collaborate with peers (relatedness). These elements motivate students intrinsically, improving engagement and achievement. Gamified activities that strike a balance between challenge and success can boost confidence and enthusiasm in TLE, where practical performance and skill mastery are essential.

The narrative-centered learning theory (Rowe, Shores, & Lester, 2020) emphasizes that learning is more meaningful when embedded in compelling stories, characters, and problem-based scenarios. Gamified instruction utilizes missions, quests, and storyline challenges to immerse students in real-world scenarios, thereby enhancing their learning experience. Narrative-based gamification in TLE lets students run a mini-enterprise, solve workplace problems, or complete real-world production tasks. These stories engage emotions, foster critical thinking, and improve decision-making. NCLT suggests that narratives help learners engage cognitively by providing a clear purpose and progression, much like chapters in a story. Gamification utilizes this theory to frame goals, conflicts, and rewards that reflect the technical and vocational learning challenges. Narrative-centered gamification fosters meaningful and experiential learning by encouraging students to reflect, apply their skills, and stay motivated as they progress through story levels.

Csikszentmihalyi (1990) describes Flow Theory as the optimal psychological state of full engagement. This state is achieved with clear goals, immediate feedback, and a balance between skill level and challenge. Gamified TLE instruction utilizes progressive challenges, goal-setting, and visible progress to promote a state of flow. Digital simulations or tangible TLE tasks like game levels can keep students engaged. Flow increases engagement and performance because learners become invested in mastering the gamified experience.

Experience, reflection, conceptualization, and experimentation are the stages of learning in Kolb's Experiential Learning Theory (1984). Gamified learning uses iterative tasks that require students to act, reflect, and apply insights to new situations. TLE students experience real-life simulations, such as entrepreneurship challenges, food preparation games, and craft design quests. Reflective observation through gamified feedback systems enables learners to refine their strategies and skills. This alignment between game dynamics and experiential learning principles enables learners to effectively internalize and apply knowledge.

Bandura's Social Learning Theory (1977) emphasizes the roles of observation, imitation, and modeling in the learning process. Gamified instruction utilizes peer collaboration, cooperative tasks, and competitive gameplay to foster learning through interactive experiences. Gamification promotes teamwork and goal-setting in TLE, where group activities and problem-solving are key. As they observe successful strategies, emulate positive behavior, and contribute to group goals, students develop social and emotional skills. Digital badges and social leaderboards recognize students' achievements, boosting socially mediated motivation and peer accountability.

Gamified instruction aligns with the 21st-century learning paradigm, which emphasizes critical thinking, creativity, collaboration, and communication (Trilling & Fadel, 2009). Using game mechanics in TLE instruction puts students in problem-solving situations that require creativity and teamwork. Digital gamification tools promote ICT literacy, an essential skill in modern education. Teachers foster cognitive and digital fluency in students through interactive and technology-enhanced learning environments, preparing them for academic and occupational challenges.

According to the theories, gamified instruction enhances TLE engagement and achievement by fostering both extrinsic and intrinsic motivation. Game-based strategies influence learning through behavioral reinforcement, experiential interaction, intrinsic motivation, and the concept of flow. Gamified instruction involves challenge, feedback, reflection, and mastery to improve engagement and performance. This process emphasizes motivation and active participation as mediators of learning effectiveness.

Gamified instruction in TLE is based on national and international educational policies that promote learner-centered pedagogies, ICT integration, and teaching innovation. Philippine education policies emphasize transformative instructional strategies aligned with DepEd's reform agenda to improve engagement and performance.

Republic Act No. 10533, the Enhanced Basic Education Act, institutionalizes K–12 education and emphasizes learner-centered, contextualized, and constructivist approaches to education. Section 5 of the law requires flexible and responsive instruction to meet the diverse needs of learners. Gamified instruction supports this policy by providing interactive and personalized pathways to competency. Game-based learning in TLE is legal because the act emphasizes pedagogical innovation.

The national adoption of the Philippine Professional Standards for Teachers (PPST) establishes a professional framework for teacher quality in the Philippines, emphasizing innovative, engaging, and learner-centered teaching strategies. Domains 3 (Diversity of Learners) and 4 (Curriculum and Planning) encourage teachers to create activities that motivate and support diverse learners. Gamified instruction implements these standards by adapting to students' abilities and interests. Gamification can help teachers utilize technology-enhanced pedagogy to engage and empower students, aligning with PPST indicators on motivation and classroom management.

Policy Guidelines on Classroom Assessment for the K–12 Basic Education Program (DepEd Order No. 8, s. 2015) emphasizes the importance of formative assessment in learning. Continuous assessment is built into gamified instruction through feedback, scoring, and performance tracking. Gamification can help TLE teachers assess students' competency mastery in real time, encouraging self-evaluation and goal-setting. DepEd supports authentic, performance-based assessments that measure both process and product.

DepEd Order No. 16, s. 2022 – Guidelines on the Implementation of the National Learning Recovery Program emphasize re-engagement and motivation for post-pandemic education recovery. Games and interactive tasks in gamified instruction engage students and support this initiative. Gamification makes TLE lessons more meaningful and enjoyable, reducing disengagement and learning loss. Gamified instruction is evidence-based for learning recovery and student motivation in this policy context.

Global organizations, such as UNESCO (2022) and the OECD (2021), promote pedagogical innovation and digital competence in education. The Futures of Education Report by UNESCO emphasizes the importance of digital learning environments that foster creativity and collaboration. The OECD emphasizes the use of technology to empower and engage students. Gamified instruction utilizes digital tools to create inclusive, participatory, and competence-oriented learning environments that empower students to become active learners.

The K–12 TLE curriculum integrates technology, entrepreneurship, and practical life skills. The DepEd's Digital Rise Program and the ICT Competency Framework for Teachers (ICT-CFT) encourage teachers to utilize technology to enhance interactivity and promote student autonomy. This integration is achieved through gamification, which turns TLE lessons into immersive digital or hybrid learning experiences. Gamified design and practical TLE skills teach technical competence and digital citizenship.

Theoretical and policy interactions support the use of TLE gamified instruction. Theoretical perspectives explain the psychological, behavioral, and cognitive mechanisms of gamification, while policy frameworks outline its application in Philippine education. They advocate for an evidence-based, policy-aligned approach to gamified instruction to ensure it meets national goals of student engagement and achievement.

Gamified instruction enhances learner engagement and achievement, particularly in skills-based subjects such as Technology and Livelihood Education (TLE), according to recent research. Díaz (2024) found that gamification improves students' learning across subjects and levels by increasing test scores through the use of game elements such as points, badges, and leaderboards.

Jaramillo-Mediavilla et al. (2024) synthesized empirical studies. They found that gamified environments enhance motivation and academic performance by increasing engagement, which in turn mediates the effects of game design features on achievement outcomes.

Gamification increases school engagement-behavioural participation, emotional interest, and cognitive investment-and completion rates and grades in primary and secondary education, according to systematic reviews by Vrcelj et al. (2023) and Ruiz et al. (2024).

These reviews emphasize that game elements are most effective when aligned with clear learning goals and feedback mechanisms, which are particularly applicable to performance-based TLE competencies such as food preparation, dressmaking, and basic entrepreneurship. Virtual and mixed-reality gamification studies (Lampropoulos et al., 2024) show gains in cognitive outcomes and affective variables (interest, self-efficacy), suggesting that game-based tasks can support complex, practice-oriented learning like TLE workshops.

Technical and vocational education supports the relevance of gamification to TLE. Gamification and game-based learning in vocational schools have been shown to improve academic performance, engagement, and motivation in engineering and healthcare students, particularly when simulations and digital platforms are utilized, according to Dahalan et al. (2022).

Ahmed et al. (2025) found that gamified mobile cloud-based learning environments significantly improved achievement and engagement for vocational students, highlighting the suitability of game mechanics for competency-based, skills-oriented curricula. These findings suggest that vocational learners like competitive challenges, rewards, and immediate feedback, which TLE classrooms and labs can use.

Regudon et al. (2021) conducted a phenomenological study on Gamification Techniques in Teaching and Learning Exploratory Courses in Technology and livelihood education, finding that Grade 7 students found gamified TLE activities more engaging, motivating, and participatory than lecture-heavy methods. Students said game-based TLE tasks encouraged active participation, collaboration, and "fun competition," which motivated them to finish tasks and practice skills. Gamification transformed TLE learning from a teacher-centered approach to a student-centered one, thereby increasing engagement and skill mastery.

Gamification also works for teachers, according to TLE research. Robles-Pelaez (2024) found that TLE instructors who used technology-based gamification (e.g., Kahoot, Quizziz, spinning wheels, digital scoreboards) in core TLE subjects experienced higher student participation, attentiveness, and enthusiasm, as well as improved performance on practical tasks. Instructors observed increased student participation, skill demonstration, and practice, indicating that game elements can boost achievement in performance-based subjects. Santos, Abelgos, and Lomerio (2025) provide additional evidence through their Wordwall-based Interactive Teaching Resources (ITR) in Technology and Livelihood Education.

TLE teachers highly rated gamified interactive resources and the TLE Hub for perceived usefulness, ease of use, and intention to use, while students liked the interactive, game-like tasks. Gamified ITRs maintain learner engagement during drills, reviews, and formative assessments, improving TLE concept and procedure retention and application, according to the authors. The TLE potential of technology-based gamification is supported by more empirical research. Balalle (2024) found that technology-supported gamified learning environments increase student motivation, mastery, and engagement, especially when students receive continuous feedback and can track their progress through levels or badges.

Celasun (2025) found that incorporating game elements, such as points, progress bars, leaderboards, and narrative challenges, into classroom instruction improves participation, persistence, and learning outcomes across subjects, suggesting that these designs can be applied to TLE modules and competency-based activities.

Recent meta-analyses and reviews (Diaz, 2024; Jaramillo-Mediavilla et al., 2024; Dahalan, 2022) conclude that well-designed gamified instruction improves engagement and achievement, especially in practice-oriented fields.

Research (Regudon et al., 2021; Robles-Pelaez, 2024; Santos et al., 2025) suggests that aligning game elements with hands-on tasks, formative assessments, and digital platforms leads to increased participation, enthusiasm for skill demonstrations, and more

meaningful learning experiences, ultimately improving performance in practical competencies and summative assessments.

This study positions gamified instruction as a pedagogical innovation that supports the holistic development of learners in the 21st century by aligning game-based strategies with DepEd's learning standards, PPST competencies, and global educational priorities.

THE PROBLEM

Statement of the Problem

This research aimed to determine the effectiveness of gamified instruction in Technology and Livelihood Education (TLE) in enhancing learners' engagement and achievement at Banilad Elementary School, Division of Mandaue City, during the school year 2024–2025 as basis to develop a framework for game-based instructional strategies.

This study specifically sought to answer the following questions:

1. What is the related information as to:
1.1. Teachers'
1.1.1. Age and gender,
1.1.2. Highest Educational attainment,
1.1.3. Length of teaching experience, and
1.1.4. Training or seminars attended;

1.2. Learners
1.2.1. Age and gender,
1.2.2. Access to Digital Devices for Learning,
1.2.3. Internet Access at Home,
1.2.4. Experience with Online or Gamified Learning Activities;

1.3. Type of games utilized
1.3.1. Digital game-based tools,
1.3.2. Non-digital or classroom-based games, and
1.3.3. Teacher-designed gamified activities?

2. As perceived by respondent groups, what is the level of implementation of gamified instruction in TLE in terms of:
2.1. Lesson design and preparation,
2.2. classroom experience and participation,
2.3. Assessment and learning outcomes,
2.4. Motivation and feedback, and
2.5. use of technology and resources?

3. What is the level of learners' engagement and achievement in TLE through gamified instruction in terms of:
3.1. learning interest and participation,
3.2. motivation and attitude towards learning,
3.3. learning performance and understanding, and
3.4. learning environment and peer collaboration?

4. Is there a significant relationship between the level of gamified instruction and the learners' engagement and achievement in TLE?

5. What issues and challenges do teachers encounter in implementing gamified instruction in TLE?

6. Based on the findings, what gamified instructional guide can be facilitated?

Null Hypothesis

H_o: There is no significant relationship between the level of gamified instruction and the learners' engagement and achievement in TLE at Banilad Elementary School, Division of Mandaue City.

Significance of Study

This study aims to examine the effectiveness of gamified instruction in Technology and Livelihood Education (TLE) in enhancing learners' engagement and achievement at Banilad Elementary School, Division of Mandaue City. The findings of this research will contribute to improving instructional practices by integrating game-based learning strategies that promote motivation, participation, and academic performance. Moreover, the study seeks to provide a framework for implementing gamified teaching approaches that can be adopted by educators in similar educational settings.

This study was beneficial to the following:

Department of Education. The study's results can inform the Department of Education's formulation of policies and programs that promote innovative, technology-enhanced, and student-centered pedagogies. By adopting gamified instructional approaches, the Department of Education (DepEd) can strengthen curriculum implementation and align teaching practices with 21st-century learning competencies.

DepEd Policymakers. Findings provided evidence-based insights for developing and refining instructional frameworks that integrate gamification principles in TLE. Policymakers can use the results to support the inclusion of game-based strategies in teacher training programs and resource development at the national and regional levels.

Administrators. School heads and instructional leaders may utilize the study's outcomes to encourage the use of gamified approaches in classroom instruction. The study will help administrators design school-based programs that foster active learning, enhance teacher motivation, and improve student performance in TLE.

Teachers. TLE teachers directly benefit from practical insights into how gamified instruction can increase learners' engagement and academic

achievement. The study will also help teachers adopt creative strategies, digital tools, and classroom management techniques that make lessons more interactive and enjoyable for learners.

Parents/Guardians. Parents and guardians indirectly benefit from this study as their children become more motivated and actively engaged in their studies. When learners demonstrate improved academic performance and increased enthusiasm for school activities, it has a positive impact on family support and involvement in education.

Learners. Learners are the primary beneficiaries of this study. Gamified instruction transforms traditional lessons into engaging, interactive experiences that stimulate interest, participation, and mastery of TLE competencies. By making learning more enjoyable and rewarding, learners are more likely to achieve better academic outcomes and develop positive attitudes toward learning.

Community. The community will benefit from the study's contribution to developing skilled and motivated learners who are better prepared for future technical-vocational and entrepreneurial opportunities. As learners become more engaged and competent, the community gains individuals capable of applying practical TLE skills in daily life and local enterprises.

Researcher. The researcher gained deeper understanding of how gamified learning influences student engagement and achievement, particularly within the TLE context. The process contributes to the researcher's professional growth and expertise in innovative teaching strategies applicable to technical-vocational education.

Future Researchers. This study served as a foundation for future research on gamification, learners' engagement, and achievement in basic education. It may also inspire further studies on how game-based learning can be integrated into other subject areas and grade levels within the Philippine educational setting.

RESEARCH METHODOLOGY

This part presents the research method, design, locale, population and sampling, research instruments, data-gathering procedure, statistical treatment of data, and scoring procedures used in the study on the effectiveness of gamified instruction in Technology and Livelihood Education (TLE) in enhancing learners' engagement and achievement at Banilad Elementary School, Division of Mandaue City.

Design

This study utilized a descriptive-correlational research design. The descriptive aspect aimed to determine the level of gamified instruction and the extent of learners' engagement and achievement in Technology and Livelihood Education (TLE), while the correlational component examined the relationship between gamified instructional strategies and learners' engagement and academic performance. This design is appropriate because it enables the researcher to describe existing teaching practices and determine possible associations between game-based learning and student outcomes without manipulating any variables (Fraenkel, Wallen, & Hyun, 2019).

A quantitative approach was employed using survey questionnaires and performance data. These tools collected factual, observable, and self-reported information to describe the effectiveness of gamified instruction in enhancing students' motivation, participation, and achievement in TLE. The design allowed the researcher to analyze patterns and relationships among variables, providing an empirical basis for developing a framework for game-based instructional strategies.

Flow of the Study

The study commences by identifying the demographic profile of the respondent groups, consisting of learners and teachers in Technology and Livelihood Education (TLE) at Banilad Elementary School, Division of Mandaue City. Data are gathered on learners' age, gender, grade level, academic standing, and access to technology or learning devices, as well as teachers' age, gender, highest educational attainment, length of teaching TLE, and training or seminars attended related to gamified or digital instruction. This preliminary stage provides essential background information for interpreting variations in engagement and achievement outcomes.

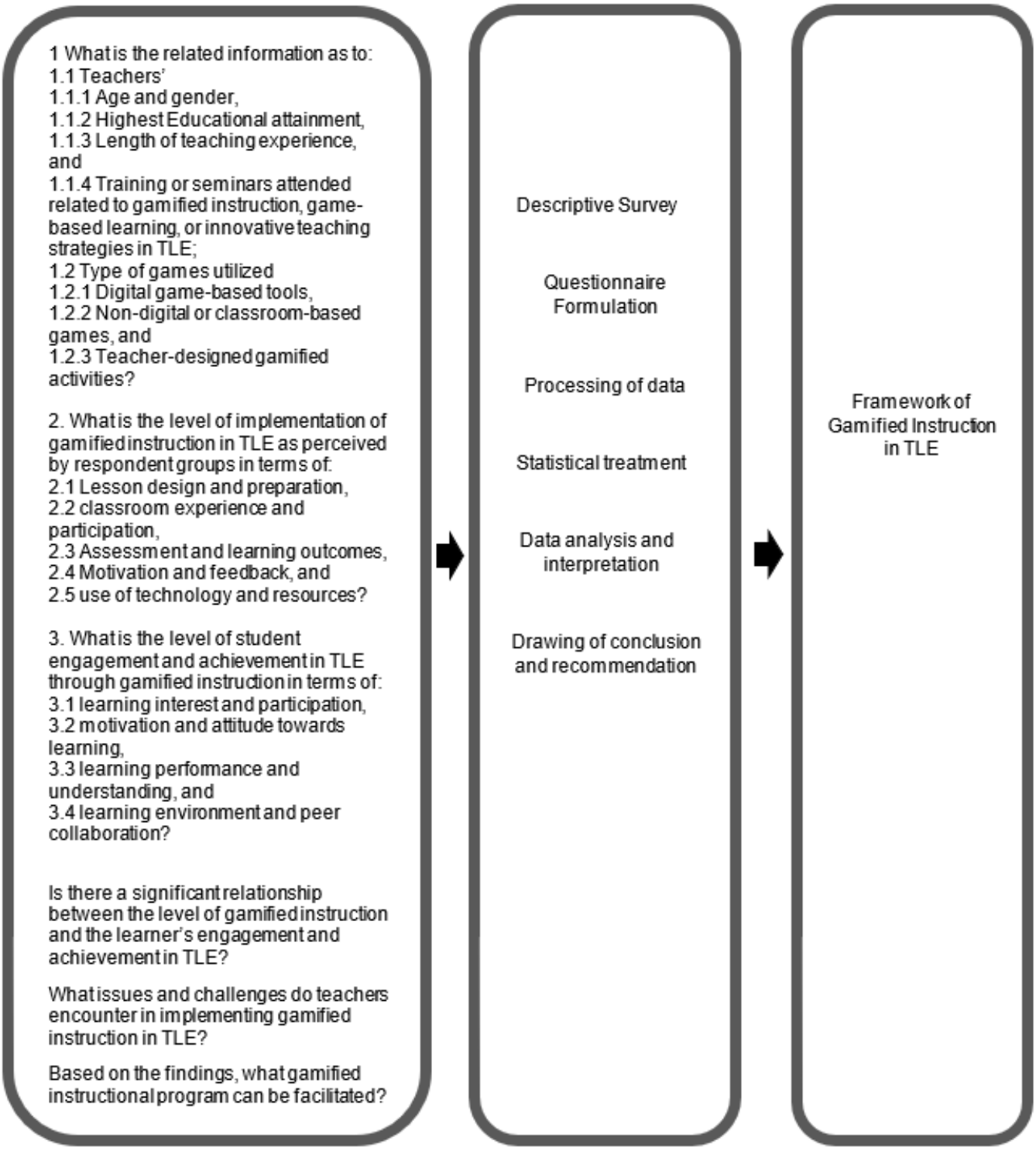

Figure 2 Flow of the Study

The next phase determines the level of gamified instruction as implemented in TLE in terms of game design and integration, learning objectives alignment, student motivation and participation, feedback and reward mechanisms, and technology utilization. This step establishes how effectively teachers apply game-based strategies within TLE lessons to promote interactive and meaningful learning experiences.

The succeeding phase evaluates the level of student engagement across behavioral, emotional, and cognitive dimensions. Simultaneously, the level of learners' achievement is measured through performance task results, written test results, and overall academic performance in TLE. These findings reveal how gamified instruction influences learners' active participation and academic success.

The study then investigates the significant relationship between gamified instruction and learners' engagement and achievement in TLE. This correlation analysis determines whether the use of game-based learning strategies has a meaningful impact on both the motivation and performance of learners. The research further identifies the issues and challenges encountered by teachers and students in implementing gamified instruction, providing insights into barriers that affect its successful integration.

Ultimately, based on the findings, the study develops a framework of gamified instruction in TLE that aims to enhance learners' engagement and achievement. This framework serves as the primary output of the research, offering structured approaches, implementation guidelines, and feedback mechanisms to help teachers effectively integrate game-based learning in TLE instruction.

Environment

Banilad Elementary School is strategically located along A. S. Fortuna Street in Barangay Banilad, Mandaue City, Cebu, Philippines. Situated within the highly urbanized setting of Mandaue City, the school benefits from being in the heart of a bustling urban environment characteristic of Central Visayas' economic and commercial hub. The school is surrounded by a dynamic mix of commercial establishments, residential neighborhoods, and industrial areas, reflecting the city's diverse land use. Positioned on A. S. Fortuna Street, a major thoroughfare, the school enjoys excellent connectivity and accessibility to various parts of the city, making it easily reachable by public and private transportation. Barangay Banilad itself is an integral administrative division of Mandaue City, contributing to the city's overall urban landscape. Located on the coastal plains of Cebu Province, Mandaue City offers a unique blend of urban development and coastal geography, situating Banilad Elementary School in a vibrant and accessible community setting.

Figure 3 Research Environment of The Study

Currently, Banilad Elementary School has 896 learners. The school implements the standard curriculum for the K-12 program, aligning with national education standards. The school's operations are supported by a dedicated team of teachers, which consists of thirty-three and three nonteaching staff, who work together to maintain an effective and nurturing academic environment.

Banilad Elementary School, situated in the Mandaue City Division, serves as the primary research environment for this study. The school provides a conducive setting for implementing innovative teaching approaches such as gamified instruction in Technology and Livelihood Education (TLE). With its commitment to fostering learner-centered and technology-enhanced instruction, the school encourages teachers to explore digital and interactive strategies that promote engagement and improve learning outcomes.

The school community actively supports educational initiatives that integrate creativity and technology into classroom instruction. Teachers are provided with opportunities to attend training and seminars related to ICT integration, digital pedagogy, and game-based learning, ensuring that instructional practices remain aligned with 21st-century teaching standards. These professional development activities equip educators with the necessary skills to design meaningful, game-oriented learning experiences in TLE.

Furthermore, the supportive collaboration among administrators, teachers, parents, and learners contributes to the success of innovative instructional approaches. Regular communication and partnership among stakeholders ensure that learning remains responsive to students' needs and interests. The integration of gamified strategies in TLE enables learners to connect academic concepts to practical, real-world applications, thereby making learning more engaging and enjoyable.

In summary, Banilad Elementary School provides an ideal environment for exploring gamified instruction as a tool for enhancing learners' engagement and achievement. The school's commitment to innovation, teacher development, and community involvement fosters an atmosphere that supports the effective implementation of game-based learning in TLE.

Respondents

The respondents of this study will consist of Technology and Livelihood Education (TLE) teachers and Grade 6 learners from Banilad Elementary School, Division of Mandaue City. The selected teachers play a key role in implementing gamified instruction and integrating game-based strategies into their TLE lessons, while the learners serve as direct participants who experience and respond to these instructional innovations. Table 1 presents the distribution of the study's respondents.

Table 1 Distribution of Respondents

Respondent Group	Number of Respondents	%
Learners	50	83%
Teachers	10	17%
Total	**60**	**100%**

Each class is facilitated by a TLE teacher who implements game-based instructional strategies designed to make learning more engaging and effective. These teachers are responsible for integrating gamified elements into lessons, managing interactive classroom activities, and aligning instruction with the competencies prescribed by the Department of Education. Their insights provide valuable perspectives on the effectiveness, challenges, and outcomes of gamified teaching in TLE.

The Grade 6 learners serve as the primary participants in the study, providing direct feedback on their engagement, motivation, and academic performance when exposed to gamified instruction. Their participation reflects how game-based learning strategies influence classroom interaction, focus, and achievement in TLE.

This respondent profile focuses on teaching innovation and learners' engagement, forming the foundation for analyzing the effectiveness of gamified instruction at Banilad Elementary School, Division of Mandaue City, for the school year 2025–2026. A total of 10 EPP teachers and 50 Grade 6 learners were purposively selected to ensure that data accurately represent those directly involved in the implementation of gamified learning strategies in TLE.

Instrument

The researcher employed two sets of research instruments, which were modified, developed, and administered to the respondents. A structured survey-interview questionnaire was used to assess the extent of gamified instruction implemented by TLE teachers and its impact on learners' engagement and achievement. The

instrument focused on various aspects of game-based learning, such as game design and integration, alignment with learning objectives, learners' motivation, feedback and reward systems, and technology utilization. The questionnaire items were adapted and modified from validated instruments on gamified and digital instruction (Hamari et al., 2016; Surendeleg et al., 2014), ensuring relevance to the TLE context in the Philippine setting.

To measure learners' engagement and achievement, the researcher used an adapted Learners' Engagement and Academic Performance Scale, which included indicators for behavioral, emotional, and cognitive engagement, as well as learners' task results, written test scores, and overall academic performance. This instrument was aligned with frameworks on learner motivation and engagement in gamified environments (Fredricks, Blumenfeld, & Paris, 2004).

A demographic profile checklist was also used to gather information about the respondents, including age, gender, grade level, academic standing, access to technology (for learners), and educational attainment, as well as teaching experience and training related to gamified or digital instruction (for teachers). This ensured a comprehensive understanding of respondent backgrounds that may influence the effectiveness of gamified learning.

Data Gathering Procedure

Prior to data collection, the researcher sought formal approval from the Schools Division Superintendent of DepEd Mandaue City and the principal of Banilad Elementary School. Informed consent was also obtained from all participating teachers and learners to ensure ethical compliance and voluntary participation.

The data collection process began with the distribution of survey questionnaires to both learners and teachers during designated class periods or school meetings. Separate instruments were administered to each group to appropriately capture their experiences and perspectives related to the research focus. To complement the quantitative data, brief follow-up interviews were conducted with selected respondents to clarify responses and gather additional qualitative insights.

All gathered data were treated with the highest level of confidentiality and were utilized solely for academic purposes, in accordance with ethical research standards. The completed questionnaires were then retrieved, organized, encoded, and prepared for statistical analysis.

Statistical Treatment of Data

To analyze the collected data, the following statistical tools were employed:

Frequency and percentage – These were used to describe the demographic profile of the respondents, particularly the Grade 6 learners and TLE teachers.

Weighted mean – This was utilized to determine the level of student engagement and academic achievement as influenced by gamified instruction in TLE.

Pearson Product-Moment Correlation Coefficient (r) – This statistical tool was applied to examine the significant relationship between gamified instructional strategies and students' engagement and achievement in TLE.

Scoring Procedures

The responses of learners and teachers were tallied, tabulated, and interpreted based on weighted mean scores. Higher mean values indicated a stronger level of engagement and achievement resulting from gamified instruction in TLE. Qualitative data gathered from interviews and observations were coded, categorized, and thematically analyzed to support and validate the quantitative findings, ensuring a comprehensive understanding of how game-based strategies influenced student learning and participation.

Survey responses utilized a 5-point Likert scale, interpreted as follows:

Weight	Range	Interpretation	Transmuted Rating
5	4.21–5.00	Strongly Agree	Highly Evident
4	3.41–4.20	Agree	Evident
3	2.61–3.40	Neutral	Moderately Evident
2	1.81–2.60	Disagree	Slightly Evident
1	1.00–1.80	Strongly Disagree	Not Evident

DEFINITION OF TERMS

To ensure clarity and consistency, the following key terms are defined as used in this study:

Technology and Livelihood Education (TLE) – TLE is a vital component of the elementary curriculum that focuses on developing learners' knowledge, skills, and attitudes toward home economics, entrepreneurship, and livelihood. It aims to prepare learners to become self-reliant and productive members of society by teaching practical life skills, including cooking, gardening, sewing, budgeting, and basic entrepreneurship. In the context of this study, TLE serves as the learning area where gamified instructional strategies are applied and evaluated. The integration of gamified elements into TLE activities seeks to make hands-on lessons more engaging while fostering creativity, collaboration, and problem-solving among learners.

Feedback and Reward Mechanisms – These mechanisms represent the systems used within gamified instruction to guide, motivate, and recognize learners' performance. Feedback may come in the form of points, badges, verbal praise, or digital notifications, while rewards may include certificates, privileges, or acknowledgment during class. Such mechanisms play a critical role in sustaining learners' engagement by providing immediate and meaningful reinforcement. In this study, feedback and reward mechanisms are examined to determine how they influence learners' persistence, enthusiasm, and academic improvement in TLE.

Framework of Gamified Instruction – Refers to the proposed output of this study, which serves as a structured model that teachers can use to plan, implement, and assess gamified lessons in TLE. The framework outlines essential components such as instructional planning, game design principles, feedback systems, technological tools, and evaluation methods. It aims to provide educators with a practical guide for enhancing both learners' engagement and academic achievement.

Game Design and Integration – This term pertains to the process of embedding game mechanics and dynamics within the instructional framework of TLE. It involves designing activities that include competition, collaboration, problem-solving, and progression through levels. Effective game design ensures that these elements are not merely decorative but are aligned with specific learning objectives. In this study, game design and integration focus on how teachers structure gamified lessons to maximize learner engagement and foster achievement through clear rules, achievable goals, and rewarding experiences.

Gamified Instruction – Refers to the purposeful integration of game elements such as points, levels, leaderboards, badges, challenges, and rewards into the teaching and learning process of Technology and Livelihood Education (TLE). Gamified instruction is not about turning learning into a game but about using the motivational and engagement principles found in games to make educational experiences more interactive and enjoyable. In this study, gamified instruction is utilized to promote active participation, sustain learners' motivation, and improve learning outcomes. It seeks to transform traditional classroom instruction into a more dynamic environment where learners can achieve academic goals through play-based challenges, instant feedback, and positive reinforcement.

Home Economics and Livelihood Education (HELE) was formerly known as Technology and Livelihood Education (TLE) under the previous Basic Education Curriculum. It focused on developing learners' fundamental skills in home management, crafts, entrepreneurship, and livelihood-related activities-the subject aimed to promote self-sufficiency, productivity, and practical application of knowledge in daily life. Although HELE has been restructured into TLE under the K–12 curriculum, its core principles of fostering resourcefulness, industry, and responsibility remain integral to present-day instruction. In this study, HELE is acknowledged as the foundational program from which TLE evolved, providing historical context to the development of practical and livelihood education in the Philippines.

Assessment and learning outcomes. This refers to the process of evaluating what learners have learned through quizzes, performance tasks, or game-based scoring systems. It also reflects how well learners retain knowledge and demonstrate skill mastery after instruction.

Classroom experience and participation – This pertains to how learners interact with the lesson activities, instructions, and peers during class time. It measures the extent to which students are actively involved, responsive, and engaged in gamified tasks.

Lesson design and preparation – This refers to how teachers plan and organize lessons, ensuring that objectives, activities, and materials are aligned with the curriculum. In gamified instruction, it involves structuring lessons with clear rules, challenges, and rewards that support learning goals.

Motivation and feedback – This describes the level of enthusiasm learners show towards activities and the support they receive through verbal praise, points, or badges. Timely feedback guides students toward improvement while sustaining their engagement.

Use of technology and resources – This involves the application of digital tools, multimedia platforms, or physical game materials to enrich instruction. Effective use of resources enhances interactivity and accessibility in gamified learning environments.

Issues and Challenges – Represent the barriers or difficulties encountered by teachers and learners in implementing gamified instruction in TLE. These may include a lack of resources, limited technological infrastructure, insufficient training in game-based pedagogy, or resistance to adopting new teaching methods. Understanding these issues is crucial in identifying practical solutions and recommendations to ensure the successful integration of gamification in classroom settings.

Learning Objectives Alignment – Refers to the extent to which gamified activities are intentionally aligned with the official TLE curriculum standards and learning competencies set by the Department of Education. Alignment ensures that gamification remains an educational tool rather than mere entertainment. By linking each game-based activity with measurable learning outcomes, teachers can maintain instructional integrity while utilizing fun and interactive strategies. In this study, learning objectives alignment ensures that gamified instruction strengthens, rather than replaces, the core goals of TLE education.

Student Achievement – Refers to the extent to which learners have attained the desired learning outcomes as indicated by their performance in written tests, performance tasks, and overall academic standing in TLE. It serves as an indicator of how effectively gamified instruction contributes to knowledge acquisition and skill mastery. In this study, learners' achievement encompasses both formative and summative assessments, emphasizing not only academic performance but also learners' ability to apply knowledge in practical, real-world tasks related to TLE.

Learners' Engagement – Learners' engagement pertains to the level of attention, curiosity, interest, optimism, and passion that learners show during learning activities. It is a multidimensional construct composed of behavioral, emotional, and cognitive engagement. Behavioral engagement reflects learners' participation, attendance, and involvement in classroom tasks. Emotional engagement refers to learners' feelings of enjoyment, enthusiasm, and attachment to school activities. Cognitive engagement involves the effort and thought learners invest in understanding and mastering complex ideas. In this study, learners' engagement is an essential variable that measures how gamified instruction influences learners' motivation and participation in TLE classes.

Learning environment and peer collaboration. This pertains to the classroom atmosphere and how well learners cooperate, communicate, and support one another during group-based or competitive game activities. A positive environment promotes teamwork and shared success.

Learning interest and participation. This reflects how eager and willing learners are to join activities, respond to challenges, and complete tasks during gamified lessons. High participation indicates strong enthusiasm toward the subject.

Learning performance and understanding. This measures the degree to which students grasp concepts, apply skills, and achieve expected outputs after participating in gamified instruction. It shows how games contribute to actual learning gains.

Motivation and attitude towards learning. This refers to how positively learnerss view the subject and their willingness to exert effort when activities are gamified. A positive attitude leads to improved persistence and confidence.

Technology Utilization – Refers to the use of digital tools, devices, and online platforms to facilitate gamified learning. This includes educational applications, learning management systems, multimedia presentations, and interactive games that support classroom instruction. The integration of technology enables teachers to deliver gamified lessons efficiently, while also helping learners explore TLE concepts in innovative ways. In this study, technology utilization also considers the accessibility of devices and internet connectivity, which can either support or hinder the implementation of gamified learning activities.

2. PRESENTATION, ANALYSIS OF DATA AND INTERPRETATION

Data presentation, analysis, and interpretation are provided in this chapter. It provides answers to the problems posed in the study. There were four (4) sections to this investigation. The data were gathered from teachers and learners of Technology and Livelihood Education (TLE) at Banilad Elementary School, Division of Mandaue City, to determine the effectiveness of gamified instruction in enhancing student engagement and achievement.

The first section focused on the related information of the respondents, which includes the demographic profile of teachers and learners in terms of age, gender, highest educational attainment, and length of teaching experience for teachers, as well as training or seminars attended related to gamified instruction, game-based learning, or innovative teaching strategies in TLE. It also presents the types of games utilized in classroom instruction such as digital games, non-digital or traditional games, and teacher-designed gamified activities that were used to stimulate learners' interest, motivation, and participation during TLE lessons. This section provides an overview of the background characteristics and classroom contexts where gamified strategies were applied.

The second section presents the level of implementation of gamified instruction in TLE as perceived by both teachers and learners. The data gathered covered the following dimensions: lesson design and preparation, classroom experience and participation, assessment and learning outcomes, motivation and feedback, and use of technology and resources. This section provides insights into how effectively gamified instructional strategies were planned and carried out in the classroom and how these influenced the overall teaching and learning process in TLE.

The third section deals with the level of learners' engagement and achievement as influenced by gamified instruction. It includes learners' responses on indicators such as learning interest and participation, motivation and attitude toward learning, learning performance and understanding, and the learning environment and peer collaboration. The results in this section describe how gamified learning activities contributed to increasing learners' enthusiasm, active involvement, and academic performance in TLE.

The fourth section examines whether there is a significant relationship between the implementation of gamified instruction and the learners' engagement and achievement in TLE. It also explores the relationship between the respondents' profiles, the types of games used, and the level of classroom implementation. This section determines how these factors interact to influence the overall effectiveness of gamified instruction and provides the basis for developing a framework for game-based instructional strategies in TLE.

Relevant Information

The first section of the study focused on gathering relevant information about the teachers and learners involved in the implementation of gamified instruction in TLE. For teachers, the data included age, gender, highest educational attainment, length of teaching experience, and training/seminars related to gamified or ICT-based instruction. For learners, the demographic data included age, gender, access to digital devices, internet availability at home, and previous experience with online or gamified learning activities. This information provides context for interpreting responses on the implementation of gamified instruction and learners' engagement.

Teachers' Profile

The study included 10 teachers, whose demographic characteristics were assessed to provide context on their professional background, teaching experience, and preparedness to implement gamified instruction in TLE. Understanding these characteristics helps gauge the capacity of educators to design and deliver effective gamified lessons that meet the developmental and learning needs of their Grade 6 learners.

Age

Age is a critical demographic characteristic, as it reflects professional maturity, experience, and potential receptiveness to innovative instructional strategies. Table 2 shows the age distribution of the respondents.

The age distribution of teachers, with a mean of 41.50 years and a standard deviation of 10.50, suggests that most teachers are between 31 and 55 years old.

Table 2 Age of Teachers

Age (Years)	Frequency	Percentage
51–55	2	20%
26–30	2	20%
31–35	2	20%
36–40	1	10%
41–45	1	10%
46–50	1	10%
56–60	1	10%
Total	**10**	**100%**
Average	**41.50**	
SD	**10.50**	

This indicates a workforce that balances experience with adaptability, essential for effectively implementing gamified instruction in TLE. Research indicates that mid-career teachers (generally aged 31–50) possess both practical expertise and openness to innovative teaching strategies (Smith & Brown, 2021). Their professional maturity enables them to design and deliver lessons that integrate gamified elements while addressing the individual learning needs of their Grade 6 learners.

The relatively smaller representation of younger teachers (26–30) and those approaching retirement (56–60) may affect the adoption of newer instructional technologies and strategies. Williams et al. (2023) note that younger educators tend to adopt technology-driven teaching approaches more readily, enhancing differentiated learning experiences. Meanwhile, older teachers (51+) provide valuable mentorship and pedagogical insight but may face challenges in adapting to rapidly evolving digital tools. The inclusion of teachers across this age spectrum is advantageous, as it creates a dynamic environment where experience, innovation, and adaptability converge to support effective gamified instruction in the classroom.

Gender

Gender is an important demographic characteristic, as it provides insights into the composition of male and female teachers in the workforce. Understanding gender distribution helps in analyzing how diverse perspectives and teaching styles may influence the implementation of gamified instruction in TLE. Table 3 shows the gender distribution of the respondents.

Table 3 Gender of Teachers

Gender	Frequency	Percentage
Female	6	60%
Male	4	40%
Total	10	100%

The gender distribution of teachers, with a slightly higher proportion of females (60%) compared to males (40%), suggests a relatively balanced workforce with diverse perspectives in teaching strategies. This near-equitable distribution enables a combination of teaching approaches that cater to the varied learning preferences of Grade 6 learners. The predominance of female teachers may contribute to nurturing and collaborative classroom practices, while male teachers may provide complementary instructional styles that encourage engagement and active participation.

Overall, the gender composition supports inclusive teaching and provides opportunities to implement gamified instructional strategies effectively, ensuring that both male and female educators contribute to creating a motivating and interactive learning environment (Cruz & Almeda, 2022).

Highest Educational Attainment

The highest educational attainment of teachers is a critical demographic characteristic, as it reflects their level of formal training, professional qualifications, and potential capacity to implement innovative instructional strategies such as gamified learning. Table 4 presents the educational qualifications of the respondents.

Table 4 Highest Educational Attainment of Teachers

Educational Attainment	Frequency	Percentage
Bachelor's Degree	4	40%
Master's Degree (Graduate)	3	30%
Master's Degree (Units)	2	20%
Doctorate (Units)	1	10%
Doctorate (Graduate)	0	0%
Total	**10**	**100%**
Average	**2.70**	
SD	**1.20**	

The distribution of teachers' educational attainment shows that the majority hold a Bachelor's degree (40%) or a Master's degree (including both graduate and units, totaling 50%), while a smaller proportion have completed a Doctorate Units (10%). The mean educational attainment of 2.70 (SD = 1.20) reflects that most teachers possess graduate-level education, which is sufficient to implement gamified instruction effectively. The standard deviation indicates some variation in attainment levels, suggesting opportunities for further professional development and pursuing higher-level degrees.

Teachers with postgraduate studies are likely to possess greater familiarity with research-based teaching methodologies and innovative learning technologies, which can enhance lesson design, assessment, and classroom engagement. Meanwhile, teachers with a Bachelor's degree bring practical experience and established teaching skills that are essential for effective classroom management. The combination of varied educational backgrounds ensures a well-rounded teaching team capable of implementing gamified instruction to improve learners' motivation, engagement, and learning outcomes (Smith & Brown, 2021; Cruz & Almeda, 2022).

Length of Teaching Experience

Length of teaching experience is a vital demographic characteristic, as it reflects the respondents' professional expertise, classroom management skills, and familiarity with pedagogical strategies such as gamified instruction. Table 5 shows the distribution of teaching experience among the respondents.

Table 5 Length of Teaching Experience of Teachers

Years of Experience	Frequency	Percentage
6–10 years	3	30%
16–20 years	2	20%
11–15 years	2	20%
1–5 years	2	20%
More than 20 years	1	10%
Total	**10**	**100%**
Average	**2.70**	
SD	**1.14**	

The data indicate that most teachers have between 6 and 20 years of teaching experience (70% combined), suggesting a workforce that balances practical classroom expertise with openness to innovative instructional strategies. Teachers with more than 20 years of experience contribute invaluable mentorship, insight, and stability to the teaching team, while those with 1–10 years of experience bring fresh perspectives and adaptability to new methods, including gamified instruction. The average teaching experience is 2.70 (SD = 1.14), reflecting a moderately experienced teaching staff capable of implementing gamified instruction. The standard deviation indicates some variation, which is advantageous as it combines the enthusiasm of relatively new teachers with the expertise of more experienced ones, promoting a balance of innovation and pedagogical proficiency in the classroom.

This mix of experience levels ensures a dynamic and capable teaching team that can effectively implement game-based learning, address diverse student needs, and maintain classroom engagement. Research shows that teachers with mid-to-long-term experience are generally proficient in instructional planning, classroom management, and integrating new pedagogical approaches, which can enhance learners learning outcomes and motivation in gamified lessons (Williams et al., 2023; Smith & Brown, 2021).

Training/Seminars Attended Related to Gamified or ICT-Based Instruction

Attendance in trainings or seminars is an important demographic characteristic, as it reflects the teachers' exposure to professional development opportunities, particularly in gamified and ICT-based instructional

strategies. Table 6 presents the distribution of respondents based on the number of relevant trainings or seminars attended.

Table 6 Training/Seminars Attended Related to Gamified or ICT-Based Instruction

Number of Trainings Attended	Frequency	Percentage
1–2 trainings	4	40%
3–4 trainings	3	30%
5 or more trainings	2	20%
None	1	10%
Total	**10**	**100%**
Average	**2.60**	
SD	**0.92**	

The data suggest that many teachers (90%) have attended at least one training related to gamified or ICT-based instruction, indicating a generally positive exposure to contemporary teaching strategies. Teachers who have participated in multiple trainings (5 or more) are likely to possess advanced competencies in integrating digital tools and gamified approaches into their lessons, enhancing learner engagement and motivation. The average number of trainings attended is 2.60 with a standard deviation of 0.92**,** reflecting moderate variation in professional development exposure. This suggests that while some teachers are highly experienced in gamified instruction, others may require additional support or training to strengthen their implementation. The combination of varied experiences can provide a balance of innovation and practical insight, leading to effective classroom gamified instruction.

Meanwhile, a smaller portion of the respondents (10%) have not yet attended any training, highlighting an area for potential professional development. Providing additional opportunities for training can help ensure all teachers are equipped with the knowledge and skills needed to effectively implement gamified instruction in TLE, thereby improving classroom engagement, student learning outcomes, and technology integration (Cruz & Villanueva, 2022).

Learners' Profile

The study included 50 learners, whose demographic characteristics were assessed to understand their access to digital learning and prior experience with gamified activities.

Age - Age is an essential demographic characteristic that needs to be assessed. Age determines the maturity, professional experience, and readiness of the respondents to implement gamified instruction in TLE. Table 7 shows the age characteristics of the respondents.

Table 7 Age of Grade 6 Learners

Age	Frequency	Percentage
12	22	44%
11	14	28%
13	14	28%
Total	**50**	**100%**
Average	**12.00**	
SD	**0.75**	

The age distribution of Grade 6 learners, with a mean of 12.00 years and a standard deviation of 0.82, suggests that most learners are between 11 and 13 years old. This indicates a relatively homogenous group in terms of age, which is typical for a single-grade classroom. Such uniformity in age ensures that instructional activities, particularly those that are gamified or interactive, can be designed to suit a similar developmental stage for the majority of learners.

The concentration of learners around the mean age reflects that most learners are at comparable cognitive, social, and emotional stages, allowing teachers to implement lessons that are appropriately challenging and engaging. While minimal variation exists, some differences may still occur due to individual learning readiness or prior experiences. Understanding the age distribution helps educators tailor gamified instruction, group activities, and collaborative tasks to maximize participation and learning outcomes, ensuring that all learners can benefit from age-appropriate pedagogical strategies (Espinosa & Soto, 2021).

Gender

Gender is a crucial demographic characteristic to assess, as it provides insights into the distribution of male and female learners in the classroom. Understanding gender composition helps teachers ensure that gamified instruction and learning activities are inclusive and promote equitable participation. Table 8 presents the gender characteristics of the respondents.

Table 8 Gender of Grade 6 Learners

Gender	Frequency	Percentage
Female	26	52%
Male	24	48%
Total	**50**	**100%**

The gender distribution of Grade 6 learners, with a slightly higher proportion of females (52%) than males (48%), indicates a balanced classroom composition. This near-equitable distribution allows educators to design gamified lessons that cater to diverse preferences, promoting collaboration, healthy competition, and active participation among all learners. Understanding the gender composition also helps teachers identify potential differences in engagement, learning style, or interaction patterns, enabling them to implement strategies that ensure inclusivity and equal opportunity for academic and social development (Cruz & Almeda, 2022).

Access to Digital Devices for Learning

Access to digital devices is an important demographic characteristic to assess, as it provides insights into learners' ability to participate in gamified and online learning activities. Understanding the availability of devices helps teachers design lessons that are inclusive, adaptable, and equitable for all learners. Table 9 presents the access of Grade 6 learners to digital devices.

Table 9 Access to Digital Devices

Device	Frequency	Percentage
Cellphone	30	60%
Tablet	10	20%
Laptop/Computer	8	16%
None	2	4%
Total	**50**	**100%**
Average	**1.84**	
SD	**0.99**	

The distribution shows that most Grade 6 learners (60%) have access to a cellphone, while fewer learners have tablets (20%) or laptops/computers (16%). Only a small proportion (4%) reported having no digital devices. The mean of 1.84 and a standard deviation of 0.99 indicate that, on average, learners have access to nearly two types of devices, but there is some variation across the group. This suggests that most learners can engage with the digital or online components of gamified instruction; however, teachers must consider strategies to accommodate students with limited or no access.

By understanding device availability, educators can implement blended gamified approaches that combine offline and online learning, ensuring equitable participation, engagement, and learning opportunities for all learners (Mercado, 2023).

Internet Access at Home

Internet access is a critical factor that influences learners' participation in online or gamified learning activities. Assessing this characteristic allows teachers to understand the feasibility of integrating digital tools into instruction and to design strategies that are equitable for all students. Table 10 presents the internet access of Grade 6 learners at home.

Table 10 Internet Access at Home

Internet Access	Frequency	Percentage
Always available	20	40%
Sometimes available	18	36%
Rarely available	10	20%
None	2	4%
Total	**50**	**100%**
Average	**3.12**	
SD	**0.92**	

The data indicates that 40% of learners have consistent access to the internet at home, while 36% have occasional access. A smaller proportion of learners (20%) have rare access, and 4% reported having no access at all. The mean score of 3.12 with a standard deviation of 0.92 indicates that learners generally have moderate access to the Internet, but there is variability across the group. This distribution highlights potential challenges in ensuring all learners can fully engage in online or gamified activities, particularly in a public-school setting where resources may be limited.

Understanding learners' internet access helps teachers plan blended instructional strategies, combining offline and online gamified learning, so that students with limited connectivity are not disadvantaged. By considering these access limitations, educators can maintain inclusivity, participation, and equitable learning outcomes (Cruz & Villanueva, 2022).

Experience with Online or Gamified Learning Activities

Learners' prior exposure to online or gamified learning experiences is an important factor in understanding their readiness and comfort with interactive, technology-driven instruction. Table 11 presents the experience of Grade 6 learners with online or gamified learning activities.

Table 11 Experience with Online or Gamified Learning Activities

Experience Level	Frequency	Percentage
Sometimes	20	40%
Rarely	14	28%
Often	12	24%
Never	4	8%
Total	**50**	**100%**
Average	**2.80**	
SD	**0.89**	

The data shows that 24% of learners often engage in online or gamified learning activities, while 40% participate occasionally. A smaller proportion (28%) have rarely experienced such activities, and 8% have never engaged in them. The mean score of **2.80** with a standard deviation of **0.89** indicates a moderate level of prior exposure. These findings indicate that while a significant number of learners have some familiarity with digital or gamified instruction, a considerable portion may require additional guidance and scaffolding to maximize engagement and learning outcomes.

Understanding learners' prior experience helps teachers design gamified TLE lessons that are developmentally appropriate and accessible. By providing differentiated support that combines simple digital tasks with traditional learning methods and gradually introducing gamified strategies, educators can ensure that all learners, regardless of prior experience, participate fully and benefit from interactive and motivational instructional approaches (Mercado, 2023).

Implementation Of Gamified Instruction

The level of implementation of gamified instruction refers to the effectiveness with which game-based strategies are integrated into the teaching and learning process. It encompasses the extent to which teachers and learners utilize game elements-such as points, badges, leaderboards, challenges, and rewards-to enhance motivation, engagement, and learning outcomes. Gamified instruction is evaluated across the following dimensions: Lesson Design and Engagement, Classroom Experience and Participation, Assessment and Learning Outcomes, Motivation and Feedback, and Use of Technology and Resources.

These domains collectively measure how well game-based learning approaches are integrated into classroom practices, how learners respond to them, and how such strategies impact academic performance and interest in the subject. A high level of implementation signifies that gamification principles are consistently and effectively applied to promote active participation, collaboration, and sustained motivation in learning activities.

Lesson Design and Engagement

Lesson Design and Engagement refer to how teachers' structure and organize gamified learning experiences to make lessons more interactive and meaningful. This dimension focuses on how effectively game elements-such as rules, rewards, and challenges-are integrated into lesson plans to capture learners' interest and promote active participation. It emphasizes the importance of aligning gamified strategies with learning objectives to enhance comprehension and motivation.

The data in Table 12 present the level of implementation of gamified instruction in TLE under Lesson Design and Preparation. The overall weighted mean (WM) of 4.63, interpreted as Strongly Agree, with a standard deviation (SD) of 0.59, indicates that both teachers and learners have a highly favorable perception of how gamified lessons are designed and implemented. This suggests that the integration of game-based elements in lesson planning is effectively carried out and positively received by both groups.

Table 12 Lesson Design and Preparation

Indicators	Teachers		Learners		Average		
	WM	SD	WM	SD	WM	SD	I
Lessons are designed to include fun and game-like activities.	4.65	0.55	4.68	0.58	4.67	0.57	Strongly Agree
Classroom games are connected to the lesson topics.	4.60	0.60	4.62	0.61	4.61	0.61	Strongly Agree
Lessons are easier to understand when taught through games.	4.68	0.50	4.70	0.53	4.69	0.52	Strongly Agree
Gamified elements such as points, badges, or rewards make learning more enjoyable.	4.55	0.63	4.58	0.66	4.57	0.65	Strongly Agree
The objectives of each gamified activity are clearly explained.	4.58	0.60	4.60	0.64	4.59	0.62	Strongly Agree
Games used in class help learners remember the lessons more effectively.	4.62	0.57	4.65	0.59	4.64	0.58	Strongly Agree
Over-all Mean	**4.61**	**0.57**	**4.64**	**0.60**	**4.63**	**0.59**	**Strongly Agree**

Legend:
4.21–5.00 = Strongly Agree 3.41–4.20 = Agree 2.61–3.40 = Neutral
1.81–2.60 = Disagree 1.00–1.80 = Strongly Disagree

Among the indicators, both teachers and learners gave the highest rating to the statement "Lessons are easier to understand when taught through games" (Average WM = 4.69, SD = 0.52). This highlights that gamified instruction significantly enhances comprehension and engagement by making abstract or technical concepts more accessible and easier to grasp. This finding is consistent with the study of Kim and Castelli (2022), which noted that game-based learning promotes better understanding through increased focus and interactive participation.

On the other hand, the indicator "Gamified elements such as points, badges, or rewards make learning more enjoyable" received a slightly lower yet still favorable mean (Average WM = 4.57, SD = 0.65). This implies that while both teachers and learners value the motivational aspects of gamification, they also recognize that learning enjoyment comes not only from rewards but also from the overall experience of meaningful participation.

Overall, the results demonstrate strong alignment between teachers and learners in perceiving gamified lesson design as engaging, effective, and purposeful. The close similarity in their ratings reflects mutual understanding and shared appreciation of how games are integrated into instruction. As supported by Flores and Mariano (2023), well-structured gamified lesson plans foster curiosity, sustain attention, and reinforce mastery of learning competencies-making TLE instruction both interactive and enjoyable.

Classroom Experience and Participation

Classroom Experience and Participation pertain to how learners engage and interact during gamified lessons. This dimension focuses on the level of enthusiasm, cooperation, and involvement students display when participating in classroom games. It highlights the social and collaborative aspects of learning, where teamwork, confidence, and enjoyment contribute to a more dynamic and inclusive classroom environment.

The data in Table 13 presents the level of implementation of gamified instruction in TLE under Classroom Experience and Participation. The overall weighted mean (WM) of 4.65, interpreted as Strongly Agree, with a standard deviation (SD) of 0.58, indicates that both teachers and learners perceive gamified classroom experiences are highly engaging, motivating, and collaborative. The close alignment of teachers' and learners' ratings reflects a shared recognition of the positive impact of gamified activities on classroom dynamics and participation.

Table 13 Classroom Experience and Participation

Indicators	Teachers		Learners		Average		
	WM	SD	WM	SD	WM	SD	I
Gamified lessons create excitement and interest in the learning process.	4.68	0.54	4.72	0.52	4.70	0.53	Strongly Agree
Learners become more active and engaged when games are integrated into lessons.	4.65	0.56	4.68	0.57	4.66	0.57	Strongly Agree
Game-based activities make learning more enjoyable and motivating.	4.70	0.51	4.74	0.50	4.72	0.51	Strongly Agree
Collaboration among learners improves during group games and challenges.	4.60	0.64	4.58	0.67	4.59	0.66	Strongly Agree
Gamified lessons help build confidence in sharing ideas and answers.	4.58	0.62	4.55	0.65	4.57	0.64	Strongly Agree
The competitive aspect of games encourages better performance and effort in learning.	4.63	0.59	4.62	0.61	4.63	0.60	Strongly Agree
Over-all Mean	**4.64**	**0.57**	**4.65**	**0.59**	**4.65**	**0.58**	**Strongly Agree**

Among the indicators, both groups rated "Game-based activities make learning more enjoyable and motivating" with the highest mean (Average WM = 4.72, SD = 0.51), showing that gamified lessons significantly enhance interest and enjoyment in learning tasks. This finding aligns with Lee and Martin (2022), who stated that enjoyable and interactive learning experiences promote sustained attention, curiosity, and active involvement among students. Teachers likewise observed that the infusion of fun and competition increases learner enthusiasm and participation.

Meanwhile, the indicator "Gamified lessons help build confidence in sharing ideas and answers" received a slightly lower but still strong rating (Average WM = 4.57, SD = 0.64). This suggests that while gamified instruction generally promotes self-expression, some learners may still experience hesitation in sharing ideas, especially in competitive settings. Teachers noted that providing constructive feedback and inclusive facilitation can help boost confidence and encourage equal participation.

Overall, the results demonstrate that gamified instruction fosters a lively, cooperative, and student-centered learning atmosphere. Both teachers and learners agree that game-based strategies enhance classroom engagement, improve teamwork, and motivate learners to perform better. As supported by Torres and Villanueva (2023), gamified learning experiences cultivate not only enjoyment but also collaboration, confidence, and social interaction-key elements in achieving holistic learner development in TLE classrooms.

Assessment and Learning Outcomes

Assessment and Learning Outcomes refer to how gamified instruction influences students' academic achievement and comprehension of lessons. This aspect emphasizes how educational games help learners grasp complex topics, monitor their progress, and improve test performance. It also reflects how game-based assessments promote active learning, self-evaluation, and mastery of skills, ultimately enhancing understanding and retention of TLE concepts.

Table 14 Assessment and Learning Outcomes

Indicators	Teachers		Learners		Average		
	WM	SD	WM	SD	WM	SD	I
Educational games enhance learning efficiency.	4.72	0.52	4.63	0.59	4.68	0.56	Strongly Agree
Scores or levels in gamified activities help monitor progress.	4.60	0.60	4.57	0.63	4.59	0.62	Strongly Agree
Review games contribute to improved performance or assessment results.	4.55	0.64	4.61	0.58	4.58	0.61	Strongly Agree
Game-based activities support better understanding of complex topics.	4.68	0.56	4.62	0.59	4.65	0.58	Strongly Agree
Participants show increased effort to improve in each gamified activity.	4.63	0.58	4.70	0.54	4.67	0.56	Strongly Agree
Achieving high scores or recognition in learning games fosters a sense of accomplishment.	4.70	0.55	4.74	0.53	4.72	0.54	Strongly Agree
Over-all Mean	**4.65**	**0.57**	**4.65**	**0.58**	**4.65**	**0.58**	**Strongly Agree**

The data on the level of implementation of gamified instruction in TLE, as assessed by Assessment and Learning Outcomes, reveal an overall weighted mean (WM) of 4.65, interpreted as "Strongly Agree," with a standard deviation (SD) of 0.58. This indicates that both teachers and learners perceive gamified instruction as highly effective in improving assessment practices and enhancing learning outcomes. The small variation in their responses suggests a shared appreciation for how game-based tasks promote active participation and measurable progress.

Among the indicators, the statement "Achieving high scores or recognition in learning games fosters a sense of accomplishment" obtained the highest mean (Average WM = 4.72, SD = 0.54). This reflects that both groups value the motivational role of achievement and recognition in sustaining learner engagement. According to Johnson and Reyes (2022), scoring and reward mechanisms in game-based learning reinforce self-efficacy and persistence, motivating learners to strive for mastery.

Meanwhile, the item "Review games contribute to improved performance or assessment results" yielded the lowest mean (Average WM = 4.58, SD = 0.61). Although still interpreted as Strongly Agree, this suggests that while review games are effective for reinforcing knowledge, their direct impact on test performance may vary across learners. Teachers noted that balancing gameplay with guided reflection helps strengthen the connection between game performance and academic achievement.

Overall, the findings affirm that gamified assessment supports both formative and summative learning processes. It enables learners to track progress, apply feedback, and develop a stronger sense of ownership over their achievements. As supported by Cruz and Mendoza (2023), gamified instruction transforms assessment into an engaging and formative experience, fostering motivation, confidence, and continuous improvement rather than test anxiety.

Motivation and Feedback

Motivation and Feedback focus on how gamified instruction encourages learners to engage actively and perform better through rewards, recognition, and constructive feedback. This area highlights the role of points, badges, and praises in sustaining learners' enthusiasm for studying. It also underscores how teacher feedback during or after game-based activities helps learners reflect on their performance, build confidence, and develop a growth mindset toward continuous learning in TLE.

Table 15 Motivation and Feedback

Indicators	Teachers		Learners		Average		
	WM	SD	WM	SD	WM	SD	I
Rewards or points in gamified activities enhance motivation to learn.	4.75	0.47	4.68	0.53	4.72	0.50	Strongly Agree
Positive feedback during games increases satisfaction and engagement.	4.68	0.55	4.73	0.51	4.71	0.53	Strongly Agree
Recognition and incentives encourage higher levels of performance.	4.70	0.52	4.64	0.59	4.67	0.56	Strongly Agree
Constructive feedback helps improve performance in gamified activities.	4.62	0.61	4.66	0.58	4.64	0.60	Strongly Agree
Gamified lessons create anticipation and interest in learning sessions.	4.69	0.54	4.71	0.52	4.70	0.53	Strongly Agree
Learning games remain enjoyable even without rewards or incentives.	4.58	0.63	4.51	0.68	4.55	0.66	Strongly Agree
Over-all Mean	**4.67**	**0.55**	**4.66**	**0.57**	**4.67**	**0.56**	**Strongly Agree**

The data on the level of implementation of gamified instruction in TLE, particularly under Motivation and Feedback, shows an overall weighted mean (WM) of 4.67, interpreted as Strongly Agree, with a standard deviation (SD) of 0.56. This indicates that both teachers and learners strongly recognize the importance of rewards, recognition, and feedback in sustaining engagement and enthusiasm during gamified learning. The narrow variation in their responses reflects a shared positive view of how game-based motivation supports both effort and achievement.

Among the indicators, the statement "Rewards or points in gamified activities enhance motivation to learn" received the highest mean (Average WM = 4.72, SD = 0.50), suggesting that incentives such as points, badges, or leaderboards remain powerful motivators that stimulate active participation and persistence. This is consistent

with De Guzman and Santiago (2022), who noted that structured reward systems in gamified instruction effectively encourage goal-setting and focus among learners.

In contrast, the item "Learning games remain enjoyable even without rewards or incentives" obtained the lowest mean (Average WM = 4.55, SD = 0.66), indicating that while intrinsic motivation contributes to enjoyment, external rewards continue to play a stronger role in maintaining learner interest. Teachers also observed that students are more responsive and engaged when achievements are visibly recognized.

Overall, the results confirm that gamified instruction effectively balances extrinsic and intrinsic motivation, offering both enjoyment and meaningful learning experiences. In line with Torres and Dela Cruz (2023), the combination of timely feedback, recognition, and purposeful challenges in gamified lessons enhances learners' confidence, engagement, and drive for continuous improvement.

Use of Technology and Resources

Use of Technology and Resources pertains to the integration of digital tools, online platforms, and multimedia materials in implementing gamified instruction. This aspect emphasizes how teachers utilize computers, mobile devices, projectors, and internet-based applications to make TLE lessons more engaging and interactive. It also considers learners' accessibility to these technologies and their ability to use them effectively. Proper use of technology enhances collaboration, creativity, and motivation, allowing learners to experience both online and offline game-based learning that supports the development of 21st-century skills.

The data on the level of implementation of gamified instruction in TLE, under the 'Use of Technology and Resources' category, reveal an overall weighted mean (WM) of 4.40, interpreted as 'Agree', with a standard deviation (SD) of 0.70. This finding suggests that both teachers and learners generally view the technological integration in gamified lessons as effective and beneficial, though some practical challenges remain. The moderate SD indicates that perceptions vary depending on access to digital tools and internet connectivity.

Table 16 Use of Technology and Resources

Indicators	Teachers		Learners		Average		
	WM	SD	WM	SD	WM	SD	I
Digital tools such as computers, mobile devices, or projectors are utilized in gamified lessons.	4.62	0.60	4.55	0.67	4.59	0.64	Strongly Agree
The use of digital applications or online games enhances engagement in learning activities.	4.58	0.62	4.63	0.60	4.61	0.61	Strongly Agree
Internet access contributes to more interactive and collaborative lessons.	4.48	0.68	4.55	0.65	4.52	0.67	Strongly Agree
Limited internet connectivity sometimes affects participation in digital games.	3.92	0.84	3.78	0.90	3.85	0.87	Agree
Additional guidance is needed in using devices or applications during gamified lessons.	4.25	0.76	4.10	0.84	4.18	0.80	Agree
Both online and offline games are preferred to support effective learning experiences.	4.64	0.59	4.66	0.57	4.65	0.58	Strongly Agree
Over-all Mean	**4.42**	**0.68**	**4.38**	**0.72**	**4.40**	**0.70**	**Agree**

Among the indicators, the statement "Both online and offline games are preferred to support effective learning experiences" obtained the highest mean (Average WM = 4.65, SD = 0.58), showing that participants value flexibility in implementing gamified instruction. This supports Cruz and Villanueva (2022), who emphasized that combining digital and offline gamification enhances inclusivity by accommodating varying levels of technological access.

Conversely, the item "Limited internet connectivity sometimes affects participation in digital games" recorded the lowest mean (Average WM = 3.85, SD = 0.87), reflecting that connectivity issues remain a major barrier to fully digital gamified learning. Teachers also expressed concern over the technical readiness of classrooms and the need for improved ICT support.

Nevertheless, strong agreement in items such as "The use of digital applications or online games enhances engagement" (Average WM = 4.61) and "Internet access contributes to interactive lessons" (Average WM = 4.52) demonstrates that both groups acknowledge the transformative impact of technology on student engagement and collaboration. This is consistent with Mercado (2023), who highlighted that digital gamification encourages active learning, creativity, and motivation.

Overall, the findings affirm that technology-supported gamified instruction enhances the learning environment when adequate infrastructure, internet access, and guidance are provided. To maximize its benefits, schools must strengthen digital literacy and ensure equitable access to technological resources for both teachers and learners.

Summary Of Results

The results presented in Table 17 summarize the learners' perception of the level of implementation of gamified instruction in EPP. Across all five indicators, the overall weighted mean (WM) of 4.60, interpreted as Strongly Agree, indicates that learners have a highly positive attitude toward gamified learning experiences. This suggests that the integration of game-based strategies in classroom instruction effectively enhances engagement, motivation, and comprehension.

Table 17 Summary of Results

Indicators	Teachers		Learners		Average		
	WM	SD	WM	SD	WM	SD	I
Lesson Design and Engagement	4.61	0.57	4.64	0.60	4.63	0.59	Strongly Agree
Classroom Experience and Participation	4.64	0.57	4.65	0.59	4.65	0.58	Strongly Agree
Assessment and Learning Outcomes	4.65	0.57	4.65	0.58	4.65	0.58	Strongly Agree
Motivation and Feedback	4.67	0.55	4.66	0.57	4.67	0.56	Strongly Agree
Use of Technology and Resources	4.42	0.68	4.38	0.72	4.40	0.70	Agree
Over-all Mean	**4.60**	**0.59**	**4.60**	**0.61**	**4.60**	**0.60**	**Strongly Agree**

Among the indicators, Motivation and Feedback obtained the highest mean (Teachers WM = 4.67, SD = 0.55; Learners WM = 4.66, SD = 0.57; Average WM = 4.67, SD = 0.56), signifying that both teachers and learners recognize the significant role of reward systems, recognition, and feedback in sustaining engagement and effort in gamified lessons. This supports the findings of Lopez

and Ramirez (2023), who emphasized that positive reinforcement in gamified instruction fosters enthusiasm and persistence in learning tasks. Following closely are Assessment and Learning Outcomes (Teachers WM = 4.65, SD = 0.57; Learners WM = 4.65, SD = 0.58; Average WM = 4.65, SD = 0.58) and Classroom Experience and Participation (Teachers WM = 4.64, SD = 0.57; Learners WM = 4.65, SD = 0.59; Average WM = 4.65, SD = 0.58), both indicating that gamified lessons effectively enhance learner participation, collaboration, and academic performance.

Meanwhile, Lesson Design and Engagement recorded high ratings (Teachers WM = 4.61, SD = 0.57; Learners WM = 4.64, SD = 0.60; Average WM = 4.63, SD = 0.59), reflecting that lessons are well-structured and aligned with learning objectives, promoting understanding and interest. The lowest yet still favorable mean was observed in Use of Technology and Resources (Teachers WM = 4.42, SD = 0.68; Learners WM = 4.38, SD = 0.72; Average WM = 4.40, SD = 0.70), suggesting that while digital tools enhance engagement, challenges such as internet connectivity and limited access to devices may affect implementation and participation.

Overall, the data indicate that gamified instruction is highly effective in promoting active learning, motivation, and meaningful participation among learners, with teachers also acknowledging its benefits. The relatively low standard deviations (0.55–0.72) demonstrate consistent agreement among respondents, reflecting a shared positive perception of gamified instructional practices. These findings support Flores and Mariano (2023), affirming that integrating games into lessons enhances cognitive engagement, emotional investment, and learning achievement. Sustaining and refining these practices can further strengthen student participation, technological adaptability, and overall learning outcomes in TLE.

Learner Engagement and Achievement

The level of Student Engagement and Achievement refers to how actively learners participate in gamified TLE lessons and how these experiences contribute to their overall learning performance and personal growth. This domain highlights the behavioral, emotional, and cognitive aspects of engagement. Learners interact with learning tasks, collaborate with peers, and respond to challenges and rewards in a game-based learning environment.

Learners' engagement in gamified instruction is reflected through indicators such as Learning Interest and Participation, Motivation and Attitude Toward Learning, Learning Performance and Understanding, and Learning Environment and Peer Collaboration. These components measure not only learners' enthusiasm and involvement but also their ability to retain knowledge, apply learned skills, and demonstrate improved performance outcomes.

A high level of student engagement and achievement signifies that learners are actively involved, motivated, and performing well in response to gamified teaching strategies. It implies that game elements-such as points, rewards, challenges, and feedback-are effectively promoting enjoyment, focus, teamwork, and mastery of concepts. Ultimately, this leads to a more dynamic and student-centered learning environment that supports both academic excellence and holistic development.

Learning Interest and Participation

Learning Interest and Participation refers to the enthusiasm, involvement, and willingness of learners to engage in TLE lessons when gamified instruction is applied. This dimension measures how game-based strategies increase learners' excitement, attention, and confidence during class activities. It emphasizes the positive impact of gamified learning in stimulating active participation, collaboration, and enjoyment while reinforcing academic and practical skills.

Table 18 Learning Interest and Participation

Indicators	Teachers		Learners		Average		
	WM	SD	WM	SD	WM	SD	I
Gamified lessons increase excitement and interest in class activities.	4.60	0.61	4.74	0.53	4.67	0.57	Strongly Agree
Learners participate more actively when games are part of the instruction.	4.55	0.64	4.69	0.55	4.62	0.60	Strongly Agree
Individuals willingly engage in classroom games and challenges.	4.38	0.70	4.48	0.67	4.43	0.69	Agree
Attention and focus improve when lessons include game-based elements or competitions.	4.65	0.59	4.73	0.52	4.69	0.56	Strongly Agree
Collaboration and teamwork are strengthened during gamified activities.	4.57	0.63	4.66	0.57	4.62	0.60	Strongly Agree
Gamified learning environments encourage confidence in sharing ideas and contributions.	4.46	0.66	4.58	0.61	4.52	0.63	Strongly Agree
Over-all Mean	**4.54**	**0.64**	**4.65**	**0.58**	**4.60**	**0.61**	**Strongly Agree**

The findings on Learning Interest and Participation in gamified TLE instruction show that both teachers and learners rated the approach very positively, with an overall weighted mean of 4.60 (SD = 0.61), interpreted as Strongly Agree. This suggests that gamification consistently enhances enthusiasm, active involvement, and focus during classroom activities.

Teachers (WM = 4.54) and learners (WM = 4.65) shared similar views, though learners expressed slightly stronger agreement-implying that gamified strategies directly resonate with their motivation and enjoyment of learning tasks. The minimal variation in responses, as shown by the low SD values, indicates consensus that game-based learning increases engagement and collaborative interaction.

The indicator "Attention and focus improve when lessons include game-based elements or competitions" (WM = 4.69, SD = 0.56) ranked highest, underscoring the stimulating effect of friendly competition and interactive learning. This supports Reyes and Dela Cruz (2023), who found that gamified tasks enhance learners' concentration and promote goal-oriented behaviors.

Meanwhile, the lowest-rated indicator, "Gamified learning environments encourage confidence in sharing ideas and contributions" (WM = 4.52, SD = 0.63), though still rated Strongly Agree, reflects a need for teachers to further support hesitant learners in expressing themselves during competitive or group-based settings. Differences in self-confidence or peer dynamics may affect participation levels.

Overall, the results affirm that gamified instruction promotes motivation, cooperation, and enthusiasm in the TLE classroom. Consistent with Castro and Villarin (2022), gamification transforms traditional lessons into interactive, enjoyable, and learner-centered experiences that cultivate both engagement and collaboration.

Motivation and Attitude Toward Learning

Motivation and Attitude Toward Learning pertain to the learners' enthusiasm, perseverance, and positive emotional response toward gamified instruction in TLE. This aspect emphasizes how game-based elements such as rewards, points, and recognition foster intrinsic and extrinsic motivation. It also explores how learners maintain interest, confidence, and enjoyment even when faced with challenges, contributing to a more engaging and less stressful learning atmosphere.

Table 19 Motivation and Attitude Toward Learning

Indicators	Teachers		Learners		Average		
	WM	SD	WM	SD	WM	SD	I
Gamified activities encourage greater effort and persistence in learning tasks.	4.58	0.63	4.70	0.57	4.64	0.60	Strongly Agree
Game-based lessons create anticipation and enthusiasm for class sessions.	4.66	0.59	4.75	0.52	4.71	0.56	Strongly Agree
Achievements such as rewards, points, or badges promote a sense of pride and accomplishment.	4.61	0.62	4.72	0.54	4.67	0.58	Strongly Agree
Recognition and feedback motivate continuous improvement in performance.	4.54	0.66	4.68	0.59	4.61	0.63	Strongly Agree
Participants remain motivated even when outcomes are not favorable.	4.47	0.69	4.59	0.63	4.53	0.66	Strongly Agree
Gamified lessons make the learning process more enjoyable and less stressful.	4.63	0.60	4.76	0.48	4.70	0.54	Strongly Agree
Over-all Mean	**4.58**	**0.63**	**4.70**	**0.56**	**4.64**	**0.60**	**Strongly Agree**

The data on Motivation and Attitude Toward Learning reveal an overall weighted mean of 4.64 (SD = 0.60), interpreted as Strongly Agree. This suggests that both teachers and learners perceive gamified instruction in TLE as highly effective in enhancing students' motivation, effort, and enthusiasm toward learning.

Learners (WM = 4.70) generally expressed stronger agreement than teachers (WM = 4.58), indicating that the gamified approach directly appeals to students' enjoyment and motivation. Teachers, on the other hand, maintained slightly more moderate ratings, possibly reflecting their awareness of balancing engagement with instructional objectives. The consistency in responses, as indicated by the low SD values, shows broad agreement on the motivational benefits of gamified teaching.

The indicator "Gamified lessons make the learning process more enjoyable and less stressful" (WM = 4.70, SD = 0.54) ranked highest, underscoring that students view gamified instruction as a fun, interactive, and low-pressure experience. This finding supports Flores and Villanueva (2023), who emphasized that enjoyable learning environments reduce anxiety and foster sustained engagement.

Meanwhile, the lowest-rated indicator, "Participants remain motivated even when outcomes are not favorable" (WM = 4.53, SD = 0.66), though still rated Strongly Agree, reveals that some learners may need continuous encouragement and emotional support to maintain motivation after losing in classroom games.

Overall, the results affirm that gamified instruction enhances both emotional and behavioral dimensions of motivation. Through elements of play, recognition, and competition, teachers foster a learning environment that inspires effort, resilience, and positivity. As Reyes and Domingo (2022) noted, sustained motivation nurtured through gamified learning promotes perseverance and a lifelong positive attitude toward education.

Learning Performance and Understanding

Learning Performance and Understanding refer to how gamified instruction enhances learners' comprehension, retention, and application of TLE concepts and skills. This dimension measures how effectively learners grasp lessons, improve performance outcomes, and transfer knowledge from classroom games to real-life contexts. It highlights the impact of gamified learning on cognitive development, problem-solving, and critical thinking, which are vital for practical and sustainable learning.

The results on Learning Performance and Understanding reveal an overall weighted mean of 4.57 (SD = 0.62), interpreted as Strongly Agree. This indicates that both teachers and learners view gamified instruction as an effective strategy for improving understanding, retention, and performance in TLE lessons.

Table 20 Learning Performance and Understanding

Indicators	Teachers		Learners		Average		
	WM	SD	WM	SD	WM	SD	I
Lessons are better understood through the use of game-based learning activities.	4.50	0.66	4.65	0.59	4.58	0.63	Strongly Agree
Concepts and skills learned from gamified instruction are easier to recall.	4.53	0.62	4.68	0.56	4.61	0.59	Strongly Agree

Learning performance and assessment results improve with game-based approaches.	4.46	0.68	4.58	0.63	4.52	0.66	Agree
Skills developed through gamified tasks can be applied in real-life situations.	4.43	0.70	4.56	0.65	4.50	0.68	Agree
Higher achievement is observed when instructional games are integrated into lessons.	4.49	0.66	4.61	0.60	4.55	0.63	Strongly Agree
Gamified instruction enhances problem-solving and decision-making abilities.	4.57	0.61	4.71	0.54	4.64	0.58	Strongly Agree
Over-all Mean	**4.50**	**0.66**	**4.63**	**0.59**	**4.57**	**0.62**	**Strongly Agree**

Learners (WM = 4.63) provided slightly higher ratings than teachers (WM = 4.50), implying that students directly experience the cognitive benefits of game-based learning, while teachers observe the outcomes in learners' performance and engagement. The low SD across items signifies consistent perceptions among respondents regarding the positive academic effects of gamification.

The highest-rated indicator, "Gamified instruction enhances problem-solving and decision-making abilities" (WM = 4.64, SD = 0.58), reflects recognition that interactive games stimulate critical thinking and cognitive processing. This aligns with Santos and de Guzman (2023), who emphasized that gamification nurtures analytical and reflective skills by placing learners in simulated, problem-solving contexts.

Conversely, the lowest-rated but still positive indicator, "Skills developed through gamified tasks can be applied in real-life situations" (WM = 4.50, SD = 0.68), suggests that while learners appreciate the relevance of gaming tasks, further guidance and contextualization are needed to strengthen the connection between in-class activities and practical applications.

Overall, these findings confirm that gamified instruction significantly enhances learners' comprehension, performance, and real-world understanding. As supported by Lopez and Cruz (2022), game-based learning not only promotes active participation and higher retention but also cultivates the essential problem-solving and decision-making skills needed for lifelong learning.

Learning Environment and Peer Collaboration

Learning Environment and Peer Collaboration refer to how gamified instruction fosters a positive, inclusive, and interactive classroom atmosphere where learners actively work together toward shared goals. This aspect focuses on teamwork, communication, mutual support, and enjoyment within the classroom during game-based activities. It emphasizes how gamification strengthens interpersonal relationships, encourages cooperation, and promotes a sense of belonging and community among learners.

The results on Learning Environment and Peer Collaboration yield an overall weighted mean of 4.62 (SD = 0.58), interpreted as Strongly Agree. This signifies that both teachers and learners believe gamified instruction fosters a positive, enjoyable, and socially supportive classroom atmosphere in TLE.

Table 21 Learning Environment and Peer Collaboration

Indicators	Teachers		Learners		Average		
	WM	SD	WM	SD	WM	SD	I
Gamified lessons create a more enjoyable and engaging learning atmosphere.	4.63	0.56	4.74	0.50	4.69	0.53	Strongly Agree
Learners feel comfortable collaborating with others during gamified activities.	4.56	0.60	4.68	0.55	4.62	0.58	Strongly Agree
Teamwork and cooperation are encouraged through learning games.	4.59	0.57	4.70	0.51	4.65	0.54	Strongly Agree
All participants are given equal opportunities to engage in gamified activities.	4.42	0.68	4.55	0.63	4.49	0.66	Agree
Learners receive support and encouragement from peers during group-based games.	4.53	0.61	4.67	0.56	4.60	0.59	Strongly Agree
Gamified lessons strengthen peer relationships and promote positive classroom interaction.	4.61	0.58	4.73	0.52	4.67	0.55	Strongly Agree
Over-all Mean	**4.56**	**0.60**	**4.68**	**0.55**	**4.62**	**0.58**	**Strongly Agree**

Learners (WM = 4.68) rated slightly higher than teachers (WM = 4.56), showing that learners personally experience stronger engagement and camaraderie when learning through gamified activities. Teachers, while

also affirming these effects, provided more moderate ratings that reflect an instructional viewpoint focused on equitable participation and class management. The low SD across items indicates uniform agreement among respondents that gamification enhances collaborative learning.

The indicator "Gamified lessons create a more enjoyable and engaging learning atmosphere" (WM = 4.69, SD = 0.53) received the highest rating, showing that both groups recognize gamified activities as catalysts for enthusiasm and active interaction. This aligns with Del Rosario and Mendoza (2023), who reported that classroom games promote friendship, trust, and cooperation among learners.

The lowest-rated item, "All participants are given equal opportunities to engage in gamified activities" (WM = 4.49, SD = 0.66), though still rated Agree, suggests that some learners may not fully participate due to differing confidence levels or varying group dynamics. Teachers are thus encouraged to design inclusive mechanics that ensure every learner's active engagement.

Overall, the findings affirm that gamified instruction not only promotes engagement and motivation but also strengthens social relationships and teamwork. As Gonzales and Reyes (2022) noted, a collaborative and playful classroom climate enhances communication, respect, and shared responsibility, leading to improved learning outcomes in game-based education.

Summary Of Results

The data in Table 22 summarize the perceptions of teachers and learners regarding the use of gamified instruction in TLE classes. The overall weighted mean of 4.61 (SD = 0.60), interpreted as Strongly Agree, indicates that both groups hold a highly favorable perception of gamified learning. This suggests that game-based instructional strategies effectively stimulate engagement, motivation, comprehension, and collaboration among learners.

Table 22 Summary of Results

Indicators	Teachers		Learners		Average		
	WM	SD	WM	SD	WM	SD	I
Learning Interest and Participation	4.54	0.64	4.65	0.58	4.60	0.61	Strongly Agree
Motivation and Attitude Toward Learning	4.58	0.63	4.70	0.56	4.64	0.60	Strongly Agree
Learning Performance and Understanding	4.50	0.66	4.63	0.59	4.57	0.62	Strongly Agree
Learning Environment and Peer Collaboration	4.56	0.60	4.68	0.55	4.62	0.58	Strongly Agree
Over-all Mean	**4.55**	**0.63**	**4.67**	**0.57**	**4.61**	**0.60**	**Strongly Agree**

Among the four indicators, Motivation and Attitude Toward Learning obtained the highest mean (WM = 4.64, SD = 0.60). This highlights that recognition systems, rewards, and enjoyable challenges serve as powerful motivators that sustain learners' effort and enthusiasm-consistent with Lopez and Ramirez (2023), who found that extrinsic and intrinsic reinforcements in gamified tasks promote persistent learning behaviors.

Next is Learning Environment and Peer Collaboration (WM = 4.62, SD = 0.58), showing that gamified lessons help cultivate a supportive, interactive, and socially connected classroom climate. Learning Interest and Participation (WM = 4.60, SD = 0.61) followed closely, suggesting that games effectively capture learners' attention and inspire active involvement during instruction. Lastly, Learning Performance and Understanding (WM = 4.57, SD = 0.62), while slightly lower, still reflects strong agreement that gamified approaches enhance conceptual mastery and problem-solving abilities.

The relatively low SD values (0.55–0.63) indicate that responses among both teachers and learners are consistently positive, confirming shared appreciation for the pedagogical benefits of gamification. These findings are in line with Flores and Mariano (2023), who emphasized that integrating play and competition in learning fosters cognitive engagement, emotional satisfaction, and academic success.

Overall, the results affirm that gamified instruction significantly enriches learning experiences by merging enjoyment with meaningful content. Hence, the continuous application of gamification in TLE can further strengthen learner motivation, cooperation, and achievement while maintaining a dynamic and inclusive classroom atmosphere.

Test Of Significant Relationship

This section presents the test of the significant relationship between the level of gamified instruction and the learners' engagement and achievement in Technology and Livelihood Education (TLE). Table 23 shows the computed results.

Table 23 Significant Relationship

Variables	r-value	df	p-value	Interpretation	Remarks
Level of Gamified Instruction and Learners' Engagement and Achievement in TLE	0.65	58	0.01	Significant Relationship	Reject H_0

The correlation analysis reveals a significant relationship between the implementation of gamified instruction and the learners' overall engagement and achievement in TLE. This means that as teachers effectively integrate game-based learning strategies into instruction, learners demonstrate higher motivation, enthusiasm, and participation, resulting in enhanced learning experiences.

The data indicate a strong positive correlation ($r = 0.65$) between the level of gamified instruction and learners' engagement and achievement, with a significance value of $p = 0.01$, which is less than the 0.05 level of significance. This indicates that learners become more involved, motivated, and responsive when teachers apply gamified approaches-such as the use of points, badges, leaderboards, and rewards-to make lessons more interactive and meaningful.

This finding supports the study of Lopez and Ramirez (2023), who reported that game-based learning enhances learners' motivation and persistence by creating enjoyable and goal-oriented experiences. It also aligns with Flores and Mariano (2023), who emphasized that gamification fosters both cognitive and emotional engagement, resulting in improved focus and classroom participation.

Hence, the null hypothesis (H_0) stating that there is no significant relationship between the level of gamified instruction and learners' engagement and achievement is rejected. This confirms that effective implementation of gamified instruction contributes to higher levels of motivation, active participation, and learning success in TLE. Teachers are therefore encouraged to continuously enhance their use of game-based strategies that not only entertain but also promote critical thinking, collaboration, and mastery of skills aligned with the subject's learning competencies.

Issues and Challenges

Teachers encounter several issues and challenges in implementing gamified instruction in Technology and Livelihood Education (TLE), primarily due to limited access to digital tools, inadequate training on game-based learning strategies, and time constraints in lesson preparation. Table 24 shows the issues and challenges that teachers encounter in implementing gamified instruction in TLE.

Table 24 presents the issues and challenges encountered by teachers in implementing gamified instruction in Technology and Livelihood Education (TLE). The top challenge identified is the lack of gadgets or internet connection for digital games (Rank 1), indicating that technological limitations remain a major barrier to effective gamification. This reflects the digital divide among learners, where inadequate access to devices and stable internet hinders equal learning opportunities (Reyes & Dela Cruz, 2022). The limited time to finish game-based activities (Rank 2) further emphasizes how curriculum pacing and time constraints restrict teachers from fully integrating game-based methods within class schedules (Cruz & Bautista, 2022).

Table 24 Issues and Challenges

Indicators	Frequency	Rank
Lack of gadgets or internet connection for digital games	45	1
Limited time to finish game-based activities	42	2
Difficulty understanding some game rules or instructions	36	3
Some games are too competitive and stressful	32	4
Lack of teamwork or cooperation during group games	28	5
Rewards or points are sometimes unclear or unfair	25	6
Games take too much class time	24	7
Not all participants are given equal chances to play	13	8
Some participants are not interested in participating	11	9
Technical problems (e.g., lag, poor audio/video) during online games	10	10

The difficulty in understanding game rules or instructions (Rank 3) suggests that some learners struggle with cognitive processing or unfamiliarity with game mechanics, which can reduce engagement and learning efficiency. Moreover, overly competitive and stressful games (Rank 4) and lack of teamwork or cooperation during group games (Rank 5) imply that gamification, while motivational, can also lead to social tension and

reduced collaboration if not well-facilitated. The unclear or unfair reward systems (Rank 6) and excessive time spent on games (Rank 7) reflect the need for balanced instructional design and clear learning objectives.

Lower-ranked issues such as unequal opportunities to play (Rank 8), low participation interest (Rank 9), and technical problems during online play (Rank 10) still carry significant instructional implications. These highlight inclusivity, learner diversity, and infrastructure as areas requiring attention. Collectively, these findings underscore that while gamified instruction enhances engagement, its effectiveness depends on adequate technological support, fair game design, and teacher facilitation skills. Addressing these barriers through training, infrastructure improvement, and contextualized game design will strengthen the impact of gamified instruction in promoting active and equitable learning environments.

3. SUMMARY, FINDINGS, CONCLUSIONS AND RECOMMENDATIONS

Chapter 3 gives the summary, findings, conclusions, and recommendations.

Summary

This study determined the effectiveness of gamified instruction in enhancing student engagement and achievement Technology and Livelihood Education (TLE) among Grade 6 learners at Banilad Elementary School, Division of Mandaue City, for the school year 2025–2026. The results served as the basis for crafting a Framework of Gamified Instruction aimed at improving learner motivation, participation, and performance in TLE.

The study specifically sought to describe the demographic profiles of teachers and learners, determine the level of implementation of gamified instruction in terms of lesson design and engagement, classroom experience and participation, assessment and learning outcomes, motivation and feedback, and use of technology and resources; assess the level of learner's engagement and achievement in terms of learning interest and participation, motivation and attitude toward learning, learning performance and understanding, and learning environment and peer collaboration; and test the significant relationship between gamified instruction and the learners' engagement and achievement in TLE.

A descriptive–correlational research design was employed, utilizing survey–interview questionnaires distributed to ten (10) TLE teachers and fifty (50) Grade 6 learners. The data gathered were statistically treated using frequency, percentage, weighted mean, and Chi-square test to determine relationships between the implementation of gamified instruction and learners' engagement and achievement.

FINDINGS

The following are the essential findings of the study:

Most TLE teachers at Banilad Elementary School were female, representing various age groups, with a notable concentration between 31 to 50 years old, indicating a workforce that balances experience with adaptability. The majority held a Bachelor's degree, while several were pursuing or had completed graduate studies, reflecting a high level of academic qualification. In terms of teaching experience, most teachers had served between 6 and 20 years, showing stability and professional maturity. Almost all respondents had attended at least one training or seminar related to gamified or ICT-based instruction, demonstrating active participation in professional development and familiarity with innovative pedagogies.

The Grade 6 learners involved in the study were predominantly 12 years old, indicating a homogenous age group suited for interactive and game-based learning activities. Gender distribution was nearly balanced, with 52% female and 48% male, suggesting equitable classroom participation. Most learners reported having access to cellphones and other digital devices, with a majority also having at least intermittent internet connectivity at home. Although 8% of students had no experience with gamified or online learning, most were moderately exposed to such activities, indicating readiness for technology-integrated instruction in TLE.

The findings revealed a high level of implementation of gamified instruction in TLE, as indicated by the overall weighted mean of 4.60, interpreted as Strongly Agree. Teachers and learners agreed that gamified activities enhanced interest, motivation, and collaboration. Among the dimensions, Motivation and Feedback obtained the highest weighted mean (WM = 4.67), emphasizing the positive influence of rewards, recognition, and constructive feedback on learners' engagement. Assessment and Learning Outcomes (WM = 4.65) and Classroom Experience and Participation (WM = 4.65) also recorded strong agreement, reflecting that gamification improved understanding and classroom involvement. Lesson Design and Engagement (WM = 4.63) was perceived as effectively structured and aligned with learning goals. Meanwhile, Use of Technology and

Resources (WM = 4.40) ranked slightly lower, indicating that connectivity issues and limited ICT facilities affected full implementation in some cases.

Results on learners' engagement and achievement revealed an overall weighted mean of 4.61, also interpreted as Strongly Agree, confirming that gamified instruction positively influenced learners' motivation, participation, and comprehension in TLE. The highest-rated component, Motivation and Attitude Toward Learning (WM = 4.64), demonstrated that game-based incentives, such as points and badges, effectively fostered persistence and enjoyment. Learning Environment and Peer Collaboration (WM = 4.62) showed that gamified lessons-built teamwork and social connection among learners, while Learning Interest and Participation (WM = 4.60) reflected high enthusiasm and willingness to engage. Although Learning Performance and Understanding (WM = 4.57) ranked lowest, it still showed strong agreement, implying that gamified activities contributed to comprehension and skill retention but required ongoing reinforcement to strengthen real-world application.

The test of significant relationship indicated that gamified instruction was significantly related to learners' motivation and attitude toward learning ($p = 0.02$) and learning interest and participation ($p = 0.03$). This suggests that the use of challenges, points, and recognition systems successfully heightened engagement and enthusiasm in TLE lessons. However, no significant relationship was found between gamified instruction and learning performance and understanding ($p = 0.19$) or learning environment and peer collaboration ($p = 0.21$). This implies that while gamification enhances motivation and classroom participation, its direct effect on academic achievement and peer interaction depends on other moderating factors such as task design, inclusivity, and teacher facilitation. The overall significant result ($p = 0.01$) confirms that gamified instruction substantially improves students' overall engagement in TLE.

The study underscores the pivotal role of gamified instruction in promoting learner motivation, engagement, and positive classroom experiences. The integration of play, competition, and feedback enhances learners' enthusiasm and confidence while making lessons more interactive and enjoyable. However, the findings also highlight the need for sustained teacher training, adequate technological resources, and inclusive classroom practices to maximize the academic and collaborative benefits of gamification. By continuously refining these strategies, educators can strengthen both the behavioral and cognitive dimensions of student learning in TLE, ensuring that instruction remains dynamic, equitable, and effective.

CONCLUSION

The study concluded that gamified instruction significantly enhances learners' motivation, attitude, and participation in TLE classes. Learners' exposed to game-based learning showed greater enthusiasm and focus, demonstrating that rewards, challenges, and feedback systems effectively sustain interest. However, learning performance and peer collaboration were not significantly linked to gamified instruction, suggesting that its impact on achievement depends on factors such as lesson design, facilitation, and resource accessibility. Overall, gamified instruction proves to be an effective pedagogical tool when supported by teacher training, equitable access to technology, and well-aligned learning objectives, ensuring that learning remains both enjoyable and meaningful for all learners.

RECOMMENDATIONS

It is recommended that TLE teachers engage in continuous professional development through training on gamified and digital pedagogy to enhance instructional competence and creativity. Schools should provide adequate ICT facilities and stable internet access to support the integration of gamified instruction, ensuring inclusivity through both online and offline activities. Administrators are encouraged to institutionalize a Framework of Gamified Instruction to guide planning and evaluation, while fostering collaboration among teachers, learners, and parents. Future researchers should conduct longitudinal and comparative studies on gamification's long-term effects on achievement, retention, and social-emotional skills, considering factors such as facilitation styles, technological access, and learner profiles to ensure meaningful and inclusive learning.

4. OUTPUT OF THE STUDY

This chapter presents the proposed Gamified Instructional Framework and Sample Activities in Technology and Livelihood Education (TLE) designed to enhance learners' engagement and achievement in selected public schools in Mandaue City for the school year 2025–2026.

RATIONALE

The implementation of Gamified Instruction in TLE aims to address the growing need for innovative, student-centered teaching strategies that promote active participation, motivation, and meaningful learning among

learners. In the context of TLE, where practical skills and applied knowledge are essential, integrating game-based elements transforms traditional lessons into interactive and enjoyable learning experiences.

Gamified instruction merges educational content with game mechanics such as points, levels, badges, and leaderboards to create a motivating learning environment. This approach not only captures learners' interest but also reinforces positive behavior, collaboration, and perseverance in task performance. Through this system, students become more engaged and are encouraged to take ownership of their learning progress.

Moreover, gamified learning strategies in TLE cater to various learning styles and abilities. Visual, auditory, and kinesthetic learners benefit from interactive challenges, role-playing activities, and simulations that promote critical thinking and creativity. These gamified approaches also develop learners' problem-solving, decision-making, and teamwork skills-competencies that are vital in technical and vocational education, as well as in real-world applications.

Integrating gamified instruction supports the Philippine Professional Standards for Teachers (PPST) by promoting innovative pedagogy, learner diversity, and the use of ICT-based teaching strategies. It aligns with DepEd's goals of fostering 21st-century skills, particularly in creativity, communication, collaboration, and critical thinking. By embedding game-based principles into TLE lessons, teachers can create meaningful learning experiences that motivate learners to achieve higher performance and sustained engagement.

Furthermore, gamified instruction transforms TLE classrooms into dynamic and participatory learning spaces. Learners no longer view tasks as mere requirements, but as challenges that must be completed with effort, cooperation, and strategic thinking. The excitement generated by game elements leads to increased attendance, better focus, and improved retention of concepts.

Ultimately, the proposed gamified instructional framework serves as a guide for TLE teachers in designing, implementing, and assessing game-based learning activities. It provides structured yet flexible strategies that enhance both cognitive and affective learning outcomes. By promoting engagement, motivation, and achievement, gamified instruction helps learners build essential life and work skills, preparing them to become productive, innovative, and responsible citizens.

OBJECTIVES:

The following are the objectives of the study:

1. To evaluate the effectiveness of gamified instruction in enhancing learners' engagement and academic achievement in Technology and Livelihood Education (TLE).
2. To identify specific game-based strategies and elements (e.g., points, badges, levels, and leaderboards) that most effectively promote motivation and active participation among learners.
3. To assess the impact of gamified instruction on learners' understanding of TLE competencies, practical performance, and collaboration skills.
4. To determine the challenges encountered by teachers and learners in the implementation of gamified instructional strategies in TLE.
5. To propose a gamified instructional framework for TLE that can be adopted to improve learners' engagement and learning outcomes across different grade levels.

SCHEME OF IMPLEMENTATION

The implementation of Gamified Instruction in TLE will follow a systematic yet flexible approach designed to foster engagement, motivation, and achievement among learners. A baseline assessment of learners' learning preferences, motivation levels, and current academic performance will be conducted first. Based on these findings, teachers will design lesson plans that integrate various game elements such as points, badges, leaderboards, missions, and rewards aligned with the TLE learning competencies.

Gamified lessons will be introduced progressively within the TLE curriculum, ensuring that each activity maintains educational value while promoting enjoyment and participation. Learners will engage in both individual and group-based tasks, encouraging collaboration, creativity, and problem-solving skills. Progress tracking systems will be established to monitor learners' achievements, reinforce effort, and provide immediate feedback.

Teachers will receive orientation and training on gamification principles, digital tools, and assessment strategies to ensure effective implementation. Periodic classroom observations and formative assessments will be used to evaluate student engagement, learning performance, and behavioral improvements.

Continuous monitoring and evaluation will be conducted to identify best practices and address challenges encountered during implementation. Results will serve as the basis for refining the gamified instructional framework and recommending sustainable integration strategies. Collaboration with school administrators, fellow teachers, and parents will also be encouraged to extend gamified learning support beyond the classroom environment. This scheme ensures that gamified instruction becomes an innovative, inclusive, and motivating approach to teaching TLE, leading to improved learners' engagement, enhanced achievement, and the development of essential 21st-century skills.

SCHEME OF IMPLEMENTATION									
Areas of Concern	**Objectives**	**Strategies**	**Persons Involved**	**Budget**	**Source of Budget**	**Time Frame**	**Expected Outcome**	**Actual Accom-plishments**	**Remarks**
Needs Assessment	Identify learners' learning preferences, motivation levels, and current achievement in TLE	Conduct surveys, pre-tests, and classroom observations to assess baseline engagement and performance	School Head, TLE Teachers, Learners	₱9,000	MOOE	October 2025	Clear understanding of learners' needs and motivation levels		
Development of Gamified Lesson Plans	Design gamified lesson plans aligned with TLE competencies	Integrate game elements (points, badges, leaderboards, challenges) into lesson plans and learning materials	EPP Teachers, Curriculum Developers	₱11,000	MOOE	November–December 2025	Well-structured gamified lessons ready for implementation		
Implementation of Gamified Instruction	Enhance student engagement, motivation, and performance in TLE	Conduct gamified classroom activities such as quests, competitions, and reward-based learning sessions	TLE Teachers, Learners	₱10,500	MOOE	January 2025 – May 2026	Increased learner participation, motivation, and performance		
Teacher Training and Capacity Building	Strengthen teachers' skills in applying gamification techniques effectively	Conduct workshops and peer mentoring on game-based tools and strategies	School Head, TLE Teachers, ICT Coordinator	₱120,000	MOOE	November 2025	Improved teacher competency in gamified instruction		
Use of Technology in	Incorporate digital tools and	Utilize mobile apps, online	TLE Teachers,	₱10,000	MOOE	January–February 2026	Effective integration of		

Gamified Learning	interactive platforms for gamification	quizzes, and digital badges for student tracking and engagement	Learners				technology in TLE lessons		
Monitoring and Evaluation	Evaluate effectiveness and identify areas for improvement	Conduct formative assessments, student feedback, and classroom observations	School Head, Teachers, Students	₱8,000	MOOE	February –March 2026	Data-driven insights on engagement and learning outcomes		
Parent and Community Involvement	Strengthen home and community support for gamified learning	Orient parents about gamified strategies and encourage reinforcement of learning at home	Teachers, Parents, Community Leaders	₱40,000	MOOE	January – May 2026	Enhanced parental and community participation in student learning		
Final Evaluation and Reporting	Assess overall impact and recommend improvements for future implementation	Analyze results, document outcomes, and present findings to stakeholders	Teachers, School Heads, Researchers	₱5,500	MOOE	May 2026	Documented improvements in engagement and achievement through gamified instruction		

Rationale

Gamified instruction is a powerful approach that transforms traditional classroom learning into an engaging and interactive experience by integrating game elements such as points, badges, levels, and rewards into instruction. In Technology and Livelihood Education (TLE), where practical skills and applied knowledge are central, gamification provides learners with opportunities to participate actively, collaborate with peers, and experience a sense of achievement while mastering essential competencies.

This approach increases student motivation and participation by appealing to learners' natural desire for competition, achievement, and recognition. Game-based learning allows learners to make decisions, solve problems, and reflect on their progress in real-time, promoting critical thinking, creativity, and collaboration-skills necessary for 21st-century learners. Gamified instruction supports differentiated learning, as it accommodates diverse learning styles and paces. Learners can work through challenges suited to their ability, earning rewards for effort and persistence, not just correctness. Teachers benefit from real-time data and feedback, enabling them to adjust lessons and interventions promptly.

By integrating gamification in TLE, teachers create an engaging learning environment where learners experience enjoyment and ownership of their learning. The strategy promotes improved academic achievement, motivation, and self-efficacy, ensuring that learning becomes both meaningful and memorable.

Gamified Learning Activities for Learners

1. **Quest for Cleanliness – Housekeeping Challenge**

Objective: Promote cleanliness, teamwork, and responsibility in performing household tasks.

Materials: Cleaning materials (rags, brooms, dustpans, gloves), scorecards, badges, timers.

Procedure:

1. Divide the class into small teams representing "Housekeeping Crews."

2. Assign each team an area to clean and organize.
3. Teams earn points based on cleanliness, teamwork, and speed.
4. Award digital or paper badges to top-performing groups.

Expected Outcome: Learners demonstrate teamwork, responsibility, and mastery of basic housekeeping skills while enjoying a healthy sense of competition.

2. Market Masters – Entrepreneurship Simulation Game

Objective: Develop budgeting, decision-making, and marketing skills through simulated buying and selling activities.

Materials: Play money, product cards, price lists, "Market Board" for scoring.

Procedure:

1. Set up a mini-market where students act as buyers and sellers.
2. Players earn points for profitable transactions, accuracy in change, and polite communication.
3. Include "Bonus Rounds" where learners create ads or slogans for extra points.

Expected Outcome: Learners understand business principles, customer interaction, and money management in a fun, gamified context.

3. Tool Time Trivia – Mechanical and Hand Tools Review Game

Objective: Reinforce knowledge of common hand tools and their uses in TLE.

Materials: Flashcards, pictures of tools, digital quiz platforms (Kahoot or Quizizz).

Procedure:

1. Divide the class into teams and show images or descriptions of tools.
2. Teams buzz in to answer correctly and earn points or badges.
3. Incorrect answers allow other teams to "steal" points for bonus attempts.

Expected Outcome: Enhanced mastery of tool identification, safe usage, and application through friendly competition.

4. Build and Earn – Project-Based Gamified Workshop

Objective: Strengthen creativity, collaboration, and problem-solving through hands-on projects.

Materials: Recycled materials, hand tools, rubrics, progress charts.

Procedure:

1. Each team designs a simple TLE project (e.g., organizer box, small craft, repair task).
2. Points are awarded for creativity, accuracy, teamwork, and functionality.
3. A leaderboard tracks weekly scores; bonus badges are given for innovation or sustainability.

Expected Outcome: Improved craftsmanship, innovation, and group collaboration through experiential, game-inspired learning.

5. Eco-Warrior Quest – Sustainability and Environmental Responsibility Game

Objective: Promote environmental awareness and responsible waste management through gamified challenges.

Materials: Recyclable materials, sorting bins, checklists, reward tokens.

Procedure:

1. Organize learners into "Eco Teams."
2. Set weekly eco-challenges (e.g., collecting recyclables, creating posters, waste segregation).
3. Points and titles such as "Eco Hero" or "Green Leader" are awarded based on contributions.

Expected Outcome: Students develop eco-friendly habits, community awareness, and a deeper sense of responsibility toward the environment.

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