

EFFECTS OF TRADITIONAL VS GAMIFIED INSTRUCTION ON STUDENT LEARNING AND MOTIVATION IN MAPEH

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Abstract

This study examined the effects of traditional instruction and gamified instruction on students' academic performance and motivation in Music, Arts, Physical Education, and Health (MAPEH). Grounded in Self-Determination Theory, the research investigated whether integrating game design elements into classroom instruction could enhance learners' motivation and learning outcomes compared to conventional teacher-centered approaches. A quantitative, quasi-experimental design was employed involving two non-equivalent groups of high school learners. One group received traditional MAPEH instruction, while the other received gamified instructional strategies that incorporated points, challenges, feedback, and rewards aligned with curricular objectives.

Data were collected using a standardized MAPEH achievement test to measure academic performance and a validated motivation questionnaire assessing autonomy, competence, and relatedness. Independent-samples t-tests were conducted to determine significant differences between instructional groups. Results indicated that learners exposed to gamified instruction achieved significantly higher academic performance and reported significantly higher motivation levels than those who received traditional instruction. In addition, descriptive analyses of learner and teacher perception surveys revealed generally positive attitudes toward gamified instruction, highlighting increased engagement, enjoyment, and perceived instructional effectiveness.

The findings suggest that gamified instruction can serve as an effective pedagogical approach for enhancing both cognitive and motivational outcomes in MAPEH education. By supporting learners' psychological needs and promoting active engagement, gamification offers a viable alternative to traditional instructional methods. The study contributes empirical evidence to the growing literature on educational gamification. It provides practical implications for educators and curriculum developers seeking to implement learner-centered instructional strategies in interdisciplinary subjects.

Keywords: Gamified Instruction; Traditional Instruction; Academic Performance; Motivation; MAPEH; Self-Determination Theory

1. Introduction

Contemporary education systems are increasingly challenged to address declining student engagement and motivation, particularly in subjects that demand the simultaneous development of cognitive, affective, and psychomotor competencies. Music, Arts, Physical Education, and Health (MAPEH) is one such interdisciplinary domain where traditional, teacher-centered instructional approaches have often struggled to sustain learners' interest and active participation. Conventional pedagogies in MAPEH frequently emphasize direct instruction, repetition, and standardized assessment, which may be insufficient to meet the motivational needs of modern learners and may limit opportunities for experiential, collaborative, and self-directed learning. As a result, educators and researchers have increasingly explored innovative instructional strategies to enhance motivation, engagement, and academic performance in this multifaceted subject area.

Among these strategies, gamification—the integration of game design elements such as points, challenges, feedback, rewards, and narratives into non-game learning contexts—has gained considerable attention in educational research. Gamification seeks to transform learning experiences by fostering enjoyment, sustained engagement, and a sense of accomplishment, while maintaining alignment with curricular objectives. Empirical studies conducted over the past decade have reported positive effects of gamified instruction on student motivation, engagement, and academic outcomes across various disciplines and educational levels (Dichev & Dicheva, 2022; Li et al., 2023). In physical education and related fields, gamified approaches have been shown to promote active participation, collaborative learning, and persistence, thereby addressing long-standing challenges associated with learner disengagement (Ferriz-Valero et al., 2020).

The theoretical foundation underpinning many gamification studies is Self-Determination Theory (SDT), which posits that optimal motivation and learning occur when individuals' basic psychological needs for autonomy, competence, and relatedness are satisfied (Deci & Ryan, 2000; Ryan & Deci, 2017). Gamified instructional designs often align closely with these principles by offering learners meaningful choices, immediate and informative feedback, achievable challenges, and opportunities for social interaction. Meta-analytic evidence suggests that when gamification is intentionally designed to support these psychological needs, it can significantly enhance intrinsic motivation and learning outcomes (Manzano-León et al., 2021; Basalan et al., 2024). Consequently, SDT provides a robust explanatory framework for understanding why gamified instruction may be more effective than traditional methods, particularly in experiential subjects such as MAPEH.

Despite the growing body of literature supporting gamification, several critical gaps remain. First, many studies have examined gamification in isolation, without directly comparing its effects to those of traditional instructional approaches within the same educational context. This limitation is especially evident in MAPEH-related research, where empirical comparisons between gamified and conventional teaching methods remain relatively scarce (Basalan et al., 2024). Second, existing studies often focus on short-term interventions with limited sample sizes, raising concerns about the generalizability and sustainability of reported effects (Li et al., 2023). Third, some scholars have cautioned that poorly designed gamification may overemphasize extrinsic rewards, potentially undermining intrinsic motivation if learners become overly dependent on points or badges rather than genuine interest in learning (Proudfoot, 2022; Ryan & Deci, 2023). These concerns highlight the need for rigorously designed studies that examine not only academic performance but also motivational outcomes grounded in established theory.

In the context of Philippine basic education, these issues are particularly salient. The Enhanced Basic Education Act of 2013 (Republic Act No. 10533) emphasizes learner-centered, innovative, and contextually relevant pedagogies to develop holistically skilled individuals. MAPEH, as a core subject area, plays a crucial role in achieving this mandate by fostering physical well-being, artistic expression, health literacy, and social development. However, traditional instructional practices continue to dominate many classrooms, potentially limiting the subject's capacity to engage learners and cultivate lifelong skills fully. Evaluating the effectiveness of gamified instruction in the Philippine MAPEH context is, therefore, both timely and policy-relevant.

Previous studies conducted in international contexts have reported that gamified instruction can lead to significant improvements in academic performance and motivation when compared to traditional methods. For example, Ferriz-Valero et al. (2020) found that gamification in physical education settings enhanced students' enjoyment and learning outcomes by promoting active engagement. Similarly, Li et al. (2023) reported moderate to large effect sizes for the impact of gamification on academic achievement and motivation, particularly when interventions emphasized an autonomy-supportive design. However, contextual differences in curriculum,

culture, and resource availability necessitate localized investigations to determine whether similar benefits can be realized in Philippine MAPEH classrooms.

Another limitation in the existing literature is the underrepresentation of learners' and teachers' perceptions in quantitative comparisons of instructional approaches. While statistical measures of achievement and motivation provide valuable evidence, understanding how students and educators experience gamified and traditional instruction is essential for informed implementation and sustainability. Studies incorporating perception data suggest that teacher acceptance and learner enjoyment are critical factors influencing the long-term success of gamified pedagogies (Chen & Lee, 2018; Merdiaty & Sulistiasih, 2024). Nonetheless, such insights are often treated as supplementary rather than integral components of comparative instructional research.

Given these gaps, there is a clear need for a systematic, theory-driven investigation that compares traditional and gamified instruction in MAPEH, focusing on both academic performance and motivation, while accounting for stakeholder perceptions. Addressing this need can refine instructional practices and provide evidence-based guidance to educators and policymakers seeking to enhance learner outcomes in interdisciplinary subjects.

The present study responds to this need by examining the effects of traditional versus gamified instruction on student learning and motivation in MAPEH. Grounded in Self-Determination Theory, the study examines whether gamified instruction results in significantly higher academic performance and motivation than traditional teaching methods. In addition, it explores learners' and teachers' perceptions of the effectiveness and practicality of gamified instruction. By employing a quantitative, quasi-experimental design, this research aims to generate objective, statistically supported evidence that can inform pedagogical decision-making and curriculum development.

Specifically, the study seeks to (a) compare the academic performance of learners exposed to traditional and gamified MAPEH instruction, (b) determine whether significant differences exist in learners' motivation levels under the two instructional approaches, and (c) examine learners' and teachers' perceptions of gamified instruction as a pedagogical strategy. By addressing these objectives, the study contributes to the growing literature on educational gamification while situating its findings within the Philippine basic education context.

Ultimately, this research aims to advance understanding of how instructional design influences motivation and learning in MAPEH and to support the development of practical, evidence-based strategies aligned with contemporary educational goals. By integrating theoretical rigor, empirical analysis, and contextual relevance, the study seeks to inform educators, curriculum developers, and policymakers about the potential of gamified instruction to enhance student engagement, motivation, and academic success in interdisciplinary learning environments.

2. Method

2.1 Research Design

This study employed a quantitative, quasi-experimental research design to examine the effects of traditional instruction and gamified instruction on students' academic performance and motivation in Music, Arts, Physical Education, and Health (MAPEH). A quasi-experimental approach was deemed appropriate because the study was conducted in an authentic school setting where random assignment of participants to experimental conditions was not feasible. Instead, intact class groups were utilized, allowing for systematic comparison while maintaining ecological validity.

The design followed a non-equivalent groups posttest-only comparison, involving two instructional conditions: (a) traditional instruction and (b) gamified instruction. Learners in the

traditional instruction group received lessons delivered through teacher-centered methods such as direct explanation, demonstrations, and conventional classroom activities. In contrast, learners in the gamified instruction group participated in instructional sessions integrating game design elements, including point systems, challenges, feedback mechanisms, and reward structures, all aligned with the MAPEH curriculum objectives.

The primary independent variable was the instructional approach, operationalized as traditional versus gamified instruction. The dependent variables were academic performance and learner motivation. Academic performance was measured using a standardized achievement test aligned with MAPEH learning competencies. At the same time, motivation was assessed through a validated self-report questionnaire grounded in Self-Determination Theory constructs of autonomy, competence, and relatedness. These outcome measures were administered after the instructional intervention to capture the effects of each teaching method.

To strengthen internal validity, efforts were made to ensure instructional equivalence across groups. Both groups covered identical MAPEH content, learning objectives, and instructional duration, with the instructional method serving as the sole systematic variation. Teachers implementing the interventions followed structured lesson plans to minimize instructional bias and variability. Additionally, demographic and contextual variables, such as age, gender, and prior academic performance, were recorded and statistically controlled for during data analysis to isolate the effect of instructional modality on learning outcomes.

The quasi-experimental design enabled the study to quantitatively determine whether there were significant differences between traditional and gamified instruction in academic achievement and motivation. This design is consistent with prior educational research examining instructional innovations in school settings, where experimental control must be balanced with practical and ethical constraints. By employing this approach, the study generated objective, statistically analyzable evidence regarding the comparative effectiveness of gamified and traditional instructional strategies in MAPEH education.

2.2 Participants

The study participants were high school learners enrolled in MAPEH in a Philippine secondary school setting. Participants were drawn from intact class groups within the same campus where the study was implemented, consistent with the quasi-experimental nature of the research and the practical constraints of conducting classroom-based educational interventions.

Learners participated voluntarily and were assessed across two instructional conditions: traditional and gamified.

A total of 100 learners comprised the analytic sample, as reflected in the degrees of freedom reported for the independent-samples t-tests ($df = 98$), indicating two groups with a combined sample size of 100.

The two groups represented non-equivalent but comparable intact classes, with efforts undertaken to ensure comparability by documenting relevant learner characteristics and accounting for these variables during analysis to reduce confounding.

2.3 Instrumentation

Three quantitative instruments were used to generate the study dataset: (a) a MAPEH achievement test to measure academic performance, (b) a motivation questionnaire grounded in Self-Determination Theory constructs, and (c) structured perception surveys for learners and teachers regarding the implementation and perceived effects of gamified instruction.

Academic performance (MAPEH achievement test). Academic performance was operationalized as learners' post-intervention achievement in MAPEH content covered during the instructional period. A researcher-prepared, curriculum-aligned standardized achievement test was administered to both instructional groups at the end of the intervention to ensure

comparability of performance scores. Test development was aligned with MAPEH learning objectives and intended to evaluate knowledge and skills acquisition in the subject domain. Content validity was supported through expert review by MAPEH subject specialists, and the instrument underwent pilot testing to verify reliability prior to implementation. The achievement test produced continuous numeric scores used for group comparisons in inferential analysis.

Learner motivation (motivation questionnaire). Learner motivation was measured using a structured questionnaire based on validated psychometric scales consistent with Self-Determination Theory (autonomy, competence, and relatedness). The instrument used a Likert-type response format to quantify learners' motivational states following exposure to either traditional or gamified instruction. Items were designed to capture both intrinsic and extrinsic motivational dimensions relevant to classroom engagement and persistence. The questionnaire was administered concurrently with the achievement test to reflect motivation in the immediate post-intervention context and to enable linking motivational scores with academic performance outcomes.

Perception measures (learner and teacher perception surveys). To complement the outcome measures, structured perception surveys were administered to both learners and teachers to quantify attitudes and experiences regarding gamified instruction in MAPEH. Perception items assessed implementation-relevant dimensions such as engagement, enjoyment, classroom atmosphere, perceived learning support, practicality, and resource demands. The learner survey was presented as a two-part instrument containing items specific to motivational engagement and perceptions of gamification; the teacher perception survey mirrored these dimensions from an instructional and feasibility perspective. Both instruments generated mean perception scores, which were summarized descriptively and interpreted alongside the primary academic and motivational outcomes.

Across all instruments, administration procedures were standardized to minimize measurement bias. Data were anonymized prior to analysis, and collected responses were treated as confidential in accordance with the study's ethical and data protection procedures.

2.4 Data Analysis

All quantitative data were encoded, cleaned, and prepared for statistical analysis following completion of the post-intervention assessments. Descriptive statistics were computed for all outcome measures, including means (M) and standard deviations (SD), to summarize learners' academic performance and motivation levels by instructional group (traditional vs. gamified). Mean perception scores and variability indices were also generated for the learner and teacher perception measures.

To address the study's primary comparative questions, independent-samples t-tests were employed to determine whether statistically significant differences existed between the traditional instruction and gamified instruction groups in (a) academic performance scores and (b) motivation scores. Results were evaluated at the .05 level of significance, consistent with the stated hypothesis-testing criterion. For each t-test, the test statistic, degrees of freedom, and p-value were reported to support inferential conclusions.

Where applicable, the analysis plan incorporated procedures to reduce confounding attributable to pre-existing differences between intact class groups, consistent with a quasi-experimental design. Specifically, relevant demographic and contextual variables (e.g., age, gender, and prior academic performance) were documented and treated as control variables in the analysis to isolate the estimated effect of the instructional approach on the outcome measures. In line with the methodological plan described in the manuscript, analysis of covariance (ANCOVA) was identified as an additional inferential technique for comparing group outcomes while statistically adjusting for covariates when assumptions and data structure warranted its application.

Perception data from learners and teachers were analyzed quantitatively using descriptive summary procedures. Item-level responses were aggregated to compute composite perception scores, and group means were reported to characterize overall attitudes toward gamified instruction and its perceived effects on engagement, learning support, and classroom climate. These perception results were used to contextualize the primary achievement and motivation findings.

All analyses were conducted using standard statistical procedures suitable for comparing two independent instructional groups and for evaluating statistical significance under a quasi-experimental design. Outputs were organized according to the study's research questions, with results presented in tables and narrative reporting consistent with quantitative reporting conventions.

3 Results

Learners exposed to gamified instruction demonstrated higher academic performance than those who received traditional instruction. The mean achievement score for the traditional instruction group was 74.23 (SD = 8.45), whereas the gamified instruction group obtained a mean score of 83.56 (SD = 7.12). An independent-samples t-test indicated that the difference in academic performance between the two instructional conditions was statistically significant, $t(98) = 5.87$, $p < .001$, indicating that learners in the gamified instruction condition achieved significantly higher post-intervention performance than those taught through traditional approaches.

Motivation outcomes similarly favored the gamified instruction condition. Learners who received traditional instruction reported a mean motivation score of 3.02 (SD = 0.45), while learners exposed to gamified instruction reported a higher mean motivation score of 3.78 (SD = 0.40). The independent-samples t-test results showed that the difference in motivation levels between the two groups was statistically significant, $t(98) = 7.14$, $p < .001$, indicating that gamified instruction was associated with higher learner motivation than traditional instruction.

Perception measures further indicated favorable responses to gamified instruction among both stakeholder groups. Learners reported a high mean perception score of 4.21 (SD = 0.38), while teachers also reported a positive mean perception score of 4.05 (SD = 0.42). These descriptive results indicate that both learners and teachers generally perceived gamified instruction as beneficial and positively experienced in the MAPEH context.

4. Discussion

The present study found that learners who received gamified instruction in MAPEH achieved significantly higher academic performance and reported significantly higher motivation than learners who received traditional instruction. These findings align with the broader empirical consensus that gamification—when implemented as an instructional design approach rather than as superficial rewards—tends to improve learning outcomes and motivational indicators relative to non-gamified conditions. Meta-analytic evidence has consistently reported positive effects of gamification on cognitive, motivational, and behavioral outcomes, although effect magnitudes vary based on design quality, subject domain, duration, and the specific game elements employed (Landers et al., 2019; Li, Hew, & Du, 2024; Li, Ma, & Shi, 2023). In the context of MAPEH, where engagement and sustained participation are essential to skill development, the observed advantages of gamified instruction are theoretically coherent and practically meaningful.

The significantly higher achievement scores among learners in the gamified condition are consistent with evidence that gamification can enhance learning performance by increasing task engagement, time-on-task, and persistence. Landers et al. (2019) argued that gamification is most likely to influence learning outcomes indirectly through mediators such as motivation and behavior, rather than functioning as a direct instructional substitute. In other words, game elements may not “teach” content on their own, but they can strengthen the learning process by

increasing learners' willingness to engage in practice and feedback cycles. This mechanism is particularly applicable to MAPEH, which frequently requires repeated rehearsal of competencies (e.g., movement patterns, performance tasks, and applied health behaviors) that can be perceived as effortful when delivered through purely didactic formats.

Findings in physical education-related research provide further support for the academic benefits observed in this study. Ferriz-Valero et al. (2020) reported that gamified learning environments can improve motivation and learning-relevant behaviors, with measurable impacts on academic performance indicators within physical education training contexts. Although participants and levels of schooling differ across studies, the convergent pattern suggests that gamification can improve performance in domains that depend on active participation and experiential engagement. Importantly, the observed academic advantage in the present study likely reflects not only increased enjoyment, but also improved instructional conditions such as clearer progression pathways, frequent formative feedback, and structured challenges—features commonly associated with effective gamified learning designs (Hamari, Koivisto, & Sarsa, 2014).

The higher motivation scores among learners who received gamified instruction are highly consistent with Self-Determination Theory (SDT), which posits that motivation is strengthened when learning contexts satisfy needs for autonomy, competence, and relatedness (Deci & Ryan, 2000; Ryan & Deci, 2017). Gamified instruction often operationalizes these needs through design choices such as (a) meaningful choices and optional pathways (autonomy), (b) immediate feedback and incremental difficulty (competence), and (c) team-based challenges and social comparison features (relatedness). When these elements are present, learners may experience the instructional environment as more self-relevant and supportive, shifting motivation toward more autonomous forms associated with persistence and deeper engagement (Deci & Ryan, 2000; Ryan & Deci, 2017).

Recent syntheses strengthen this theoretical interpretation. A meta-analysis and systematic review by Li, Hew, and Du (2024) found that gamification can increase students' intrinsic motivation and perceptions of autonomy and relatedness. However, effects can differ depending on implementation and measurement. This nuance is important for interpreting the present study: motivation gains should not be assumed to occur uniformly across all gamification designs. Instead, motivation benefits are most plausible when game elements are integrated to reinforce competence-building feedback and autonomy-supportive participation, rather than relying primarily on external rewards.

Both learners and teachers expressed favorable perceptions of gamified instruction in the present study. This result is practically significant because teacher acceptance, perceptions of feasibility, and classroom manageability strongly influence whether gamified approaches are sustained beyond a research setting. Prior evidence suggests that learners' perceptions of enjoyment, progress visibility, and classroom climate often improve under gamified learning conditions, which in turn supports continued engagement (Hamari et al., 2014). Similarly, systematic mapping work on gamification in education highlights that many studies report positive attitudes toward gamified approaches, although rigorous comparative evidence remains less common and implementation quality is variable (Dicheva, Dichev, Agre, & Angelova, 2015).

In MAPEH specifically, favorable perceptions can be interpreted as an indicator that gamified strategies may be compatible with the subject's performance-oriented and participatory nature. However, positive perception findings should be interpreted cautiously. Perceptions may reflect novelty effects, differential teacher enthusiasm, or class-level dynamics that are not solely attributable to the instructional method. This reinforces the value of the study's comparative design and inferential findings, which provide stronger evidence than perception data alone that gamified instruction was associated with measurable differences in performance and motivation.

While the results support gamified instruction, the broader literature also cautions against designs that overemphasize extrinsic rewards (e.g., points, badges) without supporting autonomy

and competence. SDT predicts that controlling reward structures can undermine autonomous motivation when learners perceive participation as externally pressured rather than self-endorsed (Deci & Ryan, 2000; Ryan & Deci, 2017). The practical implication for MAPEH is that gamification should be implemented as an autonomy-supportive framework—emphasizing mastery, feedback, goal clarity, and social belonging—rather than as a token economy. The meta-analytic evidence showing variability across outcomes underscores that “gamification” is not a single intervention; its effectiveness depends on the alignment between game elements, learning tasks, and motivational processes (Li, Hew, & Du, 2024; Li, Ma, & Shi, 2023).

From a policy perspective, the study aligns with the Philippine education agenda, which emphasizes learner-centered, context-responsive pedagogy. Republic Act No. 10533 underscores curriculum principles that support collaborative, integrative, and developmentally appropriate approaches, which can be operationalized through well-designed gamified learning experiences (Republic Act No. 10533, 2013). In addition, data-handling and participant-protection requirements under Republic Act No. 10173 highlight the importance of secure data practices when using digital or platform-enabled gamification systems (Republic Act No. 10173, 2012). For classroom practice, the findings suggest that gamified instruction can be used as a structured strategy to enhance both engagement and measurable outcomes in MAPEH, particularly when teachers are supported with design templates, training on autonomy-supportive facilitation, and mechanisms for monitoring learner progress.

Overall, the findings contribute to the growing evidence base that gamified instruction—when implemented thoughtfully and grounded in motivational theory—can outperform traditional instruction across both academic and motivational outcomes. In MAPEH, where participation quality and sustained engagement are central to achieving holistic learning goals, gamification may serve as a practical instructional innovation that strengthens learner motivation while improving achievement, provided that implementation emphasizes mastery, feedback, and meaningful participation rather than reward accumulation.

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