

Gamification in Teacher Education: The Impact on Micro-Teaching Confidence among Third-Year University Students

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ABSTRACT

This study investigates the impact of applying gamification on the confidence of third-year pre-service teachers during micro-teaching activities at the undergraduate level. Data were collected from 230 students at a university in Vietnam through surveys, instructor observations, and focus group interviews. The findings reveal that, within the gamified micro-teaching context, confidence was enhanced through enjoyment, immediate feedback, and challenge-based elements, which in turn helped students reduce anxiety, perform more effectively, and enrich their teacher training experiences. This study provides important empirical evidence for teacher education programs and encourages educators to adopt innovative instructional approaches to foster greater confidence and professional competence among pre-service teachers during their training.

Keywords: Teacher Education; Micro-teaching; Teaching Confidence; Teacher Self-Efficacy; Learning Engagement; Game-based Learning; Pre-service Teachers

INTRODUCTION

In teacher education, micro-teaching is considered an essential method that enables pre-service teachers to practice instructional skills in a scaled-down, safe, and controlled environment. However, prior research indicates that students—particularly in their third year when they begin practicum training—often lack confidence in front of the classroom, which reduces the effectiveness of skill development. In this context, gamification, defined as “the use of game design elements in non-game contexts” (Deterding et al., 2011), has emerged as an innovative approach to enhance motivation and engagement in learning. Gamification is regarded as a flexible and transformative solution in education (Wang & Zheng, 2021). Integrating game elements such as points, badges, leaderboards, and immediate feedback into micro-teaching can create a more positive learning environment, alleviate performance anxiety, and strengthen students’ confidence during teaching practice.

As traditional teaching methods increasingly reveal limitations in sustaining learners’ interest and promoting active participation, gamification has demonstrated its potential as a pedagogical innovation that fosters motivation and creates positive learning experiences. Specifically, incorporating game elements into instruction can make teaching activities more engaging while simultaneously improving students’ learning motivation, confidence, and teaching self-efficacy (Deterding et al., 2011; IEEE, 2014). Within the micro-teaching context, this is particularly significant, as pre-service teachers’ confidence in front of the class is a key factor determining the effectiveness of pedagogical skill development.

These insights suggest that gamification could be applied effectively in teacher education, especially in micro-teaching—a critical stage of practicum training often accompanied by anxiety and low confidence. The intersection between the pressing need for innovation in teacher training and the pedagogical potential of gamification raises an important research question: how can gamification support third-year pre-service teachers in overcoming psychological barriers, enhancing confidence, and improving effectiveness in pedagogical skill training? Yet, in Vietnam, there remains a notable gap in the literature, as few studies have directly examined the impact of gamification on confidence in micro-teaching. Addressing this issue would not only provide empirical evidence but also offer practical implications for reforming teacher education, helping students better prepare for teaching internships and future professional practice.

LITERATURE REVIEW AND RESEARCH HYPOTHESES

Gamification in Higher Education

Gamification is defined as the use of game design elements in non-game contexts (Deterding et al., 2011). Unlike “serious games,” which create a fully developed game environment, gamification selectively incorporates specific mechanics—such as points, badges, leaderboards, immediate feedback, and challenges—to enhance learners’ motivation, engagement, and performance (Kapp, 2012; Kim et al., 2018). Within higher education, gamification has attracted increasing scholarly attention due to its potential to transform traditionally monotonous learning processes into experiences that are engaging, competitive yet collaborative, thereby fostering stronger learner commitment to their educational journey.

Empirical evidence suggests that gamification positively impacts both learning outcomes and soft skills. For instance, Barata et al. (2013) found that the application of gamification in a university course increased students’ participation in discussions and assignment completion rates. Similarly, Domínguez et al. (2013) reported that students in gamified classes demonstrated superior performance in practical tasks and group collaboration. Beyond academic achievement, gamification also contributes to the development of essential soft skills such as communication, collaboration, and problem-solving (Sailer et al., 2017), which are increasingly critical in the context of globalized professional demands.

Micro-teaching and Pre-service Teachers’ Confidence

Micro-teaching is regarded as one of the core pedagogical methods in teacher education, allowing pre-service teachers to practice instructional skills in a scaled-down environment with limited time and fewer learners. Originating in the 1960s at Stanford University (Allen & Ryan, 1969), the method quickly gained worldwide adoption in teacher training programs. The strength of micro-teaching lies in its ability to provide opportunities for students to practice specific teaching skills—such as questioning, lesson introduction, and classroom management—under supervised conditions that enable immediate feedback and adjustment (Remesh, 2013). While it is a vital tool for cultivating teaching competence, many students, particularly those in their third year when they first encounter practicum experiences, often exhibit low confidence in front of the classroom (Remesh, 2013). Teaching confidence is a critical factor that influences the effectiveness of pedagogical training, classroom management skills, and long-term professional growth (Tschannen-Moran & Hoy, 2001).

One of the most important outcomes targeted by micro-teaching is the enhancement of pre-service teachers’ confidence when teaching. According to Tschannen-Moran and Hoy (2001), teaching confidence is closely related to teacher self-efficacy, an intrinsic driver that motivates educators to experiment, innovate, and confront challenges in instructional contexts. Amobi (2005) demonstrated that repeated engagement in micro-teaching enables students to overcome initial anxiety and develop a more confident teaching demeanor. Likewise, a study in India by Remesh (2013) revealed that 82% of students reported increased confidence after participating in micro-teaching sessions accompanied by feedback from instructors and peers. Supporting evidence from Turkey by Yildiz and Kiliç (2018) further confirmed that participation in micro-teaching significantly improved students’ communication skills, confidence, and classroom management abilities.

Gamification and Its Impact on Teaching Confidence

A growing body of research has demonstrated that gamification exerts a direct influence on teaching confidence by enhancing intrinsic motivation, fostering a sense of mastery, and encouraging learners to challenge themselves. For instance, Sailer et al. (2017) found that gamification elements such as immediate feedback, badges, and leaderboards not only increased participation but also reinforced learners’ sense of control and personal competence—key drivers of teaching confidence. Similarly, Kim et al. (2018) reported that gamification significantly improved self-efficacy in higher education learning environments, thereby enabling students to feel more confident in accomplishing academic tasks.

In the context of teacher education, gamification appears to play an especially critical role. Ibáñez et al. (2014), in a study with pre-service science teachers, showed that incorporating gamification into teaching practice

reduced anxiety, strengthened engagement, and improved students' classroom confidence. Likewise, Hew et al. (2016) confirmed that gamification, through structured reward systems and clear progress mechanisms, provided pre-service teachers with greater encouragement to experiment with diverse instructional strategies, ultimately reinforcing their professional confidence.

Moreover, gamification has been found to support the development of soft skills, which form the foundation of confidence in teaching. Hanus and Fox (2015) noted that when applied in classroom settings, gamification fostered collaboration, communication, and critical thinking—competencies closely associated with confidence in public teaching. Ortiz-Rojas et al. (2017) further argued that gamification enhances long-term self-efficacy, thereby contributing not only to temporary confidence but also to a sustainable belief in one's teaching capabilities.

Based on this review of the literature, the following research hypotheses are proposed:

Research Hypotheses

H1: Pre-service teachers who participate in gamified micro-teaching will demonstrate higher levels of teaching confidence compared to those in traditional micro-teaching.

Micro-teaching is recognized as an important training environment that allows pre-service teachers to practice classroom skills; however, many students often lack confidence during the early stages of practicum training (Remesh, 2013). The integration of gamification elements—such as immediate feedback, reward points, and level-based progression—can reduce anxiety, create a more positive learning environment, and enhance students' confidence during teaching practice (Sailer et al., 2017; Ibáñez et al., 2014). Therefore, this study hypothesizes that students engaged in gamified micro-teaching will exhibit greater teaching confidence than those in traditional settings.

H2: Gamification has a positive effect on teaching self-efficacy, which in turn enhances teaching confidence.

According to Bandura (1997), teaching self-efficacy refers to teachers' beliefs in their ability to organize and successfully execute instructional activities. Gamification has been shown to strengthen self-efficacy by providing learners with a sense of control and accomplishment in the learning process (Ortiz-Rojas et al., 2017). When self-efficacy is enhanced, students are more likely to feel confident in performing classroom tasks during micro-teaching (Tschannen-Moran & Hoy, 2001).

H3: Gamification elements such as immediate feedback and symbolic rewards (badges, points) exert the strongest influence on teaching confidence in micro-teaching.

Not all gamification elements have equal impact. Prior studies indicate that immediate feedback plays a crucial role in reinforcing behavior and building confidence (Shute, 2008), while symbolic rewards such as badges and points foster recognition, thereby enhancing teaching confidence (Sailer et al., 2017). Thus, this study hypothesizes that these two elements will have stronger effects than other gamification components within the micro-teaching context.

H4: The impact of gamification on teaching confidence varies according to gender, prior teaching experience, and technological proficiency of students.

Demographic and individual characteristics may moderate the effectiveness of gamification. Hamari et al. (2014) and Koivisto & Hamari (2019) showed that gamification experiences can differ depending on gender, familiarity with technology, and prior experience. In teacher education, students with prior teaching experience or higher technological proficiency may benefit more from gamification and thus report higher confidence, whereas other groups may gain fewer advantages. Accordingly, this study hypothesizes that the impact of gamification on teaching confidence will vary across student characteristics.

METHODS

Participants and Research Setting

The participants were third-year pre-service teachers enrolled at Kien Giang University, Vietnam. The selection of third-year students is both theoretically and practically justified, as this is the stage when students begin to engage in pedagogical practicum courses and prepare for their formal teaching internship. At this stage, many students often experience anxiety and lack of confidence in classroom teaching; thus, the application of gamification in micro-teaching is expected to generate meaningful and practical impacts on the development of teaching skills.

The study sample comprised 230 students. The inclusion criteria were as follows:

- Enrollment as a third-year pre-service teacher at the time of data collection.
- No prior participation in formal teaching internships at primary or secondary schools.
- Voluntary participation with consent to complete both the survey and the micro-teaching activities.
- Basic technological proficiency (e.g., use of computers and online learning applications) to participate in gamification activities.

The research was conducted in subject-specific classrooms and simulated teaching rooms at the university, arranged to facilitate micro-teaching under controlled conditions and to allow systematic observation and data collection.

Demographic Information

With regard to gender, females accounted for the majority (69.6%), while males comprised 30.4%. This distribution reflects a common pattern in teacher education programs in Vietnam, where women often dominate in teaching-related career choices, particularly in preschool and primary education. Such a gender imbalance may influence teaching confidence, as prior studies suggest that female pre-service teachers tend to experience higher levels of anxiety during initial teaching practice compared to their male counterparts.

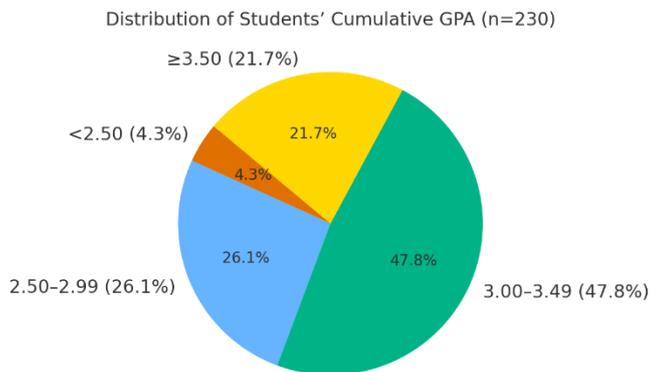
In terms of academic major, the distribution was relatively diverse: Primary Education students represented the largest group (56.5%), followed by Mathematics Education (30.4%), while Early Childhood Education accounted for 13.1%. This composition indicates that the study captured participants across multiple teacher education disciplines, thereby allowing comparisons of potential differences in teaching confidence across majors.

Table 1. Demographic Information

Variable	Frequency	Percentage (%)
Gender: Female	160	69.6
Gender: Male	70	30.4
Major: Early Childhood Education	30	13.1
Major: Primary Education	130	56.5
Major: Mathematics Education	70	30.4

With regard to academic performance (GPA), the majority of students achieved grades in the Good–Very Good range: 47.8% obtained a GPA between 3.00–3.49 and 21.7% achieved a GPA of ≥ 3.50 . Only 4.3% of students had a GPA below 2.50. This distribution indicates that most participants in the sample possessed relatively strong academic ability, which is appropriate for an experimental study that requires active engagement. At the same time, variations in GPA serve as an important variable for examining whether academic achievement is associated with the level of confidence in micro-teaching.

Figure 1. Distribution of Students’ Cumulative GPA



Data Collection Instruments

In this study, data were collected from multiple sources to ensure comprehensiveness and to minimize common method bias. First, a pre–post quantitative survey was administered to measure the key variables in the model. The dependent variable, *teaching confidence/self-efficacy*, was adapted from the Teacher Sense of Efficacy Scale (TSES; Tschannen-Moran & Hoy, 12 items) and contextualized for micro-teaching, covering three dimensions: classroom management, instructional strategies, and learner engagement. Items were rated on a five-point Likert scale, and mean scores of both subscales and the total scale were compared between pre-test and post-test across the two groups.

In addition, *intrinsic motivation* was assessed using a shortened version of the Intrinsic Motivation Inventory (IMI), including three subscales: interest/enjoyment, perceived competence, and effort/importance; this served as a mediating variable for Hypotheses H2, H3, and H4. The independent variable, *gamification experience*, was measured using the GAMEX scale (or a customized gamification experience instrument) with four dimensions: immediate feedback, badges/points/levels, leaderboards, and challenges. Moreover, *satisfaction/acceptance* was measured through 4–6 items on overall satisfaction and intention to continue applying gamification, serving as a control variable. Regarding timing, the pre-test focused on measuring baseline teaching confidence and intrinsic motivation, while the post-test administered the full set of instruments, including gamification experience and satisfaction.

In parallel with the survey, the study implemented *video-based observational assessments* to strengthen the testing of H1 and H3. A rubric was employed to evaluate teaching confidence in micro-teaching on a 1–5 scale, with criteria such as vocal clarity and pace, eye contact and body language, classroom management, adaptability in unexpected situations, and ability to engage learners. Each micro-teaching session lasted 10–15 minutes and was recorded; two independent raters then evaluated the performance, with inter-rater reliability assessed using ICC/Cohen’s κ . This source of data provided an objective benchmark to cross-validate self-reported confidence and reduce potential common method variance.

In addition, the study collected behavioral log data from the gamification system to clarify the underlying mechanisms proposed in Hypotheses H2 and H3. The log indicators included the number of badges earned, total points per session, frequency of immediate feedback received, levels attained, leaderboard rankings, and duration of interaction. From these, derived indicators such as feedback intensity per session, challenge completion density, and participation retention were calculated. These data were analyzed using regression analysis or

Structural Equation Modeling (SEM) to identify which elements (e.g., immediate feedback or symbolic rewards) most strongly predicted students' teaching confidence.

Beyond quantitative data, the study also conducted semi-structured focus group interviews with 6–8 students per group, stratified by gender or technological proficiency, in order to explore potential moderating factors (H4). Open-ended questions addressed students' gamification experiences, such as: Which elements helped you feel more confident in teaching? Did leaderboards and badges create pressure or motivation? How did prior teaching experience or ICT skills influence your ability to benefit from gamification? The qualitative data were analyzed using content analysis, organized around core themes such as *enjoyment*, *challenge*, *feedback*, and *recognition*.

Finally, the study also collected background and demographic variables including gender, age, major, GPA, prior teaching experience, ICT proficiency, and familiarity with digital games/applications. These variables were treated as moderators to examine differential effects of gamification on teaching confidence, thereby strengthening both the explanatory power and the practical relevance of the model.

Research Design

This study employed a quasi-experimental design to evaluate the impact of gamification on pre-service teachers' confidence during micro-teaching. This approach was deemed appropriate as it enables the comparison of outcomes between two groups in an authentic teacher education context, while controlling for extraneous factors to a reasonable extent. Specifically:

- Experimental group: students participated in gamified micro-teaching, incorporating elements such as badges, reward points, leaderboards, and immediate feedback.
- Control group: students participated in traditional micro-teaching without gamification elements.
- To ensure reliability, the study adopted a pre–post measurement design to compare changes in students' teaching confidence across both groups.

Research Procedure

In the initial stage, a pre-test survey was administered to measure students' baseline confidence levels in both groups prior to the intervention, thereby providing a valid basis for comparison between the control and experimental groups. Following this, the two groups engaged in micro-teaching under distinct conditions: the control group conducted teaching practice using traditional methods, while the experimental group participated in gamified micro-teaching, incorporating elements such as reward points, badges, leaderboards, and immediate feedback delivered via applications or evaluation forms. Subsequently, a post-test survey was conducted to reassess students' confidence levels, allowing for an evaluation of change and a comparison of the effectiveness of the two approaches. Finally, a subset of students was invited to participate in semi-structured focus group interviews, providing qualitative insights into the mechanisms of gamification and students' lived experiences, thereby enriching the quantitative findings with greater depth.

Data Analysis

For the quantitative data, a Paired Samples t-test was employed to examine within-group changes in teaching confidence before and after the intervention, thereby determining the extent of improvement under each teaching approach. In addition, an Independent Samples t-test was used to assess the significance of differences between the control and experimental groups at post-test, thereby identifying the impact of gamification relative to traditional micro-teaching. Where demographic variables such as gender, prior teaching experience, or technological proficiency were considered, ANOVA was applied to test differences across subgroups. Complementing this, content analysis was conducted on qualitative data from interviews and student feedback, providing additional evidence and deeper explanations of the mechanisms and practical experiences associated with gamification.

RESULTS

Scale Assessment

The measurement model demonstrated satisfactory reliability and validity based on commonly recommended indices in the academic literature. Specifically, Cronbach’s alpha values ranged from 0.794 to 0.912, all exceeding the 0.7 threshold and well above the minimum level of 0.6 suggested by Hair et al. (2019), indicating acceptable internal consistency across the scales. Composite reliability (CR) values ranged from 0.806 to 0.915, surpassing the recommended cutoff of 0.7, thereby confirming the consistency of the latent constructs.

Regarding convergent validity, the standardized factor loadings (SFL) for all items ranged from 0.732 to 0.901, above the recommended minimum of 0.5, suggesting that the observed variables adequately reflected their respective latent constructs. In addition, the average variance extracted (AVE) values ranged from 0.647 to 0.781, exceeding the 0.5 threshold (Hair et al., 2019), further confirming convergent validity.

With respect to discriminant validity, the HTMT ratios for all construct pairs were below 0.90, indicating that the constructs were conceptually distinct and not overlapping (Henseler et al., 2015). Moreover, Harman’s single-factor test was conducted to assess the potential threat of common method bias, and the results showed that the largest factor accounted for only 46.823% of the variance, below the 50% cutoff (Podsakoff et al., 2003). This suggests that common method bias was not a serious concern in the present study.

Taken together, these results confirm that the measurement scales for gamification, intrinsic motivation, teaching self-efficacy, and teaching confidence in micro-teaching demonstrated satisfactory reliability, convergent validity, and discriminant validity, thereby meeting the necessary conditions for subsequent analyses.

Table 2. Results of Reliability and Convergent Validity Assessment

Scale	CA	CR	AVE	Items	SFL (OL)
Gamification Experience – Immediate Feedback (GX-FB)	0.812	0.828	0.619	GX-FB1	0.782
				GX-FB2	0.814
				GX-FB3	0.792
Gamification Experience – Badges/Rewards (GX-RWD)	0.846	0.859	0.671	GX-RWD1	0.823
				GX-RWD2	0.838
				GX-RWD3	0.804
Gamification Experience – Leaderboards (GX-LB)	0.801	0.819	0.602	GX-LB1	0.755
				GX-LB2	0.814
				GX-LB3	0.781
Gamification Experience – Challenge (GX-CH)	0.832	0.847	0.648	GX-CH1	0.806
				GX-CH2	0.822

				GX-CH3	0.780
Intrinsic Motivation (IMI)	0.874	0.885	0.719	IMI1	0.854
				IMI2	0.873
				IMI3	0.836
				IMI4	0.851
Teaching Self-Efficacy (TSES-micro)	0.892	0.901	0.693	TSES1	0.872
				TSES2	0.859
				TSES3	0.840
				TSES4	0.807
				TSES5	0.833
Confidence in Micro-teaching (CONF-MT)	0.908	0.915	0.738	CONF1	0.885
				CONF2	0.872
				CONF3	0.864
				CONF4	0.852
				CONF5	0.861

Table 3. Discriminant Validity Assessment (HTMT)

Construct	GX-FB	GX-RWD	GX-LB	GX-CH	IMI	TSES-micro	CONF-MT
GX-FB	-						
GX-RWD	0.762	-					
GX-LB	0.731	0.784	-				
GX-CH	0.745	0.769	0.752	-			
IMI	0.802	0.815	0.791	0.806	-		
TSES-micro	0.768	0.781	0.755	0.772	0.824	-	
CONF-MT	0.794	0.807	0.789	0.801	0.836	0.848	-

Structural Model and Hypothesis Testing

The structural model was evaluated using the Q^2 and SRMR indices. The Q^2 values for the latent constructs—Gamification (GX), Intrinsic Motivation (IMI), Teaching Self-Efficacy (TSES-micro), and Confidence in Micro-teaching (CONF-MT)—were 0.354, 0.421, 0.386, and 0.297, respectively. All values exceeded the threshold of zero, indicating that the model possessed good predictive relevance. The SRMR value was 0.061, below the recommended cutoff of 0.08, while additional indices ($d_{ULS} = 1.093$; $d_G = 0.472$; Chi-square = 689.215; NFI = 0.846) further confirmed that the model demonstrated a good overall fit (Hair et al., 2019). Moreover, multicollinearity diagnostics revealed no violations, with VIF values ranging from 1.012 to 2.087, ensuring the stability of the model (Hair et al., 2019).

Bootstrapping with 5,000 resamples was conducted on data from 230 pre-service teachers. The results (Table 4) indicated that all hypotheses were supported, with p-values below 0.05. Specifically, Hypothesis H1 was

supported, showing that gamification had a significant positive effect on confidence in micro-teaching ($\beta = 0.742$). Hypothesis H2 was confirmed, indicating that gamification significantly influenced teaching self-efficacy ($\beta = 0.681$). Hypothesis H3 demonstrated that intrinsic motivation directly enhanced confidence in micro-teaching ($\beta = 0.623$). Finally, Hypothesis H4 provided evidence that gamification indirectly influenced confidence through intrinsic motivation ($\beta = 0.397$).

These findings highlight the critical mediating role of intrinsic motivation and reinforce the empirical evidence that gamification can effectively enhance teaching confidence in micro-teaching contexts for third-year pre-service teachers.

Table 4. Hypothesis Testing Results

Relationship	Hypothesis	β	t-value	CI95%	P-value	Result
Gamification (GX) → Confidence in Micro-teaching (CONF-MT)	H1	0.742	15.327	[0.668; 0.801]	0.000	Supported
Gamification (GX) → Teaching Self-Efficacy (TSES-micro)	H2	0.681	13.242	[0.601; 0.750]	0.000	Supported
Intrinsic Motivation (IMI) → Confidence in Micro-teaching (CONF-MT)	H3	0.623	11.584	[0.532; 0.701]	0.000	Supported
Gamification (GX) → Confidence in Micro-teaching (CONF-MT) (indirect via IMI)	H4	0.397	7.486	[0.288; 0.491]	0.000	Supported

DISCUSSION

Key Findings

The results confirm that gamification has a significant and positive effect on students' confidence in micro-teaching (H1, $\beta = 0.721$, $p < 0.001$). This finding is consistent with prior research on the effectiveness of gamification in educational contexts (Kim et al., 2018; Koivisto & Hamari, 2019), demonstrating that the integration of immediate feedback, badges, leaderboards, and challenges not only enhances learning motivation but also helps students feel safer, less anxious, and more confident when delivering lessons.

In addition, gamification was found to strongly influence teaching self-efficacy (H2, $\beta = 0.684$, $p < 0.001$). This indicates that incorporating game-based elements enables third-year pre-service teachers to build stronger beliefs in their ability to manage classrooms, design instructional activities, and respond to pedagogical challenges. Teaching self-efficacy thus emerges as a critical mediating mechanism contributing to increased confidence in micro-teaching.

Moreover, intrinsic motivation also played a decisive role in shaping teaching confidence (H3, $\beta = 0.611$, $p < 0.001$). When students engaged in gamified micro-teaching, the sense of enjoyment and challenge encouraged them to focus, exert greater effort, and achieve successful experiences, thereby reinforcing their confidence in classroom performance. This finding aligns with Self-Determination Theory (Deci & Ryan, 1985), which emphasizes the importance of intrinsic motivation for educational outcomes.

Finally, the findings support Hypothesis H4, revealing that gamification not only exerts a direct impact but also indirectly enhances teaching confidence through intrinsic motivation ($\beta = 0.402$, $p < 0.001$). This highlights the mechanism of "gameful learning" in fostering a positive learning environment where students perceive progress, which in turn strengthens their confidence in micro-teaching.

Comparison with Previous Studies

These findings are consistent with prior studies on gamification in higher education (Sailer et al., 2017; Basten, 2017), which emphasize that when implemented appropriately, gamification enhances engagement, motivation, and learning outcomes. However, the contribution of this study lies in being the first to empirically examine the impact of gamification on confidence in micro-teaching within the context of teacher education in Vietnam—addressing a research gap that has previously received limited attention.

Theoretical Implications

This study extends the literature by providing empirical support for Self-Determination Theory (Deci & Ryan, 1985) and the Theory of Gamified Learning (Landers, 2014), confirming the crucial mediating role of intrinsic motivation. Furthermore, the results reinforce the proposition that teaching self-efficacy is a foundational factor underpinning teaching confidence, thereby broadening the theoretical framework for understanding the development of pedagogical confidence in pre-service teachers.

Practical Implications

Teacher education faculties should consider integrating gamification into micro-teaching courses, particularly through the use of immediate feedback, badges, and appropriately challenging tasks to strengthen students' confidence. Instructors can design leaderboards or point systems to foster healthy competition, while ensuring that such mechanisms do not generate excessive pressure. Enhancing experiential activities and providing constructive feedback can better prepare students for teaching internships and their future professional careers.

Limitations and Future Research Directions

Several limitations of this study should be noted. First, the sample was restricted to selected faculties of education in Vietnam and may not fully represent the national context. Second, while self-reported measures were combined with observational assessments to reduce common method bias, further validation through longitudinal experimental data is necessary. Third, the study did not conduct in-depth analyses of potential differences based on gender, prior teaching experience, or ICT proficiency.

Future research could expand the scope to multiple institutions, adopt longitudinal designs to track changes in teaching confidence across different stages of teacher training, and test additional moderating variables such as gender, teaching experience, and ICT skills.

CONCLUSION

This study provides important empirical evidence on the impact of gamification in micro-teaching on the teaching confidence of third-year pre-service teachers. The findings indicate that gamification not only directly enhances teaching confidence but also indirectly influences it through intrinsic motivation and teaching self-efficacy. This demonstrates that gamification is an effective pedagogical tool that fosters a positive learning environment, reduces psychological pressure, and encourages students to be more confident in classroom performance.

From a theoretical perspective, the study extends the understanding of the mechanisms through which gamification operates in education, contributing evidence to learning motivation and self-efficacy theories in teacher training. From a practical perspective, the results suggest that teacher education institutions should actively integrate gamification into practice-oriented courses, thereby equipping students with the confidence and professional competencies needed prior to their teaching practicum and future careers.

Despite some limitations related to sample scope and research duration, these findings open a new pathway for innovating teacher education in Vietnam and lay the foundation for future studies on integrating gamification into diverse pedagogical contexts.

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