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Exploring the Impact of the Integrated Think-Pair Share and Active Learning Management on Non-Credentialed Teacher Learning Assessment Competency

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Abstract

This study investigates the effectiveness of an integrated approach combining think-pair share and active learning management in enhancing non-credentialed teachers' assessment competency and compares their learning achievement in educational assessment across pre, post, and delayed examination phases. Utilizing a one-group experimental design, 29 participants were selected through cluster sampling. Instruments included an integrated think-pair-share and active learning management system, along with assessments evaluating participants' assessment knowledge, skills, and attributes. Data analysis involved mean scores, standard deviation, effectiveness index (E_1/E_2), One - way repeated measure ANOVA, and pairwise comparisons. Results indicate that the integrated learning management plan effectively facilitated teaching assessment competency to non-credentialed teachers at the graduate level, leading to the attainment of expected learning levels within the class. Additionally, it significantly enhanced participants' competency compared to their baseline levels, with sustained effectiveness demonstrated over time.

Keywords: active learning, non-credentialed teacher, teacher education, think-pair share

1. Introduction

The proficiency of teachers in assessing learners' outcomes stands as a cornerstone in the landscape of education, determining the efficacy of the teaching process and identifying areas for improvement (Brookhart & Nitko, 2018; McTighe et al., 2021). Assessment skills serve as a vital compass guiding educators through the intricate terrain of pedagogy, illuminating the effectiveness of instructional strategies and pinpointing avenues for further support and refinement (Taras & Wong, 2022). Indeed, the ability to select appropriate assessment methods and accurately interpret their results is indispensable for educational practitioners. Without such competence, the entire learning endeavor risks faltering, rendering the efforts invested in preparation and teaching potentially futile. Thus, it is undeniable that assessment holds equal importance alongside the foundational pillars of educational practice (Wright, 2008).

The shortage of qualified teaching staff poses a significant challenge within the global educational landscape, giving rise to a cascade of interconnected issues (Garcia & Weiss, 2019; Lamboy, 2023). Among these challenges is the dilemma faced by educators who find themselves teaching subjects for which they lack formal qualifications. This predicament not only compromises the quality of instruction but also undermines the holistic educational experience. In Thailand, the contextual focus of this study, elementary schools often assign teachers as class instructors, requiring them to teach a diverse array of subjects (Pholphirul et al., 2023). Similarly, in secondary schools, educators may be tasked with teaching subjects outside their areas of expertise (Pholphirul et al., 2023). In response to these challenges, the Ministry of Education has implemented measures to augment the pool of qualified teachers, including offering a two-year course for professional teaching certification to individuals with bachelor's degrees from fields other than education (The Secretariat Office of the Teachers'

Council of Thailand, 2023). However, navigating the process of developing these non-credentialed teachers poses its own set of challenges and complexities.

The challenges faced by non-credentialed teachers predominantly stem from the disparity between their academic backgrounds and the intricacies of pedagogical science. Many of these educators hold bachelor's degrees in fields such as science or art, which primarily emphasize the acquisition of disciplinary knowledge rather than instructional methodologies. Consequently, they may lack exposure to techniques for effectively conveying information to students. Mentally unprepared for the unique demands of teaching, particularly the complexities of engaging with children in an educational setting, these individuals may find the experience daunting and unfamiliar. Additionally, the concept of assessment may be entirely novel to them, presenting yet another hurdle in their professional development. Therefore, it becomes imperative to prioritize teacher education initiatives tailored specifically to the needs of these non-credentialed teachers, equipping them with the requisite pedagogical skills and strategies to navigate the challenges of the classroom effectively.

Given the unique characteristics of non-credentialed teachers—namely, their status as adults who have already attained bachelor's degrees—it is reasonable to assume a certain level of familiarity with structured work environments and a degree of autonomy in their learning processes . Consequently, it becomes apparent that learners at this level would benefit from instructional approaches that emphasize freedom and foster collaborative dialogue among peers (Hysa & Mansi, 2020). Active learning and collaborative learning methodologies emerge as particularly promising avenues for enhancing their assessment competency. By actively engaging in discussions, problem-solving tasks, and group activities, non-credentialed teachers can leverage their collective experiences and perspectives to deepen their understanding of assessment principles and practices (Blaz, 2022). Moreover, such interactive approaches promote critical thinking, communication skills, and the ability to apply theoretical knowledge in practical contexts—all of which are essential components of effective assessment practices (Fornari & Poznanski, 2021; Konopka et al., 2015).

Hence, the primary objective of the current study is to amalgamate the principles of active learning and collaborative learning within the framework of the think-pair-share technique to devise a comprehensive learning management plan aimed at enhancing the assessment competencies of non-credentialed teachers. The findings of this study are poised to make significant contributions to the field by showcasing the outcomes of this innovative methodological fusion and by extending the understanding of the synergistic effects of these two pedagogical principles within the realm of post-graduate education.

2. Literature Review

2.1 Non-credential Teachers and Teaching Profession Development

Non-credentialed teachers, also known as unlicensed or non-certified teachers, refer to individuals who do not possess formal teaching credentials or licensure obtained through traditional teacher education programs (Imig et al., 2009). These educators often enter the teaching profession through alternative pathways, such as emergency certification programs or direct recruitment by schools facing shortages of qualified teachers. The nature of learning for non-credentialed teachers is distinct from that of their traditionally trained counterparts. While they may hold bachelor's or advanced degrees in specific subject areas, their academic backgrounds may not include pedagogical coursework or practicum experiences typically required for teaching licensure (Fongkanta et al., 2021). Consequently, non-credentialed teachers may lack formal training in instructional methods, classroom management, and assessment practices.

Despite these challenges, non-credentialed teachers play a crucial role in addressing teacher shortages and diversifying the teaching profession. Their entry into the field often reflects the dynamic and evolving landscape of education, where alternative pathways are sought to meet the demand for qualified educators, particularly in high-need subject areas or underserved communities. In the context of teaching profession development, the inclusion of non-credentialed teachers presents both opportunities and challenges. On one hand, their diverse backgrounds and expertise enrich the educational landscape, bringing unique perspectives and subject matter knowledge to the classroom. On the other hand, the lack of formal training may hinder their effectiveness as educators and impact the quality of instruction and student learning outcomes. Addressing the needs of non-credentialed teachers in teaching profession development is essential for fostering their professional growth and ensuring their success in the classroom. These educators often lack formal training in pedagogical skills, teaching techniques, and assessment practices, which are vital components of effective teaching. By providing targeted support, including specialized training programs focused on pedagogy, classroom management, and instructional strategies, as well as mentorship opportunities and ongoing professional development, educational institutions and policymakers can help non-credentialed teachers acquire the necessary skills and competencies

to thrive in their roles and contribute effectively to the teaching profession (Fongkanta et al., 2021; Intasena et al., 2024).

2.2 Assessment Competencies

Assessment competencies encompass the knowledge, skills, and attitudes necessary for educators to effectively design, implement, and interpret assessments to evaluate student learning. Competency in assessment involves more than just the ability to administer tests or assign grades; it requires a deep understanding of assessment principles, methodologies, and ethical considerations.

In the context of learning assessment, several key factors should be considered to ensure the validity, reliability, and fairness of assessments (Brookhart & Nitko, 2018; McTighe et al., 2021; Taras & Wong, 2022; William and Flora Hewlett Foundation Assessment for Learning Working Group, 2018; Wright, 2008)). These factors include validity as the extent to which an assessment measures what it intends to measure. Valid assessments accurately reflect the learning objectives and content covered in the curriculum. Reliability is another important factor for the matters. The consistency and dependability of assessment results. Reliable assessments produce consistent outcomes when administered under similar conditions. Moreover, fair assessments accommodate diverse learners and minimize biases based on factors such as race, gender, or socioeconomic status. In terms of authenticity, the degree to which assessment tasks mirror real-world contexts and tasks relevant to students' lives. Authentic assessments engage students in meaningful learning experiences and demonstrate their ability to apply knowledge and skills in authentic settings.

In summary, assessment competencies encompass the ability to design assessments that are valid, reliable, fair, and authentic, aligned with learning objectives, and provide meaningful feedback to students. Educators with strong assessment competencies can create assessment practices that support student learning, inform instructional decision-making, and promote continuous improvement in teaching and learning outcomes.

2.3 Active Learning

Active Learning is one of the learning processes that translates to learning through practice or hands-on experience. The knowledge gained from this method is derived from experience (Blaz, 2022). The process involves activities where learners have more opportunities for hands-on engagement than solely listening (Fornari & Poznanski, 2021). It necessitates learners to engage in activities such as reading, writing, responding, and problem-solving. Furthermore, learners are encouraged to utilize higher-order thinking processes, including analysis, synthesis, and evaluation. In addition, active Learning is a learning process that allows learners to meaningfully engage by collaborating with each other (Blaz, 2022; Fornari & Poznanski, 2021). In this approach, teachers reduce their role in direct instruction and delivering content to students. Instead, they enhance processes and activities that stimulate students' enthusiasm for various and diverse activities. These activities include exchanging experiences through discussions, speaking, writing, and debating with peers. Active Learning instructional method is a learning management process in which all learners actively participate in hands-on activities and use their thinking processes (Konopka et al., 2015). Learners transition from being knowledge receivers to being actively involved in creating knowledge. Traditional teaching methods of "lecture-based" instruction cannot adequately develop students to practically apply the knowledge gained in the classroom. Therefore, it is imperative to adjust learning management methods to align with societal changes, technology, and students' learning needs. Teachers, as facilitators, transition their roles to guiding students in seeking knowledge, thereby fostering students' ability to seek knowledge and apply various skills, ultimately leading to meaningful learning experiences (Blaz, 2022; Fornari & Poznanski, 2021; Konopka et al., 2015).

2.4 Think-pair-share

Think-pair-share is a collaborative learning technique designed to engage students comprehensively in the learning process (Kaddoura, 2013). It encourages active participation, critical thinking, and collaborative problem-solving among students. The technique involves three main steps: thinking individually, sharing thoughts with a partner, and collectively summarizing conclusions as a group. Think-pair-share plays a crucial role in enhancing student engagement and understanding of the subject matter. By allowing students to generate their own answers and exchange ideas with peers, it promotes deeper comprehension and strengthens communication skills (Mundelsee & Jurkowski, 2021). Furthermore, it fosters analytical thinking and synthesis of ideas through collaborative discussion.

In preparation for the Think-Pair-Share activity, teachers should first prepare thought-provoking questions that stimulate critical thinking and encourage students to independently apply their knowledge. Additionally, they should devise stimulating follow-up questions to facilitate further discussion during the sharing phase. Setting up

Breakout Rooms and providing clear instructions for student activities within each room is essential for smooth implementation. On the other hand, students need to familiarize themselves with the learning activity channels provided by the teacher. Once the preparation is complete, the learning management process unfolds in three key steps (Tint & Ei Nyunt, 2015). First, in Step 1, teachers introduce the learning objectives and pose main questions related to the topic, prompting students to brainstorm and record their individual answers within a specified time frame. In Step 2, teachers open Breakout Rooms for students to pair up and share their answers, encouraging them to discuss their responses, identify commonalities, and collaboratively develop shared conclusions. Throughout this process, teachers monitor student interactions in Breakout Rooms and provide guidance as needed. Finally, in Step 3, teachers explain the presentation format and allocate time for sharing conclusions. Each pair of students is instructed to present their collective conclusions to the class, after which teachers summarize students' responses, provide feedback on the learning process, and encourage reflection on the sources of their answers to promote a deeper understanding of the subject matter.

Think-pair-share is a constructivist approach that empowers students to take ownership of their learning. By engaging in independent thinking, peer collaboration, and group reflection, students develop critical thinking skills and a deeper understanding of the content (Slavin, 1995, 2008). As the teacher, it is important to facilitate the process effectively, provide clear guidance, and encourage active participation from all students. Additionally, promoting a supportive and inclusive learning environment fosters meaningful interactions and enhances the overall learning experience.

2.5 Previous Studies

Scholars have extensively studied the effects of active learning approaches (e.g., Chan, 2021; Nasri, 2019; Rodrigues, 2020) and the think-pair-share technique (e.g., Li & Tu, 2024; Parker, 2022; Parker & Asare, 2021; Sajidan et al., 2023) in teacher education. Previous research indicates that both instructional methods are beneficial, as they promote class engagement, foster metacognition in learning, and encourage discussions that lead to the development of cognitive skills among learners. However, there are still gaps in the literature, particularly as previous studies have primarily focused on the development of professional teachers or student teachers within education faculties. Including non-credentialed teachers as participants could offer valuable insights into the different learning nature of this group. Additionally, there is a limited number of studies that examine the long-term effects of these methods. Utilizing delayed examination could help address this gap in the literature. Furthermore, previous studies have suggested integrating these methods with others. Integrating active learning with the think-pair-share technique could further contribute to this area of study. Therefore, as a contribution to the area of the study, the current study aims to integrate active learning and think-pair share to develop assessment competency of non-credentialed teachers who took a professional teachers certification program. The purposes of the study are to examine the effectiveness of an integrated think-pair share and active learning management on non-credentialed teachers' assessment competency and to compare the participants' learning achievement of educational assessment in pre, post, and delayed examination.

3. Methodology

3.1 Research Design

The study was conducted using a one-group experimental design to examine the effectiveness of a learning management system incorporating elements of active learning and the think-pair-share technique. Throughout the study, participants' performance and knowledge in educational assessment were assessed at multiple points: pre-intervention, between intervention sessions, post-intervention, and at a 4-week delay following the intervention. This comprehensive approach allowed researchers to evaluate the immediate impact of the instructional methods as well as their longer-term effects on participants' understanding and retention of the material.

3.2 Participants

The study comprised a population of 212 non-credentialed teachers enrolled in a 2-year professional teacher certification course at a university in Thailand. These participants were divided into 6 groups and assessed for any significant differences in their knowledge of assessment skills using a One-way ANOVA test. From these groups, one cluster consisting of 29 individuals was selected using a cluster sampling method. Ethical considerations regarding human research were carefully observed throughout the treatment of the participants.

3.3 Instruments

3.3.1 Integrated Think-pair Share and Active Learning Management

The primary intervention in the study involved implementing a learning management plan designed around the

principles of Think-pair-share and Active Learning. Throughout each class session, participants were tasked with grappling with real-world problems and engaging in various active learning activities. This included individual reflection on specific topics or questions, followed by sharing ideas with classmates. Collaborative discussions with a partner were encouraged to enhance participation, maintain focus, and promote engagement. Additionally, a class summary was generated before proceeding to exercises. The curriculum comprised 15 lessons covering various aspects of knowledge, skills, and attributes related to educational assessment. Prior to implementation, the learning management plan underwent evaluation by experts, who deemed it highly appropriate (with a mean rating of $\bar{x}$ = 3.84 - 4.17).

3.3.2 The Assessment of Non-credentialed Teachers' Assessment Competency

The participants' assessment competency was evaluated using a multi-spectrum assessment. The issues to consider include knowledge of assessment, assessment skills, and assessment attribute. The detail of each evaluation can be discussed further below.

Assessment knowledge evaluation

The assessment of participants' knowledge of assessment utilized a set of 50 multiple-choice questions, each focusing on various aspects of educational assessment. These questions covered a range of difficulty levels, with item difficulty ranging from 0.35 to 0.75, and discrimination indices between 0.37 and 0.67. The reliability of the test, as measured by internal consistency, was found to be high, with a coefficient alpha of 0.87.

Assessment skill evaluation

The evaluation of participants' assessment skills was conducted using a skill assessment tool designed on a 5-point rubric scale, encompassing six evaluation criteria for a total possible score of 30. All items exhibited satisfactory item-total correlations, indicating their relevance to the overall assessment. The reliability of the assessment instrument was determined to be high, with a Cronbach's alpha coefficient of 0.84, demonstrating strong internal consistency.

Assessment attribute evaluation

The participants' attributes related to assessment were assessed using a rubric-based evaluation tool structured on a 5-point scale across four key aspects of evaluation, with a maximum potential score of 20. All items demonstrated satisfactory item-total correlations, affirming their alignment with the comprehensive assessment goals. The assessment instrument exhibited a high level of reliability, with a Cronbach's alpha coefficient of 0.96, underscoring its robust internal consistency.

In conclusion, the assessment of non-credentialed teachers' competency in assessment yielded a potential full score of 100. This assessment was administered as a pre-test, post-test, and a post-test conducted four weeks later.

3.3 Data Collection and Data Analysis

The data were collected utilizing a one-group experimental design. Participants underwent a pretest before engaging in a 15-week learning management program designed based on the principles of active learning and think-pair-share methods. Throughout each week, they participated in various class activities and underwent weekly evaluations to assess their competency in assessment. Following the completion of the program, a posttest was administered. To assess the retention of competency, a delayed posttest was conducted four weeks later. The data were analyzed using mean scores, standard deviation, effectiveness index (E_1/E_2), One - way repeated measure ANOVA, and pairwise comparisons as a post hoc analysis.

4. Results

Table 1. The effectiveness of the learning management plan

Effectiveness	Fullmark	*M*	*SD*	%
Process (E_1)	375	287.17	5.63	76.58
Product (E_2)	100	80.66	9.15	80.66
Plan Effectiveness (E_1/E_2) = 76.58/77.55				

The effectiveness index of the learning management plan was determined by assessing both the process and product effectiveness. Process effectiveness (E_1) was calculated based on the participants' scores in activities as a percentage of the maximum possible points. The average score of participants in activities was found to be 287.17 (*SD* = 5.63), equivalent to 76.58% of the maximum points. Meanwhile, product effectiveness (E_2) was

evaluated by the average score of participants' posttest, which was 80.66 (*SD* = 9.15), representing 80.66% of the full mark. Consequently, the effectiveness of the learning management plan (E_1/E_2 = 76.58/80.66) exceeded the predetermined criteria of 75/75, indicating a higher-than-expected level of effectiveness.

Table 2. The participants' assessment competency in pre, post, and delayed post - tests

Assessment competency	Test					
	Pretest		Posttest		4 week delayed posttest	
	M	*SD*	*M*	*SD*	*M*	*SD*
Knowledge	20.28	4.99	35.48	4.02	35.07	4.03
Skills	17.79	4.98	24.52	4.42	24.62	4.07
Attribute	12.14	2.45	20.66	2.70	20.14	2.40
Average	50.21	10.51	80.66	9.15	79.83	8.94

The table presents the participants' assessment competency scores across three different testing periods: pretest, posttest, and a 4-week delayed posttest. In terms of Knowledge, participants scored an average of 20.28 (*SD* = 4.99) on the pretest, which increased to 35.48 (*SD* = 4.023) in the posttest, and slightly decreased to 35.07 (*SD* = 4.03) in the 4-week delayed posttest. For the Skills component, participants scored an average of 17.79 (*SD* = 4.98) on the pretest, which increased to 24.52 (*SD* = 4.42) in the posttest and remained relatively stable at 24.62 (*SD* = 4.07) in the 4-week delayed posttest. In terms of Attribute, participants scored an average of 12.14 (*SD* = 2.45) on the pretest, which increased to 20.66 (*SD* = 2.70) in the posttest, and slightly decreased to 20.14 (*SD* = 2.40) in the 4-week delayed posttest. Overall, the participants scored 50.21 (*SD* = 10.51) in the pretest, significantly increased to 80.66 (*SD* = 9.15) in the posttest, and slightly decreased to 79.83 (*SD* = 8.94) in the 4-week delayed posttest.

Table 3. The comparison between the participants' assessment competency

Variable	Value	F	Hypothesis df	Error df	p-value
Assessment competency	0.02	797.31	2.00	27.00	.000

The study's findings reveal notable discrepancies in participants' Assessment competency across pretest, posttest, and delayed post-tests. Specifically, a One - way repeated measure ANOVA test showed a significant difference in the assessment competency scores of participants between the pretest (*M* = 50.21, *SD* = 10.51), posttest (*M* = 80.66, *SD* = 9.15), and a 4-week delayed posttest (*M* = 79.93, *SD* = 8.94), with F = 797.31, $p < 0.05$. Therefore, the participants' performances were further discussed in the post-hoc analysis process.

Table 4. The post-hoc analysis of the participants' assessment competency

Variable	Comparison pairs		Score difference	Std. Error	p-value
	(I) Time	(J) Time	(I-J)		
Assessment competency	Pretest	Posttest	-30.45	0.78	.000
	Pretest	Delayed posttest	-29.62	0.77	.000
	Posttest	Delayed posttest	0.83	0.47	.259

The post-hoc analysis revealed significant differences in participants' performances between the pretest (*M* = 50.21, *SD* = 10.51) and posttest (*M* = 80.66, *SD* = 9.15), as well as between the pretest (*M* = 50.21, *SD* = 10.51) and the 4-week delayed posttest (*M* = 79.83, *SD* = 8.94). However, no significant difference was observed between participants' assessment competency in the posttest (*M* = 80.66, *SD* = 9.15) and the 4-week delayed posttest (*M* = 79.83, *SD* = 8.94). Considering the mean scores of participants in each test, it can be interpreted that the learning management plan had a positive effect on the participants' assessment competency, and they were able to maintain their competency over time.

5. Discussion

The findings suggest that the learning management plan, utilizing think-pair share and active learning, offered an effective approach in teaching assessment competency to non-credentialed teachers at the graduate study level. Specifically, the learning management facilitated the attainment of the expected level of learning within the class. Furthermore, it significantly contributed to the enhancement of participants' competency compared to their baseline level before the implementation of the learning management. Importantly, the approach demonstrated consistency, as participants were able to sustain their competency over time.

The results of the study, in accordance with previous research by scholars such as Chan (2021), Li & Tu (2024), Nasri (2019), Parker (2022), Parker & Asare (2021), Rodrigues (2020), and Sajidan et al. (2023), emphasize the importance of integrating active learning approaches into teacher education. Active learning methods like think-pair share have consistently demonstrated their effectiveness in engaging learners and fostering deeper comprehension of the subject matter. One significant reason behind their efficacy lies in their ability to provide learners with a sense of autonomy. This autonomy is particularly well-suited to the context of graduate studies and adult learners, who typically value self-directed learning experiences. Through active participation in their educational journey, learners are empowered to take control of their learning process, leading to heightened intrinsic motivation and a more profound understanding of the material. This sense of ownership over their education encourages learners to actively seek out knowledge and engage more deeply with course content, ultimately resulting in improved retention and application of learned concepts (Fornari & Poznanski, 2021).

Moreover, active learning methods facilitate collaborative learning environments, as learners are encouraged to interact with their peers, share ideas, and engage in critical discussions. This collaborative aspect of active learning not only enriches the learning experience but also fosters a sense of community among participants (Blaz, 2022). By engaging in peer-to-peer interactions, learners benefit from diverse perspectives and insights, broadening their understanding of the subject matter and enhancing their critical thinking skills. Additionally, the supportive atmosphere cultivated through collaborative learning encourages social interaction and promotes a positive learning environment where students feel valued and respected.

In brief, the incorporation of active learning approaches in teacher education aligns closely with the preferences and needs of adult learners and contributes to the development of effective teaching strategies. Prioritizing student engagement and fostering meaningful learning experiences allow active learning methods to equip educators with valuable tools to enhance learning outcomes and promote student success in the classroom (Konopka et al., 2015).

6. Conclusion

The study utilized a one-group experimental design to investigate the impact of an integrated approach incorporating think-pair share and active learning management on 29 non-credentialed teachers in Thailand. The findings underscore the effectiveness of these methods in enhancing participants' learning experiences both during instruction, immediately after, and over an extended period. This study contributes significantly to the field by providing empirical evidence supporting the efficacy of these methods in teacher education. It not only validates their utility in developing teaching competencies but also sheds light on their long-term benefits for individuals entering the teaching profession.

Moving forward, the implications of this study extend to both pedagogical practice and academic research. Pedagogically, educators can leverage the integrated approach of think-pair share and active learning management to create engaging and effective learning environments conducive to the development of teaching skills. Furthermore, future academic research could delve deeper into the specific mechanisms through which these methods influence learning outcomes, as well as explore their applicability across different educational contexts and subject areas.

Additionally, curriculum planners can utilize our findings to harmonize the teaching-learning process. By integrating think-pair share and active learning management, educators can create dynamic and interactive learning environments that promote the development of teaching skills. Moving forward, the implications of this study extend to both pedagogical practice and academic research. Pedagogically, educators can leverage the integrated approach to foster engagement and facilitate effective learning experiences. Furthermore, future research endeavors could explore the specific mechanisms through which these methods influence learning outcomes, along with their applicability across diverse educational contexts and subject areas.

However, it's important to acknowledge the limitations of this study, including the relatively small sample size and the lack of qualitative data collection. While the quantitative findings offer valuable insights into the effectiveness of the integrated approach, qualitative data could provide a more nuanced understanding of participants' experiences and perceptions. Future research could address these limitations by employing larger sample sizes and incorporating qualitative methods to capture the rich complexities of the teaching and learning process.

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The data that support the findings of this study are available on request from the corresponding author. The data are not publicly available due to privacy or ethical restrictions.

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No additional data are available.

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