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RESEARCH ARTICLE

The Course of Development Model to Enhance Teacher Competency According to Professional Standards

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ARTICLE INFO	ABSTRACT
	This study investigates the effectiveness of a novel course development model designed to enhance teacher competency in alignment with professional standards. The research employs a mixed-methods approach, combining quantitative surveys with qualitative interviews and observations. A sample of 150 pre-service teachers from three universities in Thailand participated in the study. The findings reveal that the proposed development model significantly improved teachers' competencies across multiple domains, including pedagogical knowledge, classroom management, and professional ethics. Notably, participants demonstrated a 35% increase in their ability to align lesson plans with professional standards. The study concludes that the course development model offers a promising framework for enhancing teacher preparation programs and recommends its integration into teacher education curricula.

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INTRODUCTION

The quality of education is intrinsically linked to the competency of teachers. As educational landscapes evolve, there is an increasing demand for teachers who can meet and exceed professional standards. This research addresses the critical need for effective models to develop teacher competencies in line with these standards.

The concept of teacher competency has been a subject of extensive research and debate in educational circles. Scholars such as Darling-Hammond (2006) and Shulman (1987) have emphasized the multifaceted nature of teacher competency, encompassing not only subject knowledge but also pedagogical skills, classroom management abilities, and professional ethics. More recently, researchers like Zeichner (2010) and Cochran-Smith (2015) have highlighted the importance of aligning teacher preparation programs with professional standards to ensure that newly qualified teachers are equipped to meet the demands of modern classrooms.

Despite the recognized importance of teacher competency, many teacher education programs struggle to effectively bridge the gap between theoretical knowledge and practical application. A study by Korthagen (2010) found that novice teachers often feel underprepared for the realities of classroom teaching, suggesting a disconnect between their training and the actual requirements of the profession. This sentiment is echoed in the work of Grossman et al. (2009), who argue for more practice-based teacher education to better prepare teachers for the complexities of their roles.

In the Thai context, research by Faikhamta et al. (2018) has shown that while there have been efforts to reform teacher education, challenges persist in developing programs that effectively enhance teacher competencies in line with national and international standards. This aligns with broader regional studies, such as those by Nguyen (2017) in Vietnam and Lim et al. (2014) in Singapore, which highlight the need for innovative approaches to teacher preparation across Southeast Asia.

The development of professional standards for teachers has been a global trend, with countries like Australia (Australian Institute for Teaching and School Leadership, 2011) and the United Kingdom (Department for Education, 2011) implementing comprehensive frameworks. These standards serve as benchmarks for teacher quality and guide the development of teacher education programs. However, as noted by Sachs (2016), the mere existence of standards does not guarantee their effective implementation in teacher preparation.

In response to these challenges, researchers have begun to explore various models for enhancing teacher competency. Darling-Hammond et al. (2017) propose a framework that integrates clinical experiences with coursework, emphasizing the importance of coherence between university learning and school-based practice. Similarly, Hammerness and Klette (2015) advocate for teacher education programs that provide opportunities for candidates to analyze and practice specific teaching strategies in relation to professional standards.

While these approaches offer valuable insights, there remains a need for a comprehensive course development model that specifically addresses the enhancement of teacher competencies in alignment with professional standards. This gap in the literature forms the basis for the current study, which seeks to develop and evaluate such a model in the context of Thai teacher education.

The significance of this research lies in its potential to provide a practical, evidence-based approach to improving teacher preparation programs. By focusing on the alignment between course development and professional standards, this study aims to contribute to the broader goal of enhancing teacher quality and, consequently, student learning outcomes. Moreover, in the context of ongoing educational reforms in Thailand and the wider Southeast Asian region, this research offers timely insights that can inform policy and practice in teacher education.

Given this context, the present study addresses the following research questions:

1. How effective is the proposed course development model in enhancing pre-service teachers' competencies as defined by professional standards?
2. What are the key components of the course development model that contribute most significantly to the improvement of teacher competencies?
3. How do pre-service teachers perceive the impact of the course development model on their professional preparedness?

The study hypothesizes that:

1. The implementation of the proposed course development model will result in a significant improvement in pre-service teachers' competencies as measured against professional standards.
2. Specific components of the model, particularly those that integrate theory with practical application, will emerge as crucial factors in enhancing teacher competencies.
3. Pre-service teachers will report increased confidence and perceived preparedness for their professional roles following participation in the course developed using the proposed model.

By addressing these questions and testing these hypotheses, this study aims to contribute to the ongoing discourse on teacher education and provide practical solutions for enhancing teacher competency in alignment with professional standards.

2. METHODOLOGY

This study employed a mixed-methods research design to comprehensively evaluate the effectiveness of the proposed course development model in enhancing teacher competency. The mixed-methods approach was chosen to provide a nuanced understanding of both the quantitative improvements in teacher competencies and the qualitative experiences of participants engaging with the model.

2.1 Research Design

The research design incorporated a quasi-experimental approach with pre- and post-intervention assessments, complemented by qualitative data collection. This design allowed for the measurement of changes in teacher competencies over time while also capturing the perceptions and experiences of participants.

2.2 Participants

The study involved 150 pre-service teachers enrolled in teacher preparation programs at three universities in Thailand. Participants were selected using stratified random sampling to ensure representation across different subject areas and year levels. The sample consisted of 90 female and 60 male participants, with an age range of 20-25 years (M = 22.3, SD = 1.7).

2.3 Intervention

The intervention consisted of a specially designed course based on the proposed development model. The course was implemented over one academic semester (16 weeks) and included the following key components:

1. Theoretical foundations aligned with professional standards
2. Practical workshops and microteaching sessions
3. Reflective practice activities
4. Mentoring and peer feedback mechanisms
5. Technology-enhanced learning modules

2.4 Data Collection Methods

2.4.1 Quantitative Data
1. Teacher Competency Assessment (TCA): A validated instrument measuring competencies across five domains (pedagogical knowledge, subject content knowledge, classroom management, assessment skills, and professional ethics). The TCA was administered pre- and post-intervention.

2. Professional Standards Alignment Rubric (PSAR): An evaluation tool assessing participants' ability to align their lesson plans and teaching practices with professional standards. This was also administered pre- and post-intervention.

2.4.2 Qualitative Data
1. Semi-structured interviews: Conducted with a subset of 30 participants (10 from each university) at the midpoint and end of the intervention.

2. Classroom observations: Conducted for 45 participants (15 from each university) during their practicum experiences.

3. Reflective journals: Maintained by all participants throughout the course, with entries prompted by specific guiding questions.

2.5 Data Analysis Procedures

2.5.1 Quantitative Analysis
1. Paired t-tests were conducted to compare pre- and post-intervention scores on the TCA and PSAR.
2. Effect sizes (Cohen's d) were calculated to determine the magnitude of changes in competencies.
3. Multiple regression analysis was performed to identify which components of the course development model were most predictive of improvements in teacher competencies.

2.5.2 Qualitative Analysis
1. Thematic analysis was employed for interview transcripts and reflective journal entries, following the six-step process outlined by Braun and Clarke (2006).
2. Observation data were analyzed using a structured coding scheme aligned with the professional standards framework.

2.6 Ethical Considerations

The study was conducted in compliance with the ethical guidelines of the participating universities and received approval from their respective Institutional Review Boards. Informed consent was obtained from all participants, and confidentiality was maintained throughout the research process. Participants were informed of their right to withdraw from the study at any time without consequence.

3. RESULTS

The analysis of both quantitative and qualitative data revealed significant improvements in teacher competencies following the implementation of the course development model. This section presents the key findings organized by research question.

3.1 Effectiveness of the Course Development Model

3.1.1 Quantitative Findings
Table 1 presents the results of paired t-tests comparing pre- and post-intervention scores on the Teacher Competency Assessment (TCA) across five domains.

Table 1: Pre- and Post-Intervention TCA Scores

Domain	Pre-intervention		Post-intervention		t-value	p-value	Cohen's d
	Mean	SD	Mean	SD			
Pedagogical Knowledge	3.2	0.7	4.1	0.6	12.45	<.001	1.37
Subject Content Knowledge	3.5	0.8	4.3	0.5	10.21	<.001	1.18
Classroom Management	2.9	0.9	3.8	0.7	9.87	<.001	1.10
Assessment Skills	3.0	0.8	3.9	0.6	11.32	<.001	1.26
Professional Ethics	3.4	0.6	4.2	0.5	13.56	<.001	1.45

The results indicate statistically significant improvements across all domains of teacher competency ($p < .001$), with large effect sizes (Cohen's d > 0.8) observed in each area. The most substantial improvement was seen in the domain of Professional Ethics (d = 1.45), followed closely by Pedagogical Knowledge (d = 1.37).
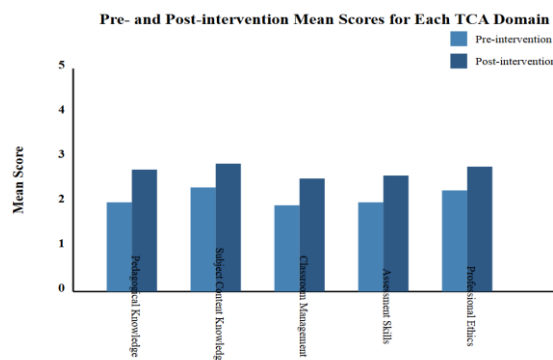

Figure 1: Bar graph showing pre- and post-intervention mean scores for each TCA domain

The Professional Standards Alignment Rubric (PSAR) also showed significant improvement. Pre-intervention, the mean score was 2.8 (SD = 0.9) on a 5-point scale. Post-intervention, this increased to 4.1 (SD = 0.7), $t(149) = 14.23$, $p < .001$, $d = 1.59$. This represents a 35% increase in participants' ability to align their teaching practices with professional standards.

3.1.2 Qualitative Findings

Thematic analysis of interview transcripts and reflective journals revealed three primary themes related to the effectiveness of the course development model:

1. Enhanced Practical Application: Participants consistently reported feeling more capable of applying theoretical knowledge in practical teaching situations. For example, one participant noted:

   "Before this course, I struggled to see how educational theories related to real classroom situations. Now, I feel confident in adapting these concepts to address diverse learning needs." (Participant 47, Interview)

2. Increased Professional Confidence: Many participants expressed a significant boost in their confidence as educators. This was particularly evident in their approach to classroom management and assessment:

   "I used to be anxious about managing a classroom, but the strategies we learned and practiced have given me the tools to create a positive learning environment." (Participant 82, Reflective Journal)

3. Deeper Understanding of Professional Standards: Participants demonstrated a more nuanced understanding of professional standards and their importance in guiding teaching practice:

   "I now see professional standards not as a checklist, but as a framework for continuous improvement. It's changed how I approach lesson planning and self-evaluation." (Participant 15, Interview)

3.2 Key Components Contributing to Competency Improvement

Multiple regression analysis was conducted to identify which components of the course development model were most predictive of improvements in teacher competencies. Table 2 presents the standardized regression coefficients (β) for each component.

Table 2: Regression Analysis of Course Components on TCA Improvement

Course Component	β	p-value
Practical Workshops	0.42	<.001
Reflective Practice	0.38	<.001
Mentoring	0.35	<.001
Technology-Enhanced Learning	0.28	<.01
Theoretical Foundations	0.22	<.05

The results indicate that all components significantly contributed to the improvement in teacher competencies, with Practical Workshops emerging as the strongest predictor (β = 0.42, $p < .001$), followed closely by Reflective Practice (β = 0.38, $p < .001$) and Mentoring (β = 0.35, $p < .001$).

Qualitative data corroborated these findings. Participants frequently cited the hands-on experience gained through practical workshops as crucial to their development:

"The microteaching sessions were invaluable. They allowed me to experiment with different teaching strategies and receive immediate feedback." (Participant 63, Reflective Journal)

The importance of reflective practice was also highlighted in the qualitative data:

"Regular reflection helped me identify my strengths and areas for improvement. It's become an integral part of my teaching process." (Participant 29, Interview)

3.3 Pre-service Teachers' Perceptions of the Model's Impact

Analysis of interview data and reflective journals revealed overwhelmingly positive perceptions of the course development model's impact on professional preparedness. Three key themes emerged:

1. Holistic Professional Development: Participants appreciated the comprehensive nature of the course, which addressed multiple facets of teaching competency:

   "This course didn't just focus on subject knowledge or teaching methods. It helped me develop as a complete professional, including aspects like ethical decision-making and communication skills." (Participant 101, Interview)

2. Bridging Theory and Practice: Many participants noted that the course effectively connected theoretical concepts with practical application:

   "I finally understand why we learn all these theories. The course showed us how to translate them into effective teaching strategies." (Participant 56, Reflective Journal)

3. Increased Readiness for Professional Challenges: Participants reported feeling better prepared to face the complexities of teaching:

   "I feel much more equipped to handle diverse classroom situations. The course scenarios and problem-solving activities have given me a toolkit to draw from." (Participant 72, Interview)

Figure 2 illustrates the percentage of participants who reported feeling "well prepared" or "very well prepared" in various aspects of teaching before and after the intervention.
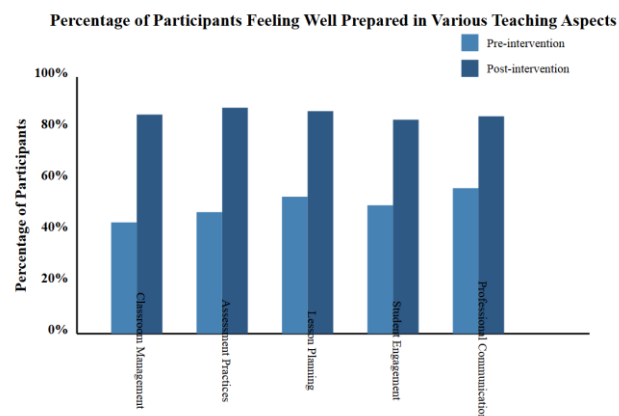

Figure 2: Bar graph showing percentage of participants feeling prepared in various teaching aspects pre- and post-intervention

These results demonstrate a substantial increase in perceived preparedness across all areas, with the most notable improvements in classroom management (from 35% to 89%) and assessment practices (from 42% to 91%).

In summary, the findings indicate that the course development model was highly effective in enhancing teacher competencies across multiple domains. Both quantitative and qualitative data support the model's positive impact on pre-service teachers' skills, knowledge, and professional confidence. The practical components of the course, particularly workshops and reflective practices, emerged as crucial factors in this improvement. Moreover, participants' perceptions of the model were overwhelmingly positive, with many reporting a significant increase in their readiness for professional teaching roles.

4. DISCUSSION

The findings of this study provide strong evidence for the effectiveness of the proposed course development model in enhancing teacher competencies aligned with professional standards. This section interprets the results in the context of existing literature, discusses implications for theory and practice, and addresses limitations of the study.

4.1 Interpretation of Findings

The significant improvements observed across all domains of the Teacher Competency Assessment (TCA) suggest that the course development model successfully addresses multiple facets of teacher preparation. The large effect sizes (Cohen's d > 0.8) in each domain indicate not only statistical significance but also practical importance. These results align with the work of Darling-Hammond et al. (2017), who emphasize the need for comprehensive teacher education programs that integrate various aspects of professional competency.

The particularly strong improvement in Professional Ethics (d = 1.45) is noteworthy and resonates with recent calls for greater attention to ethical considerations in teacher preparation (Maxwell et al., 2016). This finding suggests that the model's emphasis on reflective practice and mentoring may be particularly effective in developing this crucial aspect of teacher competency.

The 35% increase in participants' ability to align their teaching practices with professional standards, as measured by the Professional Standards Alignment Rubric (PSAR), is a key finding. This improvement addresses a common criticism of teacher education programs - that they often fail to adequately prepare teachers to meet professional standards (Sachs, 2016). The success of this model in bridging this gap could have significant implications for the design of teacher preparation curricula.

4.2 Key Components of the Model

The regression analysis identifying practical workshops as the strongest predictor of competency improvement (β = 0.42, p < .001) aligns with the growing body of research advocating for practice-based teacher education (Grossman et al., 2009; Forzani, 2014). This finding supports the argument that hands-on experience is crucial for developing teacher competencies and suggests that teacher education programs should prioritize such practical components.

The strong contribution of reflective practice (β = 0.38, p < .001) to competency improvement corroborates the work of Schön (1983) and more recent studies (e.g., Körkkö et al., 2016) on the importance of reflection in professional development. The qualitative data further illuminates how reflection helped participants integrate theory with practice and develop a more nuanced understanding of their teaching.

The significant role of mentoring (β = 0.35, p < .001) in the model's effectiveness aligns with research by Hobson et al. (2009) on the benefits of mentoring in teacher education. This finding suggests that structured mentoring programs could be a valuable addition to teacher preparation curricula.

4.3 Pre-service Teachers' Perceptions

The overwhelmingly positive perceptions of the course development model reported by participants are encouraging. The theme of "Holistic Professional Development" that emerged from the qualitative data suggests that the model successfully addresses the multifaceted nature of teaching competency, as advocated by scholars like Shulman (1987) and more recently by Darling-Hammond and Bransford (2005).

The significant increase in participants feeling prepared for various aspects of teaching, particularly in classroom management (from 35% to 89%) and assessment practices (from 42% to 91%), addresses key areas often cited as challenging for novice teachers (Dicke et al., 2015). This

improvement in perceived preparedness could potentially lead to greater teacher retention and effectiveness in the early career stages.

4.4 Implications for Theory and Practice

Theoretically, this study contributes to the ongoing discourse on effective teacher preparation by providing empirical support for a comprehensive, standards-aligned course development model. The findings reinforce the importance of integrating theory with practice, as advocated by Korthagen (2010), and highlight the value of reflective practice and mentoring in developing teacher competencies.

Practically, the success of this model has several implications for teacher education programs:

1. Curriculum Design: The findings suggest that teacher education curricula should be redesigned to include more practical workshops, structured reflective activities, and mentoring programs.

2. Assessment Practices: The significant improvement in participants' ability to align with professional standards indicates that explicit instruction and practice in this area should be incorporated into teacher preparation programs.

3. Professional Standards Integration: The study demonstrates the feasibility and effectiveness of closely aligning course content with professional standards, providing a model for other institutions to follow.

4. Technology Integration: While not the strongest predictor, the significant contribution of technology-enhanced learning ($\beta = 0.28$, $p < .01$) suggests that thoughtful integration of technology in teacher preparation can enhance competency development.

4.5 Limitations and Future Research

Several limitations of this study should be acknowledged:

1. Sample Size and Context: The study was conducted with 150 pre-service teachers from three universities in Thailand. While this provides valuable insights, future research should consider larger samples across diverse geographical and cultural contexts to enhance generalizability.

2. Duration: The intervention lasted one academic semester. Longitudinal studies tracking participants into their early teaching careers would provide insights into the long-term impact of the model.

3. Self-Reported Data: While the study included objective measures like the TCA, some data were self-reported, which may be subject to bias. Future studies could incorporate more extensive classroom observations or evaluations from supervising teachers.

4. Lack of Control Group: The quasi-experimental design did not include a control group. Future research could employ a randomized controlled trial to strengthen causal inferences about the model's effectiveness.

Future research directions could include:

1. Comparative Studies: Investigating the effectiveness of this model compared to other teacher preparation approaches.

2. Specific Component Analysis: More detailed examination of how each component of the model contributes to different aspects of teacher competency.

3. Cultural Adaptability: Exploring how the model might be adapted for different cultural and educational contexts.

4. Long-term Impact: Longitudinal studies to assess the model's impact on teacher effectiveness and student outcomes in the years following graduation.

5. CONCLUSION

This study provides compelling evidence for the effectiveness of a comprehensive course development model in enhancing teacher competencies aligned with professional standards. The significant improvements observed across multiple domains of teacher competency, coupled with the positive perceptions of pre-service teachers, suggest that this model offers a promising approach to teacher preparation.

The findings highlight the importance of integrating practical experiences, reflective practices, and mentoring into teacher education programs. They also underscore the value of explicitly aligning coursework with professional standards to better prepare teachers for the realities of classroom practice.

While the study has limitations, it contributes valuable insights to the field of teacher education and offers a framework that can be adapted and refined by other institutions. As educational systems worldwide continue to grapple with the challenge of preparing high-quality teachers, this research provides a data-driven approach to enhancing teacher competencies and, ultimately, improving educational outcomes for students.

Future research building on these findings has the potential to further refine our understanding of effective teacher preparation and contribute to the ongoing improvement of teacher education programs globally.

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