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A Two-Fold Approach in Investigating the Factors in Practice Teaching Experiences of Technology Livelihood and Vocational Education Preservice Teachers

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ABSTRACT

Practice teaching represents a critical transition phase in teacher education, particularly within Technology and Livelihood Education (TLE) and Technical and Vocational Education and Training (TVET) programs. This study develops a two-fold analytical approach to investigate the multifaceted factors influencing the practice teaching experiences of preservice teachers. The first dimension focuses on internal determinants such as self-efficacy, motivation, and pedagogical beliefs, while the second examines external determinants including institutional support, mentoring, and contextual teaching environments. Drawing upon a synthesis of empirical and theoretical literature, the study constructs an integrated framework combining social cognitive theory and situated learning principles. A mixed-method analytical design is conceptualized, incorporating exploratory factor analysis and reflective data interpretation. Findings reveal that self-efficacy, technological integration competence, and mentoring quality significantly shape teaching effectiveness and professional identity development. The study contributes a structured model for optimizing practice teaching experiences and offers implications for policy, curriculum design, and teacher training programs in TVET contexts.

1. INTRODUCTION

Practice teaching is widely regarded as a cornerstone in teacher education programs, enabling preservice teachers to bridge theoretical knowledge with real-world classroom application. Within Technology and Livelihood Education (TLE), this phase is particularly complex due to the dual demand for pedagogical expertise and technical proficiency. Preservice teachers must navigate instructional challenges while simultaneously integrating technological tools and vocational competencies.

The central problem addressed in this study lies in the fragmented understanding of factors influencing practice teaching experiences. While prior studies have examined isolated variables such as self-efficacy or institutional support, a comprehensive model that integrates both internal and external determinants remains underdeveloped. This gap limits the ability of educational institutions to design effective teacher preparation programs.

The relevance of this research is underscored by the increasing demand for skilled educators capable of delivering competency-based vocational education. As highlighted by Ebersole (2019), the effectiveness of technology integration in teaching is strongly influenced by contextual factors within teacher education programs. This insight suggests the necessity of a holistic analytical approach.

The primary objective of this study is to develop and analyze a two-fold framework that systematically examines internal and external factors affecting practice teaching experiences. Specifically, the study aims to:

1. Identify key psychological and cognitive factors influencing preservice teachers.

2. Examine environmental and institutional influences on teaching performance.

3. Develop an integrated model for optimizing practice teaching outcomes.

The scope of this research is confined to preservice teachers in TLE and TVET programs, focusing on their experiential learning during field-based teaching practice. The significance lies in providing a structured, evidence-based framework that can inform curriculum design, teacher training strategies, and policy interventions.

2. LITERATURE REVIEW

The literature on practice teaching highlights a diverse set of influencing factors, ranging from individual psychological constructs to institutional dynamics. A critical synthesis reveals three dominant thematic clusters: self-efficacy and motivation, experiential learning and reflection, and institutional and contextual influences.

Self-efficacy has been extensively studied as a determinant of teaching performance. Rooted in social cognitive theory, Bandura (1995) posits that individuals' belief in their capabilities significantly affects their actions and outcomes. In the context of preservice teachers, high self-efficacy is associated with improved classroom management, instructional strategies, and student engagement (Barni et al., 2019). Bargmann and Kauffeld (2023) further demonstrate that self-efficacy interacts with time management to influence commitment and persistence in teaching.

Technology integration emerges as a critical dimension in modern teacher education. Ebersole (2019) emphasizes that preservice teachers' confidence in using technology is shaped by both their training environment and contextual exposure. This finding aligns with Ertmer (2005), who identifies pedagogical beliefs as a barrier or facilitator in technology adoption. Moreover, Wilson (2021) provides empirical evidence that structured technology courses significantly enhance preservice teachers' attitudes and competencies.

Experiential learning theories provide another theoretical foundation. Lave and Wenger (1991) conceptualize learning as situated within social contexts, where participation in authentic activities leads to knowledge construction. Booth et al. (2017) extend this perspective by highlighting the role of autonomy in shaping learning experiences. Similarly, Hamilton and Duinen (2019) emphasize reflective practices as essential for developing professional competence.

Institutional and contextual factors also play a crucial role. Hallman and Rodriguez (2015) advocate for community-based field experiences that expose preservice teachers to diverse educational settings. Napanoy et al. (2021) and Moussaid and Zerhouni (2017) identify common challenges such as classroom management difficulties, lack of resources, and insufficient mentoring support. These challenges underscore the importance of structured guidance and feedback mechanisms.

Despite extensive research, a significant gap persists in integrating these dimensions into a unified analytical framework. Most studies adopt a single-factor perspective, limiting their explanatory power. Additionally, limited attention has been given to the interaction between internal and external factors, particularly in TVET contexts.

This study addresses these gaps by proposing a two-fold approach that synthesizes psychological, pedagogical, and contextual variables into a comprehensive model.

3. METHODOLOGY

3.1 Research Design

This study adopts a conceptual mixed-method research design integrating quantitative and qualitative analytical approaches. The two-fold framework is operationalized through two primary dimensions:

1. Internal Factor Analysis Model (IFAM)

2. External Contextual Influence Model (ECIM)

The integration of these models allows for a holistic examination of practice teaching experiences.

3.2 Internal Factor Analysis Model (IFAM)

The IFAM focuses on psychological and cognitive determinants, including:

- Self-efficacy
- Motivation
- Pedagogical beliefs
- Technological competence

Self-efficacy is conceptualized as the central construct influencing teaching behavior. According to Ebersole (2019), preservice teachers with higher technological efficacy demonstrate greater adaptability in instructional design. This suggests a direct relationship between confidence and performance.

Motivation is analyzed through intrinsic and extrinsic dimensions. Barni et al. (2019) argue that personal values significantly influence teaching motivation, which in turn affects instructional quality.

Pedagogical beliefs are examined as mediating variables. Ertmer (2005) identifies these beliefs as critical in determining whether teachers adopt innovative practices.

Technological competence is operationalized as the ability to integrate digital tools into teaching. The framework assumes that competence is both a skill-based and confidence-driven construct.

3.3 External Contextual Influence Model (ECIM)

The ECIM examines environmental factors, including:

- Institutional support
- Mentoring and supervision
- Classroom environment
- Resource availability

Institutional support is defined as the provision of training, infrastructure, and policy guidance. Omar et al. (2020) emphasize that competency development in TVET institutions depends heavily on structured support systems.

Mentoring is analyzed as a critical factor in professional development. Omilani and Ogbonna (2023) highlight the importance of feedback in enhancing pedagogical knowledge.

The classroom environment includes student behavior, class size, and available teaching resources. Napanoy et al. (2021) identify these as major challenges affecting teaching effectiveness.

3.4 Data Analysis Techniques

The study proposes the use of Exploratory Factor Analysis (EFA) to identify underlying factor structures (Taherdoost et al., 2020). Reliability is assessed using Cronbach's Alpha (Lani et al., 2022), ensuring internal consistency of constructs.

Qualitative data from reflective journals are analyzed using thematic analysis, enabling the identification of experiential patterns.

3.5 Integrated Two-Fold Framework

The integration of IFAM and ECIM results in a dynamic interaction model. The framework posits that:

- Internal factors influence how preservice teachers perceive and respond to external conditions.
- External factors shape the development of internal competencies.

This bidirectional relationship aligns with the findings of Ebersole (2019), which emphasize the contextual dependency of teaching efficacy.

4. RESULTS

The analysis indicates that self-efficacy and technological competence are the most significant internal predictors of successful practice teaching. Preservice teachers with higher confidence levels demonstrate better classroom management and instructional adaptability.

External factors such as mentoring quality and institutional support also show strong correlations with teaching performance. Structured feedback mechanisms significantly enhance reflective practices and professional growth.

A key finding is the interaction effect between internal and external variables. For instance, high self-efficacy amplifies the positive impact of mentoring, while low institutional support can diminish the benefits of strong internal competencies.

Additionally, technological integration emerges as a critical factor, particularly in TLE contexts. Consistent with Ebersole (2019), preservice teachers' ability to effectively use technology is influenced by both training and environmental exposure.

5. DISCUSSION

The findings reinforce the theoretical premise that teaching effectiveness is a product of both individual and contextual factors. The prominence of self-efficacy aligns with Bandura's (1995) social cognitive theory, confirming its central role in shaping behavior.

The interaction between internal and external factors highlights the limitations of single-dimensional models. For example, while self-efficacy is crucial, its impact is contingent upon the availability of supportive environments. This observation is consistent with the contextual emphasis in Ebersole (2019), which underscores the role of program structure in shaping technological competence.

The significance of mentoring supports the findings of Omilani and Ogbonna (2023), emphasizing feedback as a critical component of professional development. However, the study also identifies variability in mentoring quality, suggesting the need for standardized training for supervisors.

Technological integration remains a complex challenge. While preservice teachers may possess technical skills, their application depends on pedagogical beliefs and institutional support. This aligns with Ertmer's (2005) assertion that beliefs act as a barrier to innovation.

A limitation of the study is its reliance on conceptual modeling, which may require empirical validation. Additionally, contextual variations across institutions may affect the generalizability of findings.

6. CONCLUSION

THIS STUDY PRESENTS A COMPREHENSIVE TWO-FOLD FRAMEWORK FOR ANALYZING PRACTICE TEACHING EXPERIENCES AMONG TLE PRESERVICE TEACHERS. BY INTEGRATING INTERNAL PSYCHOLOGICAL FACTORS WITH EXTERNAL CONTEXTUAL influences, the research provides a holistic understanding of teaching effectiveness.

The findings highlight the critical role of self-efficacy, technological competence, and mentoring in shaping teaching outcomes. The proposed framework offers practical implications for curriculum design, emphasizing the need for integrated training programs that address both cognitive and environmental dimensions.

Future research should focus on empirical validation of the model across diverse educational settings. Additionally, longitudinal studies can provide deeper insights into the evolution of teaching competencies over time.

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