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Modifying the Experiential Learning Model to Improve Pedagogical Competence in Teacher Candidates

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Abstract

This study presents a modified Experiential Learning (EL) model designed to improve the pedagogical competence of pre-service teachers. Building on Kolb's framework, the revised model integrates structured learning objectives, reflective problem-solving strategies, and abstraction ontology to enhance metacognitive, creative, and metaliteracy skills. The model emphasizes authentic classroom engagement through active experimentation and guided reflection. Developed through a systematic literature review, it offers a structured and adaptable approach for teacher education programs. While the model demonstrates theoretical potential, further empirical testing is needed to validate its effectiveness in real-world settings. This innovation contributes to the development of experiential learning frameworks that align with contemporary educational demands.

Keywords: *Experiential Learning; Pedagogical competence; Pre-service teachers; Learning model.*

INTRODUCTION

Improving the quality of education remains a top priority in human resource development within the dynamic era of globalization. One of the key factors determining the success of an educational system is the quality of teachers, particularly pre-service teachers undergoing professional teacher education programs. In this context, pedagogical competence—encompassing the ability to design and implement instruction, assess learning outcomes, and manage learning effectively—constitutes a foundational element for successful educational processes (Amsal, 2023). However, numerous studies indicate that many pre-service teachers have not yet fully mastered these competencies, necessitating the development of innovative learning models to enhance their pedagogical proficiency.

Innovative learning models play a crucial role in preparing pre-service teachers to adapt to evolving educational needs within diverse and dynamic learning environments (Avdiu & Holzinger, 2022). According to (Kivunja, 2014), the implementation of appropriate learning strategies can enhance learners' metacognitive awareness, enabling them to independently plan, monitor, and evaluate their own learning processes. Furthermore, (Wilson, 2011) emphasizes the importance of cultivating creative thinking skills and metaliteracy—the ability to critically and

innovatively process, analyze, and apply information. Through such approaches, learners are not only expected to grasp theoretical concepts but also to apply them practically using higher-order thinking skills. At the tertiary education level, learners are expected to demonstrate more complex abstract reasoning and broader perspectives in line with their cognitive maturity and developmental stage (Gotlieb et al., 2024; Larson et al., 2014).

Nevertheless, efforts to introduce learning innovations in higher education face increasingly complex challenges. A major issue lies in the implementation of Project-Based Learning (PjBL) and Problem-Based Learning (PBL) as mandated by the 2020 Indonesian Higher Education Curriculum Guidelines. While both approaches offer distinct advantages, their repetitive and uniform application across various courses risks causing learner fatigue and reduced motivation due to insufficient methodological variation. This condition not only hinders active learner engagement but also negatively affects the achievement of higher-order cognitive outcomes, such as metacognitive skills, creative thinking abilities, and mastery of metaliteracy. Therefore, it is essential to explore and develop alternative learning models capable of introducing diversity into teaching methods and stimulating the motivation and active participation of pre-service teachers.

Experiential Learning (EL) is an instructional model that provides learners with real-life experiences to better understand complex and abstract learning principles (Joyce et al., 2015). As an effective teaching method, EL facilitates active learning by engaging learners directly in authentic situations, allowing them to interact, critically evaluate content, and connect academic topics to real-world contexts (Boggu & Sundarsingh, 2019; Butler et al., 2019). Research has shown that the learning cycle in EL significantly contributes to the enhancement of learners' metacognitive skills, supporting their ability to independently plan, monitor, and evaluate their learning processes (Dessie et al., 2023; Medina et al., 2017; Tanaka et al., 2016). Moreover, EL not only improves technical skills but also strengthens creative thinking capabilities by providing space for idea exploration and innovation in problem-solving (Ayob et al., 2011; Habib et al., 2021).. Positive learning experiences through EL can also boost learners' motivation and enthusiasm, thereby promoting active engagement in the learning process (Boncu, 2016).
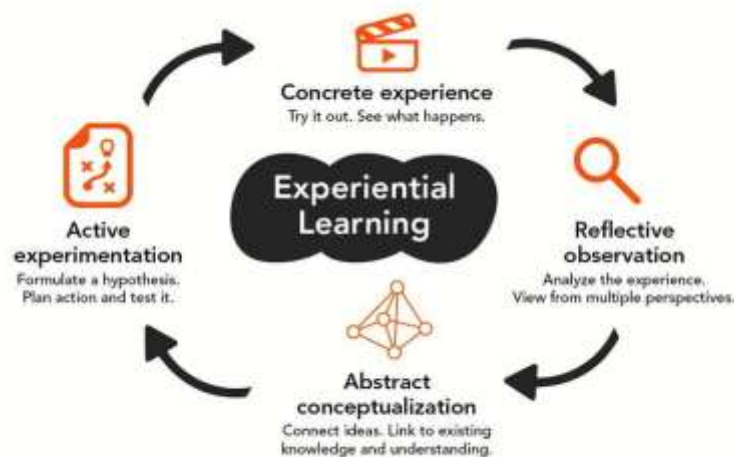

Figure 1. Stages of Experiential Learning
Source: https://highlandexperience.co.id/siklus-experiential-learning

Despite its widespread use, previous research indicates that Kolb's Experiential Learning (EL) model still requires refinement to enhance its effectiveness, as the original structure of the learning stages is considered too generic (Egan et al., 2023). One major limitation lies in the Concrete Experience stage, which, in Kolb's original model, lacks clarity in its implementation. This stage should emphasize active learner participation, contextual knowledge integration, and critical reflection as a key mediator in fostering meaningful learning experiences (Morris, 2020). Similarly, (Hassane Kemouss et al., 2023) argue that there is a need for clearer transitions between concrete experience and abstract conceptualization. Without a more structured approach at the

initial learning stage, learners often struggle to connect direct experiences with broader theoretical concepts.

(Matsuo & Nagata, 2020) emphasize that revisions to the EL model should also consider its effectiveness in facilitating unlearning —the process of discarding outdated or incorrect understandings—which is a crucial aspect of dynamic learning environments. In line with this, (Beard, 2022) asserts that modifications to the EL model must take into account the specific needs of learners to make it more adaptive and responsive to diverse educational contexts. Therefore, refining the EL model aims not only to improve the effectiveness of its learning stages but also to ensure that learners can better internalize experiences and apply them across various learning situations.

Given these critiques, modifications to the EL learning stages are necessary to align the model with contemporary educational demands and provide a clearer, more flexible, and inclusive framework. Studies by (Miller & Maellaro, 2016) demonstrate that refining the EL stages can enhance learning outcomes and receive positive responses from learners. Appropriate modifications can ensure that experiential-based learning becomes more structured, relevant, and effective in achieving educational goals, including improvements in metacognitive abilities, creative thinking, and metaliteracy.

As part of ongoing efforts to improve EL, several studies have introduced adaptations to the original model. Kolb and Kolb (2005) developed the concept of learning space , emphasizing the importance of a supportive learning environment that accommodates diverse learning styles to enhance learner experiences. Additionally, Yardley, Teunissen, and Dornan (2012) confirmed the significant role of social interaction in EL in creating more effective learning experiences, particularly in collaborative settings. (Moon, 2013) further expanded the EL model by incorporating the concept of deep reflection , enabling learners to more effectively link practical experiences with theoretical knowledge. Moreover, Beard and Wilson (2013) introduced notable modifications by highlighting the role of emotional aspects in experiential learning, finding that emotionally engaging experiences significantly impact learners' understanding and knowledge retention.

In the context of EL, the clarity of learning objectives and the refinement of learning stages remain areas requiring further attention. As described by (Kolb, 1984) is an experience-based learning process in which learners actively construct knowledge through a cycle of concrete experience, reflective observation, abstract conceptualization, and active experimentation. However, one of the primary challenges in implementing EL is the lack of clarity in communicating learning objectives, which may lead learners to struggle in understanding the direction and expected outcomes of the learning process (Kolb, 2015b). (Moon, 2013) underscores that structured reflection within EL plays a vital role in enhancing understanding and knowledge retention; however, without clear objectives, such reflection may become ineffective or deviate from intended learning outcomes. Therefore, modifications to the EL stages should prioritize clearly defined objectives from the outset and refine the experiential learning process to be more goal-oriented and relevant to learners. Research by (Yardley et al., 2012) also shows that more structured, goal-directed experiential learning can significantly improve the effectiveness of experiential education, especially in professional training contexts.

Based on this background, this study addresses the existing gap in the application of the experiential learning model in the development of pre-service teachers' pedagogical competencies. The innovation (novelty) of this research lies in the design and implementation of a modified experiential learning model specifically tailored to enhance the pedagogical competence of future educators. Unlike previous studies that have generally applied the EL model in non-educational contexts or without specific customization, this research will develop a model explicitly designed to meet the developmental needs of prospective teachers. The integration of innovative instructional strategies—such as blended learning, project-based learning, and peer-assisted teaching—will form integral components of the proposed model. Furthermore, this study

will evaluate the long-term impact of the model's implementation on the readiness of pre-service teachers to face the dynamic challenges of contemporary and future educational landscapes.

The primary objective of this research is to identify a structured and systematic sequence of learning stages within the Experiential Learning model that can be effectively implemented in pre-service teacher education programs. The developed model is expected to serve as a practical guide for educational institutions aiming to enhance the pedagogical competencies of future teachers through meaningful and contextually relevant learning experiences aligned with current and emerging professional demands.

METHODS

This study employs a library research (literature review) approach as its primary method, grounded in the rationale that the development of an innovative learning model requires a strong theoretical foundation and a critical examination of previously developed concepts and instructional practices. This method is particularly suitable for identifying weaknesses in the existing Experiential Learning (EL) models, exploring potential modifications, and designing a developmental framework relevant to the needs of pre-service teachers in enhancing their pedagogical competence (Boote & Beile, 2005).

Data collection was conducted through the systematic search and selection of scholarly sources from various academic literatures, including indexed national and international journals, textbooks authored by experts, conference proceedings, reports of prior research, and relevant educational policy documents. Primary sources were drawn from recent empirical research articles addressing the concept and implementation of Experiential Learning in teacher education, such as those published in the Science Direct, SAGE, Wiley Online Library, Taylor and Franchise, Google Scholar, Scopus. Secondary sources included digital instructional materials, official educational websites such as those of the OECD and UNESCO, and evaluation reports of teacher education programs. Source selection was based on criteria of validity, relevance, and alignment with the research focus—namely, the development of pedagogical competence through experience-based learning (Galvan & Pyrczak, 2024).

Following data collection, qualitative analysis was carried out through several stages. First, data reduction was performed to filter the most relevant and significant information related to EL concepts, challenges in its implementation among pre-service teachers, and efforts toward modifying the learning model (Creswell & Poth, 2024). Second, data display was conducted by organizing findings into conceptual narratives, comparative matrices across models, or logical flowcharts outlining the developmental process. Third, data verification was achieved through source triangulation—comparing information from multiple literature sources to ensure accuracy, precision, and objectivity of findings (Merriam & Tisdell, 2016).

Subsequently, the findings were synthesized into an original, innovative, and adaptive framework for developing a learning model. This framework includes modifications to the stages of the EL cycle to make them more responsive to the needs of pre-service teachers in improving pedagogical competence, such as lesson planning, interactive teaching implementation, media utilization, and authentic assessment. The synthesis process was guided by principles of experiential learning model development that emphasize real-life experiences, deep reflection, and direct application within the context of teacher education (Joyce et al., 2015; Kolb, 2015a).

Thus, through a systematic literature review and critical analysis of various sources, this study aims to produce a learning model that can serve as a reference for teacher education institutions in enhancing the quality of pre-service teachers through meaningful and applicable learning experiences.

FINDING AND DISCUSSIONS

The Experiential Learning (EL) model was first introduced by David Kolb in 1984 through a four-stage learning cycle, which is structured into two main dimensions: dialectical experience and modes of transforming experience. The dimension of *dialectical experience* encompasses

Concrete Experience and *Abstract Conceptualization* , while the *modes of transforming experience* consist of *Reflective Observation* and *Active Experimentation* . These four stages are interrelated and form a continuous learning cycle, where learners begin by directly experiencing an event (*Concrete Experience*), followed by reflecting on that experience (*Reflective Observation*), developing concepts or theories based on the reflection (*Abstract Conceptualization*), and finally testing these concepts through action or experimentation (*Active Experimentation*).

This model emphasizes the importance of experiential-based learning, wherein knowledge is constructed through the dynamic interaction between concrete experiences and abstract thinking. According to Kolb (1984), effective learning occurs when individuals are able to integrate all four stages in a balanced manner, allowing them to continuously grow and adapt when facing new situations.

In practice, EL does not merely focus on content delivery but also promotes active interaction among learners as well as between classroom and real-world learning environments (Kolb, 2015b). (Beard & Wilson, 2006) argue that EL creates meaningful connections between the learning process and real-life contexts, thereby fostering deep and relevant learning experiences. Reigeluth & Carr-Chelman (2009) outline three core principles of EL: (1) *Framing the Experience* , in which educators establish initial goals, context, and direction; (2) *Activating Experience* , where learners engage directly in authentic learning activities; and (3) *Reflecting on Experience* , involving deep reflective processes to evaluate and internalize the meaning derived from the experience. These three principles provide a strong foundation for the effective and holistic implementation of EL.
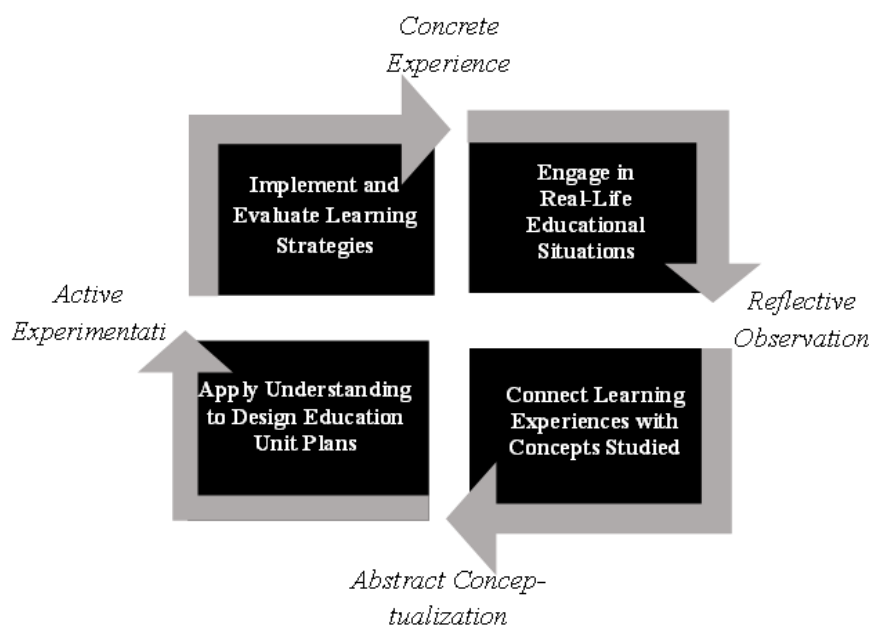

Figure 2. Experiential Learning in Pre-Service Teacher Education Programs

However, a review of the literature reveals that the original EL model has certain limitations when applied to pre-service teacher education. One key issue is the lack of clarity in communicating learning objectives at the beginning of the learning process. To address this, this study modifies the initial stage of the EL cycle by incorporating a phase in which clear learning objectives are communicated to learners during the *Concrete Experience* stage. While (Mitchell & Manzo, 2018) argue that the use of explicit learning objectives may not always influence learner performance, several studies—including (Reed, 2012), (Sewagegn, 2020), (Barnard et al., 2021; Orr et al., 2022) have found that this phase enhances learner motivation, provides clearer structure to the learning process, and supports better preparation for engaging with content and assessments.

In addition, modifications were made to the *Reflective Observation* stage by integrating the *Root Cause Problem Solving (RCPS)* method with the *5 Whys* technique. This modification aims to help learners grasp problems more deeply, evaluate root causes, and design applicable solutions. Research by (Miller & Maellaro, 2016) indicates that this approach significantly improves both the effectiveness of learning and overall learning outcomes.

The Experiential Learning (EL) model was adapted in this study to enhance its efficacy in developing the pedagogical competence of pre-service teachers through refinements in each stage of the learning cycle. In the modified EL model, the *Concrete Experience* stage is enriched with a new element: the explicit communication of learning objectives, which was not clearly articulated in Kolb's original EL framework. By presenting these objectives at the onset of experiential engagement, pre-service teachers receive clear direction regarding the competencies and learning outcomes expected. This helps them understand the context of the learning activity and increases their motivation and engagement throughout the process.

Following this, pre-service teachers engage in authentic *classroom research*, an activity designed to allow them to observe real-life classroom dynamics, analyze student interactions, and explore relevant teaching strategies in realistic situations. An inductive approach serves as a bridge between the *Concrete Experience* and *Reflective Observation* stages, guiding learners to identify patterns, formulate generalizations based on observations, and develop reflective questions that form the basis for further analysis. During the *Reflective Observation* stage, pre-service teachers are guided to reflect deeply on their experiences using two main approaches: (1) *Root Cause Analysis* employing the RCPS method combined with the *5 Whys* technique, and (2) *Group Reflection* . These approaches support the identification of underlying educational issues, evaluation of actions taken, and development of systematic solutions.

In the *Abstract Conceptualization* stage, conceptualization is facilitated through an abstraction-based approach grounded in *Abstraction Ontology* (Leppänen, 2007). This framework offers a systematic way to understand abstract principles such as classification, generalization, and composition. It assists learners in simplifying complex educational concepts and linking them to relevant pedagogical theories.

The final stage, *Active Experimentation* , involves applying the developed concepts in real-world contexts, such as implementing lesson plans in classrooms or educational laboratories. This stage not only tests theoretical knowledge but also evaluates the effectiveness of selected instructional strategies. At this point, pre-service teachers are guided through a final reflection using the *4F method* (Fact, Feeling, Finding, and Future), which encourages comprehensive self-assessment and future-oriented thinking.

Based on these modifications, a revised syntactic framework of the experiential learning model was developed, tailored specifically to the needs of pre-service teacher education. The revised model is illustrated in **Figure 3** below.
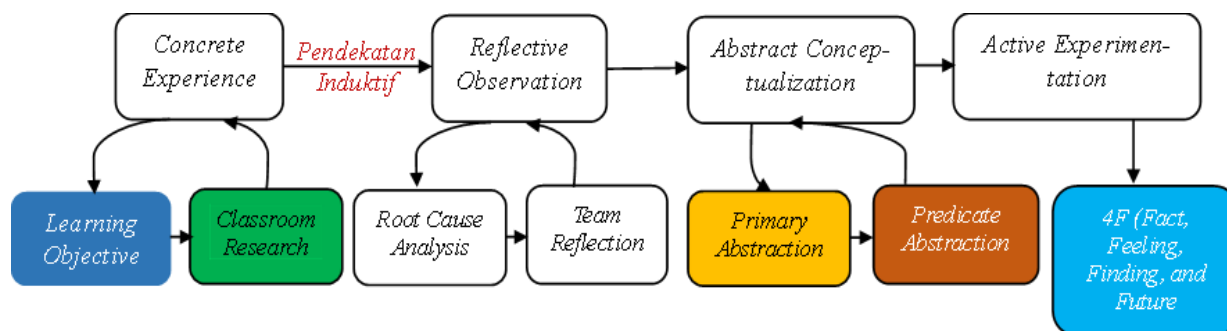

Figure 3. Modified Experiential Learning Model (Miller & Maellaro, 2016)

As a structured instructional model, the modified Experiential Learning (EL) framework consists of several essential components—syntax, reaction principles, social system , and support

systems —that work in synergy to produce meaningful instructional outcomes (Joyce et al., 2015). These outcomes include improvements in learners' metacognitive abilities, creative thinking skills, and metaliteracy. Furthermore, the model also generates complementary impacts by enhancing the professional competence of pre-service teachers.

The learning syntax outlines a systematic sequence of instructional steps that guide the experiential learning process. Each phase is carefully designed to facilitate active engagement, critical reflection, conceptual understanding, and practical application of pedagogical knowledge. The principles of reaction shape learner responses and interactions throughout the process, promoting reflective dialogue, problem-solving behavior, and self-directed learning. The social system encompasses group dynamics and collaborative interactions among participants, fostering peer learning, shared responsibility, and collective knowledge construction. Meanwhile, the support system includes the tools, resources, and technological platforms that enhance the implementation of the model and ensure its adaptability across different learning environments.

The integration of these four components creates a holistic, adaptive, and effective learning experience that not only improves the quality of instruction but also better prepares learners to face academic and professional challenges in dynamic educational settings.

CONCLUSION

This study successfully developed a modified Experiential Learning (EL) model tailored to enhance the pedagogical competence of pre-service teachers. The revised model integrates four key components—learning syntax, reaction principles, social system, and support systems—designed to foster metacognitive abilities, creative thinking, and metaliteracy among learners. By refining the original EL stages, particularly through the introduction of explicit learning objectives in Concrete Experience , the application of Root Cause Problem Solving with 5 Whys in Reflective Observation , and the use of abstraction ontology in Abstract Conceptualization , the model provides a more structured and goal-oriented framework for teacher education programs. The implementation of this model has demonstrated potential in improving both instructional outcomes and the professional readiness of future educators.

Despite these contributions, this study has several limitations. First, as a conceptual development based on literature review and theoretical synthesis, the model has not yet undergone comprehensive empirical validation through classroom implementation or large-scale testing. Second, the contextual adaptation focused primarily on higher education settings in Indonesia, which may limit its generalizability to other educational systems or cultural contexts. Third, while the integration of blended learning strategies was proposed as part of the model, further investigation is needed to assess their effectiveness in enhancing learner engagement and pedagogical outcomes.

Future research should focus on the practical implementation of the modified EL model in real-world teacher education settings. Empirical studies involving experimental designs, longitudinal assessments, and comparative analyses across different institutions and countries are necessary to validate the model's effectiveness and adaptability. Additionally, exploring the role of digital tools and artificial intelligence in supporting experiential-based teacher training could provide valuable insights into modernizing pedagogical development. Further investigation into how the model affects long-term teaching performance and classroom practice would also contribute significantly to the field of teacher education.

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