



Exploration of Teachers' Competencies in Welcoming Deep Learning Based on Mindful, Meaningful, and Joyful Learning (MMJ)

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ABSTRACT

Keywords:

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This study aims to explore teachers' competencies in addressing students' learning needs within the implementation of the Kurikulum Merdeka and to identify essential competencies for supporting deep learning practices. The study employed a mixed-method approach with exploratory qualitative dominance. Data were collected through closed-ended questionnaires administered to 40 teachers, in-depth interviews with 5 teachers, and a literature review examining trends in the implementation of the Kurikulum Merdeka. The findings reveal that teachers positively perceive the flexibility offered by the curriculum; however, they still encounter difficulties in designing learning experiences that integrate mindful, meaningful, and joyful learning principles. The study identified six key competencies that need strengthening to support effective deep learning implementation: critical thinking, empathy, reflection, collaboration, adaptation, and humanization. These findings indicate that teachers require a more contextual, reflective, and value-based competency development approach. The study proposes the BERKAH framework as a conceptual model for strengthening teacher competencies in deep learning practices. The implications of this study highlight the importance of developing teacher professional training programs grounded in the BERKAH framework to enhance the quality of elementary education. Further research is recommended to validate and test the effectiveness of the framework in broader educational contexts.

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INTRODUCTION

The rapid development of information technology, globalization, and the disruption era has transformed educational orientations worldwide, including in Indonesia. Education is no longer limited to knowledge transfer but also aims to develop critical thinking, creativity, collaboration, communication, and socio-

emotional competencies required in the twenty-first century. Society increasingly demands individuals who are adaptive, reflective, and capable of solving complex problems. In response, Indonesia introduced the Kurikulum Merdeka, emphasizing learning flexibility, student-centered pedagogy, and character development. The curriculum promotes meaningful learning integrating cognitive, affective, and social dimensions simultaneously. Previous studies showed that educational transformation becomes more effective when supported by teacher readiness and pedagogical innovation (Permatasari et al., 2025). In addition, integrating twenty-first century competencies has become central in modern educational systems (Montessori et al., 2023; Dahlia et al., 2025). Therefore, strengthening teachers' competencies in implementing deep learning is essential to support holistic and socially responsible student development.

Despite its progressive vision, the implementation of the Kurikulum Merdeka still faces substantial challenges, particularly at the elementary school level. Teachers are expected to design differentiated, reflective, and contextual learning experiences while integrating character education and twenty-first century competencies into instruction. However, many teachers still experience difficulties in translating curriculum principles into meaningful pedagogical practices. Learning activities remain dominated by teacher-centered instruction and achievement-oriented assessments emphasizing memorization and measurable outcomes rather than critical reasoning, empathy, and reflective awareness. Previous studies revealed obstacles related to pedagogical adaptation, digital literacy, and authentic assessment implementation (Nirzam & Ramadhan, 2023; Malukah et al., 2022). Moreover, successful curriculum transformation strongly depends on teachers' understanding of students' holistic learning needs, including emotional and social development (Atmojo et al., 2025). Consequently, the gap between curriculum expectations and classroom realities demonstrates the urgent need for competency frameworks supporting teachers in implementing deep learning effectively.

Field conditions further reveal diverse teacher responses toward the implementation of the Kurikulum Merdeka. Some teachers positively perceive the curriculum because it provides greater flexibility for instructional innovation. Nevertheless, many still feel confused about designing learning activities that explicitly promote deep learning values and humanistic educational principles. Interview findings indicate that teachers need practical guidance and contextual pedagogical models that are easier to apply in classrooms. This issue is crucial because elementary education forms the foundation of students' learning habits, critical thinking, and character development (Manalu & Bahari, 2024). Unfortunately, classroom practices still emphasize cognitive achievement without adequately integrating reflective, emotional, and social dimensions. Teachers therefore play a central role in transforming curriculum policies into

meaningful educational experiences. Similar findings by Irfanuddin et al. (2025) showed that teachers still face limitations in comprehensively understanding deep learning implementation. These challenges indicate that curriculum flexibility alone is insufficient without sustainable pedagogical support and competency development.

Several previous studies have discussed the implementation of the Kurikulum Merdeka and emphasized the importance of twenty-first century competencies in contemporary education. Research by Ahmed Alismail (2023) and Falloon (2024) highlighted that effective twenty-first century learning requires the integration of critical thinking, collaboration, communication, creativity, and digital literacy within classroom instruction. Other studies demonstrated that Problem Based Learning and Project Based Learning support constructivist learning processes and improve students' critical thinking skills (Eja, 2023). Furthermore, research related to deep learning showed positive impacts on students' conceptual understanding, engagement, and contextual knowledge application (Everett, 2024; Wahyuni et al., 2022; Wu, 2024). Studies on the Kurikulum Merdeka also reported that teachers generally support curriculum flexibility but still experience challenges in implementing value-based and affective learning approaches (Hafidhi et al., 2024; Sunarni & Karyono, 2023). Although these studies provide important insights, most focus primarily on instructional models, technological integration, or curriculum perceptions, while limited attention has been given to mapping transformative teacher competencies needed to implement deep learning comprehensively at the elementary school level.

Previous literature also emphasized the importance of humanistic and reflective pedagogical approaches in meaningful learning. Humanization theory explains that education should develop students intellectually, emotionally, and socially through empathetic and dialogical learning environments (Spear et al., 2022; Camangian & Cariaga, 2022). Habsy et al. (2023) argued that students should be viewed as active subjects constructing understanding through reflective interactions and meaningful experiences. Liang et al. (2025) further explained that transformative learning requires critical reflection and deep dialogue to shape students' perspectives and social awareness. Recent studies also highlighted the importance of competency-based curriculum designs balancing technical competence with reflective and value-oriented dimensions (Stek et al., 2025). Moreover, humanistic perspectives within the Kurikulum Merdeka emphasize integrating empathy, character, and social awareness into learning (Wibowo & Salfadilah, 2025). Nevertheless, previous research has not formulated an integrated competency framework connecting critical thinking, empathy, collaboration, adaptation, and humanization within deep learning practices at the elementary level.

This study offers a new perspective by proposing an initial transformative competency framework specifically designed to strengthen deep learning practices in elementary schools. The novelty of this research lies in the integration of six essential competency dimensions consisting of critical thinking, empathy, reflection, collaboration, adaptation, and humanization into a unified pedagogical framework called BERKAH. Unlike previous studies that mainly focused on technical instructional strategies or curriculum implementation barriers, this study positions teacher competence as a holistic and value-based construct that connects cognitive, affective, and social dimensions simultaneously. The framework is expected to provide a more contextual and reflective approach for teachers in responding to the demands of the Kurikulum Merdeka. This issue is important to address because the success of curriculum transformation depends not only on policy reform but also on teachers' capacity to create meaningful learning experiences that humanize students and foster sustainable character development within rapidly changing educational environments.

Based on these considerations, this study seeks to answer two main research questions: (1) how are teacher competency priorities mapped in the implementation of the Kurikulum Merdeka, and (2) how can a transformative pedagogical framework be designed to support deep learning practices in elementary schools? This research argues that effective implementation of the Kurikulum Merdeka requires competencies that extend beyond technical pedagogy and include reflective, empathetic, collaborative, and humanistic dimensions. The study assumes that strengthening these competencies will enable teachers to create learning environments that balance academic mastery with emotional and social development. Furthermore, this research contributes theoretically by developing a conceptual framework for transformative teacher competence and contributes practically by providing an alternative model for teacher professional development in elementary education. The findings are expected to support educational stakeholders in designing more contextual, sustainable, and value-oriented learning policies that strengthen the implementation of deep learning within the Kurikulum Merdeka.

RESEARCH METHODS

This study uses a mixed method approach with exploratory qualitative dominance, to deeply understand the perception of elementary school teachers on the need for competency development in the implementation of the Kurikulum Merdeka. This approach was chosen in order to combine the power of quantitative data in describing general perception trends, and qualitative data to capture more contextual, narrative, and profound meaning. The exploratory

focus of this study is directed at how teachers understand learning challenges with a deep learning approach, and strengthened by a study of the trends of scientific publications regarding deep learning in primary education. This exploratory process is continued by formulating indicators of the competence of elementary school teachers in implementing learning and mapping the relationship between indicators and the principles of deep learning. Furthermore, a framework for implementing harmonized deep learning will be proposed.

The location of the research is in West Java Province, with the subject of the study being elementary school teachers who have implemented the Kurikulum Merdeka. The sampling technique was carried out by purposive sampling, with the following criteria: (1) teachers active in the classroom; (2) experienced in the implementation of the Kurikulum Merdeka; and (3) be willing to participate in surveys and interviews. A total of 40 teachers were involved in filling out a closed questionnaire, and of these, 5 teachers were selected to be interviewed in depth based on the diversity of school organizers (public and private), class level, and social background. Data collection was carried out through two main techniques, namely: a quantitative questionnaire on a Likert scale of 1–5 and a semi-structured interview. The questionnaire was prepared to measure teachers' perceptions of various aspects in the implementation of the Kurikulum Merdeka, especially related to deep learning. The main indicators in the questionnaire include the perception of the freedom to design learning, the difficulty of balancing the cognitive-affective aspects, and the need for a more explicit learning approach touching on the values of empathy, reflection, and social character. The questionnaire also includes teachers' readiness to accept a new, more humanistic approach. Scores are analyzed descriptively quantitatively through percentages and average values.

Meanwhile, interviews are conducted in person and online using semi-structured guidelines. The validity of the data was strengthened through triangulation of methods between the results of the questionnaire and interviews, as well as cross-checking with the literature review curriculum document. With this approach, the research is expected to produce an in-depth and authentic picture of how elementary school teachers understand the need for deep learning in the implementation of the Kurikulum Merdeka. The following is a series of research activities carried out.



RESULTS AND DISCUSSION

Results

Teacher Perceptions toward the Implementation of the Kurikulum Merdeka

This study explored elementary school teachers' perceptions regarding learning needs that balance cognitive and affective dimensions within the implementation of the Kurikulum Merdeka. The data were obtained from questionnaires distributed to 40 teachers and in-depth interviews with five teachers from public and private elementary schools. Questionnaire data were analyzed descriptively, while interview data were analyzed thematically to identify patterns related to teachers' experiences, challenges, and expectations toward deep learning practices.

A total of 40 teachers participated in the questionnaire. Of the respondents, 60% were teachers from private elementary schools, while 40% were from public elementary schools. In addition, 70% of respondents had previously participated in training programs related to the implementation of the Kurikulum Merdeka. Five teachers who participated in the interviews were coded as G-01 to G-05 and represented different institutional backgrounds and grade levels.

The interview findings indicated that teachers generally perceived the Kurikulum Merdeka positively because it provides flexibility in designing learning activities. One participant stated:

“The Kurikulum Merdeka gives freedom in designing learning, but in practice we really need concrete examples and setting the right indicators.” (G-02)

However, teachers also expressed difficulties in implementing learning that integrates cognitive and affective dimensions simultaneously. Another participant explained:

“Affective assessment is difficult because it is not enough just to observe; need help.” (G-01)

These findings indicate that although teachers appreciate the flexibility offered by the curriculum, they still require clearer pedagogical guidance for implementing deep learning practices effectively.

Teacher Challenges in Implementing Deep Learning

The questionnaire and interview results identified several major challenges experienced by teachers in implementing deep learning approaches within the Kurikulum Merdeka. The findings are summarized in the following graph.

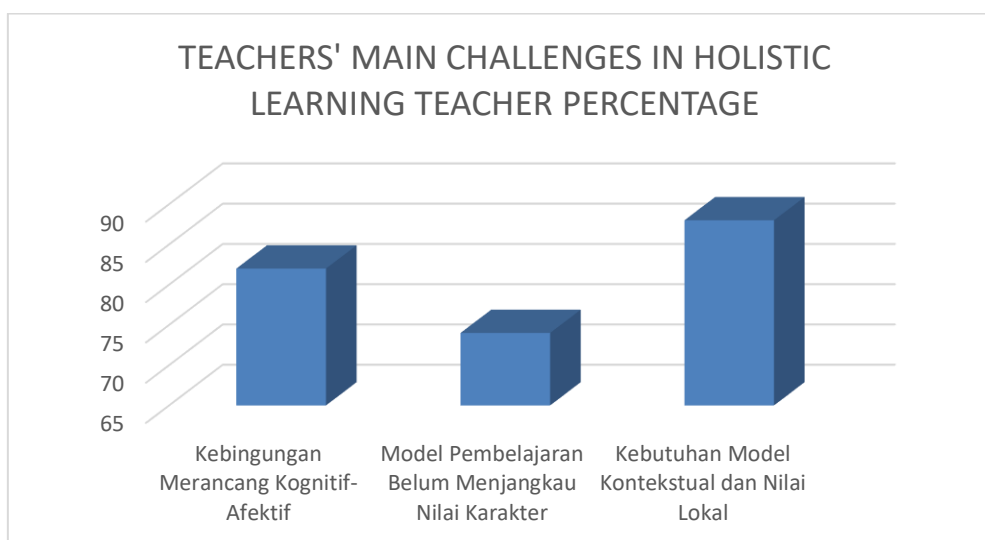


Figure 1. Teacher Challenge Graph

Based on the findings presented in Figure 1, approximately 82% of teachers reported that they still experienced confusion in designing learning activities that balance cognitive and affective aspects in a structured and concrete manner. Teachers stated that cognitive learning outcomes are easier to measure through written assessments, whereas affective dimensions such as empathy, reflection, and social awareness are more difficult to integrate into classroom practices.

Furthermore, 74% of teachers perceived that learning models commonly recommended in the Kurikulum Merdeka, such as Problem Based Learning (PBL) and Project Based Learning (PjBL), have not fully facilitated the development of students' values and character dimensions. Teachers explained that these models often emphasize project outcomes and problem-solving processes without sufficiently encouraging reflective dialogue and contextual internalization of human values.

In addition, approximately 88% of teachers emphasized the need for a pedagogical framework that is more contextual, practical, and value-based. Teachers expected learning approaches that are easier to implement while simultaneously supporting cognitive, emotional, and social development.

Teacher Competency Mapping

The findings revealed that the implementation of deep learning in elementary schools requires competencies that extend beyond content mastery and instructional techniques. The analysis identified several competency priorities considered essential for supporting meaningful and holistic learning practices.

The findings from interviews and questionnaire responses showed that teachers require competencies related to reflective learning, emotional awareness, collaboration, adaptability, and value integration. These competencies are closely associated with the principles of deep learning, particularly mindful learning, meaningful learning, and joyful learning.

Key Competency Indicators

Mindful Learning

The principle of mindful learning refers to teachers' ability to create reflective and conscious learning experiences. Teachers emphasized the importance of developing learning environments that encourage awareness, reflection, and active engagement throughout the learning process. The competency indicators identified in this category include self-reflection skills, awareness of student diversity, and the application of process-oriented learning approaches that prioritize students' learning experiences rather than solely focusing on learning outcomes.

Meaningful Learning

Meaningful learning focuses on teachers' ability to connect learning materials with students' real-life experiences and contextual understanding. Teachers highlighted the importance of designing learning activities that are relevant to students' daily lives and social environments so that learning becomes more applicable and valuable. The competency indicators identified in this category include the ability to relate learning materials to real-life contexts and the ability to encourage active student participation during the learning process.

Joyful Learning

Joyful learning emphasizes the creation of enjoyable and engaging classroom experiences that stimulate students' curiosity and creativity. Teachers considered enjoyable learning environments essential for increasing students' motivation, participation, and enthusiasm for learning. The competency indicators identified include the ability to create enjoyable learning activities, the use of interesting media and technology, the implementation of game-based learning strategies, and the ability to foster students' curiosity and creativity throughout classroom interactions.

Priority Competencies in the Implementation of Deep Learning

The results of the study identified six main competency priorities needed by teachers in implementing deep learning effectively within the Kurikulum Merdeka. The first competency is Critical Thinking, which refers to the ability to encourage students to analyze, evaluate, and synthesize information critically rather than merely memorizing facts. The second competency is Empathy, namely the ability to understand students' feelings and emotional conditions in order to support value-based and student-centered learning. The third competency is Reflection, which emphasizes teachers' ability to continuously evaluate and improve learning practices based on students' needs and classroom experiences.

In addition, the study identified Collaboration as an important competency, referring to the ability to work collaboratively with colleagues and other stakeholders in designing and implementing learning activities. The fifth competency is Adaptation, which reflects the ability to adjust learning strategies according to changing educational challenges and diverse student characteristics. Finally, Humanization was identified as a key competency, highlighting the importance of integrating human values such as tolerance, justice, equality, and respect for diversity into the learning process. Collectively, these competencies are considered essential for supporting transformative and holistic learning practices in elementary schools.

Challenges in the Implementation of Deep Learning

Interview findings further revealed that many teachers still rely on conventional instructional approaches because they feel insufficiently prepared to implement deep learning comprehensively. Teachers explained that they require more intensive training programs and practical examples of how to integrate cognitive, affective, and social dimensions into learning activities.

One teacher stated:

"I feel that it is still difficult to apply the principles of deep learning comprehensively. We often use more traditional methods because we do not yet understand how to incorporate affective and social elements in teaching."

Another teacher explained:

"We need more training to make learning more interactive and touch on the value and social skills aspects of students."

The findings also showed that limited facilities and inadequate technological support remain significant barriers to implementing interactive and meaningful learning practices in elementary schools.

Design of the BERKAH Framework

Teacher Competency Identification and Integration Process

The development of the BERKAH framework was grounded in findings obtained from the literature review, questionnaire responses, and teacher interviews. The analysis indicated that teachers require a competency framework that integrates cognitive, affective, social, and reflective dimensions simultaneously in order to support holistic learning practices. The development process of the BERKAH framework involved several stages, including the identification of teacher competency needs based on empirical findings, the integration of competencies with deep learning principles, and the formulation of competency indicators aligned with the principles of mindful learning, meaningful learning, and joyful learning.

The findings revealed that the BERKAH framework consists of six main competencies: Critical Thinking, Empathy, Reflection, Collaboration, Adaptation, and Humanization. These competencies were identified as essential components for supporting transformative and holistic learning practices in elementary schools, particularly in the implementation of the Kurikulum Merdeka, which emphasizes student-centered, reflective, and humanistic learning approaches.

Table 1. The Connection of the BERKAH Framework with Deep Learning

Components of BERKAH	Description of BERKAH Components	Connectivity with Deep Learning	Principles of Connected Deep Learning
Critical Thinking	Ability to analyze, evaluate, and criticize information and issues in depth.	Deep learning facilitates the development of critical thinking through reflective and evidence-based learning.	Mindful Learning
Empathy	Ability to understand and respond to others' feelings and well-being.	Deep learning encourages emotional and social understanding through contextual interaction.	Meaningful Learning
Reflection	Ability to reflect on learning experiences and personal development.	Deep learning encourages reflective understanding and conceptual awareness.	Mindful Learning & Meaningful Learning
Collaboration	Ability to work with others in achieving shared learning goals.	Deep learning supports social interaction and collaborative problem solving.	Joyful Learning
Adaptation	Ability to adjust learning strategies according to changing situations and challenges.	Deep learning develops flexible and responsive thinking processes.	Mindful Learning

Humanization	Ability to integrate human values such as justice, equality, and respect for diversity into learning.	Deep learning supports meaningful and value-oriented learning experiences.	Meaningful Learning & Joyful Learning
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The findings in Table 1 indicate that the BERKAH framework integrates cognitive, affective, social, and humanistic dimensions into in-depth learning practices and can serve as a conceptual foundation for strengthening teacher competencies in implementing the Independent Curriculum.

Discussion

The findings of this study demonstrate that the implementation of the Kurikulum Merdeka requires teachers to possess competencies that extend beyond instructional and technical abilities. Although teachers positively perceive the flexibility provided by the curriculum, many still experience difficulties in integrating cognitive, affective, and social-emotional dimensions into learning practices. This finding confirms previous studies indicating that curriculum transformation often creates challenges related to pedagogical adaptation and teacher readiness (Hafidhi et al., 2024; Sunarni & Karyono, 2023). The difficulty experienced by teachers in implementing deep learning reflects the broader challenge of transitioning from traditional teacher-centered instruction toward more reflective, student-centered, and transformative learning approaches. At the elementary school level, this issue becomes increasingly important because primary education represents a foundational stage for shaping students' ways of thinking, character, and social awareness. Therefore, the implementation of the Kurikulum Merdeka cannot rely solely on curriculum flexibility, but must also be supported through sustainable competency development and contextual pedagogical guidance for teachers.

The results further indicate that teachers still tend to prioritize measurable cognitive achievement over affective and reflective learning dimensions. This finding aligns with previous studies emphasizing that deep learning implementation in schools is often constrained by limited pedagogical understanding and insufficient professional preparation (Atmojo et al., 2025; Isnayanti et al., 2025). Although learning models such as Problem Based Learning and Project Based Learning are widely promoted in twenty-first century education, teachers in this study perceived that these approaches have not fully facilitated the development of empathy, reflective awareness, and value internalization among students. Previous research also noted that constructivist learning models frequently focus more on project outcomes and problem-solving processes than on students' emotional and social development (Eja, 2023; Jamal

et al., 2024). This study therefore strengthens the argument that deep learning should not merely emphasize active learning activities, but also involve reflective and humanistic pedagogical processes capable of connecting knowledge with students' real-life experiences and social contexts.

Another important finding concerns the strong need for a more contextual and value-based pedagogical framework. Teachers emphasized that they require practical guidance capable of integrating mindful learning, meaningful learning, and joyful learning into classroom instruction. This finding supports the humanistic learning perspective, which views education as a process of developing students holistically through empathy, reflection, and meaningful interpersonal interaction (Habsy et al., 2023). Similarly, Adiba et al. (2023) highlighted the importance of value-based education in strengthening inclusive and character-oriented learning environments. In this context, the implementation of deep learning becomes closely related to teachers' abilities to create learning experiences that humanize students rather than merely transmitting academic content. The findings also reinforce arguments from Falloon (2024) and Ahmed Alismail (2023) that twenty-first century learning effectiveness depends not only on technology integration, but also on pedagogical designs that encourage critical thinking, collaboration, communication, and reflective engagement among learners.

This study contributes theoretically by proposing the BERKAH framework as a transformative competency framework that integrates six essential competencies: critical thinking, empathy, reflection, collaboration, adaptation, and humanization. The framework expands previous discussions of teacher competence by combining cognitive, affective, social, and reflective dimensions into a unified pedagogical model. Previous studies on deep learning and teacher competence have generally discussed these competencies separately or focused primarily on technological and instructional aspects (Wu, 2024; Everett, 2024). In contrast, this study conceptualizes teacher competence as a holistic construct that supports the implementation of deep learning within the context of the Kurikulum Merdeka. The BERKAH framework also provides a conceptual bridge between deep learning principles and humanistic educational values by emphasizing the integration of mindful learning, meaningful learning, and joyful learning into classroom practices. Consequently, this study contributes to the growing discourse on transformative pedagogy and holistic teacher competency development in elementary education.

The novelty of this study lies in the development of an integrative competency framework specifically designed to support deep learning implementation in elementary schools within the context of the Kurikulum Merdeka. Unlike previous studies that mainly focused on curriculum

implementation challenges, instructional models, or digital learning readiness, this research introduces BERKAH as a contextual and value-oriented framework grounded in teachers' real pedagogical needs. The framework positions empathy, reflection, and humanization alongside critical thinking and collaboration as equally important competencies for twenty-first century teachers. This perspective represents a shift from competency models that predominantly emphasize technical and cognitive dimensions toward a more transformative and human-centered educational approach. In addition, the study highlights that effective deep learning requires not only innovative methods but also teachers' reflective awareness and capacity to connect learning with students' emotional and social realities.

Practically, the findings imply that teacher professional development programs should move beyond procedural curriculum training and focus more on reflective, contextual, and humanistic pedagogical competencies. Teachers require sustained mentoring, collaborative professional learning environments, and practical examples of how to integrate affective and social dimensions into classroom instruction. Educational policymakers and institutions may therefore utilize the BERKAH framework as a reference for designing competency-based training programs aligned with the principles of the Kurikulum Merdeka. Furthermore, this study provides an initial foundation for future research to validate and operationalize the BERKAH framework in broader educational contexts. Further studies are recommended to examine the effectiveness of the framework in improving teacher competence, student engagement, and holistic learning outcomes across different educational settings.

CONCLUSION

The results of this study show that elementary school teachers show high awareness of the importance of learning that balances cognitive and affective aspects, but face difficulties in implementing them concretely. Mapping of teacher competencies that are significant in the implementation of the Kurikulum Merdeka. Most teachers need an explicit pedagogical framework that can help teachers translate the principles of the Kurikulum Merdeka into holistic, humanistic, and transformative learning practices. These results confirm that the success of the Kurikulum Merdeka does not only depend on the flexibility of the curriculum structure, but also on the competence of teachers in managing learning in the classroom. From the results of thematic analysis and literature review, this study finds the need for a new pedagogical framework that can bridge the gap between the concept of the Kurikulum Merdeka and teacher

learning practices in elementary schools. The framework was developed through the process of analyzing teachers' competency needs and integrating deep learning principles rooted in three main principles, namely mindful learning, meaningful learning, and joyful learning.

This integration process resulted in the design of the BERKAH framework, an acronym for Critical Thinking, Empathy, Reflection, Collaboration, Adaptation, and Humanization, which reflects the key competencies of teachers in learning ranging from helping teachers lead students to analyze and reflect on problems in depth, fostering social sensitivity and emotional connection of students to their environment, encouraging teachers and students to learn through self-awareness and experience, creating a space for interaction and learning that is fun, having a responsive attitude to new changes and challenges, to the ability to ensure learning is rooted in human values and social justice.

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