International Journal of Technology and Education Research

https://e-journal.citakonsultindo.or.id/index.php/IJETER

E-ISSN: 2986-0733

Teacher Competencies In Implementing Deep Learning In Enjoyable Learning

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Abstract

21st-century education demands that teachers possess competencies that are not only academic but also adaptive to the dynamics of deep learning. This study aims to expand on how teacher competencies influence the successful implementation of a deep learning approach in creating a fun learning environment. This study used a qualitative method with a literature review approach of more than 20 scientific articles and proceedings published between 2016 and 2025. Data collection techniques were carried out through systematic searches, and data were analyzed using thematic analysis based on narrative synthesis. The results of the study indicate that strategies such as meaningful learning, project-based learning, reflective discussions, and student collaboration can increase emotional engagement, curiosity, and long-term understanding of students. The shift in the role of teachers as facilitators is a key factor in success, although challenges such as lack of training and gaps between policy and practice remain. This study contributes to strengthening the theoretical basis of deep learning and provides practical direction for teachers and policymakers. It is recommended that further empirical research be conducted using a participatory approach to enrich understanding of the effectiveness of deep learning strategies in real-world contexts.

Keywords: Teacher Competence, Deep Learning, Implementation, Fun Learning

INTRODUCTION

Education plays a strategic role in producing superior, adaptive, and competitive human resources in the era of globalization. Within the education system, teachers are key actors in determining the quality of learning processes and outcomes. Therefore, teacher competence is

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a crucial variable in improving educational quality. Teacher competence encompasses not only pedagogical and professional skills but also social and personality aspects, as stipulated in Regulation of the Minister of National Education of the Republic of Indonesia Number 16 of 2007 (Ummah & Fauziah, 2021). However, the challenges teachers face in practice are increasingly complex along with technological developments, curriculum changes, and increasing administrative and social demands (Saiful, 2021) .

The world of education continues to evolve to meet the demands of the 21st century, where learning success is measured not only by academic achievement but also by students' active engagement, intrinsic motivation, and critical thinking skills. With the implementation of the Independent Curriculum in Indonesia, a fun and meaningful learning approach is a necessity that must be implemented in every learning process (Rosiyati et al. 2025).

The Independent Curriculum emphasizes student-centered, flexible, project- and reflection-based learning. This opens up significant scope for the integration of *deep learning approaches.* (Dewi et al., 2025) . *Deep learning* in a pedagogical context is not the same as artificial intelligence. It refers to a learning approach that allows students to deeply understand material, connect it to real life, and apply it in broad contexts (Sari & Arta, 2025).

Emotionally and intellectually enjoyable education is a key factor in increasing student engagement and retention. Students who learn in a positive atmosphere are more open to deeper understanding (Dewindari et al., 2025).

Data from *the OECD Education at a Glance 2023 study* shows that schools that encourage autonomous learning and a conducive learning environment have up to 19% higher literacy and numeracy outcomes than those that employ traditional approaches. Unfortunately, in many schools in Indonesia, instruction is still dominated by a *surface learning approach,* namely rote memorization, repetition without deep understanding, and evaluation based solely on cognitive tests (Sutarsih & Misbah, 2021) . This is exacerbated by minimal teacher training in designing meaningful learning, limited access to innovative learning resources, and excessive educational administrative pressure. As a result, students experience learning boredom, minimal active participation, and are less able to connect learning to the realities of life. The classroom atmosphere becomes rigid and transactional, rather than transformative (Munfarida, 2022) .

Research by Rosiyati et al. (2025) shows that integrating a *deep learning approach* into elementary school mathematics instruction successfully increases student active participation and reduces anxiety. Strategies such as *joyful learning,* project-based learning, and personal reflection can create a learning climate that better engages students' emotional and social aspects (Dewi et al., 2025) .

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International Journal of Technology and Education Research

https://e-journal.citakonsultindo.or.id/index.php/IJETER

E-ISSN: 2986-0733

This approach also strengthens the teacher's role as a facilitator and guide of thinking, not just a teacher of material. Teachers are encouraged to design activities that stimulate curiosity, collaboration, and reflection (Wardani et al., 2025). However, a study by Darmayanti et al. (2025) found that many teachers still do not understand the concept and practice *of deep learning,* and how to adapt it to the Independent Curriculum. This gap is the main urgency of this article. There is a discrepancy between the direction of national education policy that supports deep learning and the reality of classroom practice, which is still procedural (Bürgener & Barth, 2018). Therefore, a systematic study is needed to determine how *deep learning* can be implemented effectively and enjoyably in the Indonesian educational context (Ritonga et al., 2020) . A literature review from various academic sources from 2020–2025 provides a theoretical and practical basis for formulating relevant and contextual strategies. (Mardiana et al., 2021) . This article will not only examine the approaches and strategies but also provide a map of the challenges and potential success of their implementation.On the other hand, this discussion is expected to provide theoretical contributions to the development of critical pedagogy based on *student agency,* as well as help design adaptive teacher training (Cherng & Davis, 2019).

Practically, the findings of this article are intended to serve as a reference for teachers, principals, and policymakers in developing more humanistic and transformational learning strategies (Kin et al., 2022). Therefore, the main objective of this article is to critically and comprehensively examine teacher competency in implementing a *deep learning approach* to create enjoyable and meaningful learning as a concrete manifestation of educational transformation in the Independent Curriculum era

RESEARCH METHOD

This research uses a literature study or *library research type,* which aims to study and analyze various scientific sources related to the implementation of *deep learning* in a fun learning context.A literature study was chosen because this topic has been extensively researched by academics, yet the presentation remains scattered. This approach allows the authors to synthesize key findings systematically and comprehensively (Ahyar & Herlambang, 2024).

The approach used is descriptive qualitative, because the data analyzed is narrative, thematic, and interpretive—not numerical or statistical. The main focus of this study is to map the patterns of *deep learning approaches,* teaching strategies, and their effectiveness in creating a pleasant learning atmosphere (Asrori & Rusman, 2020). The data sources for this study come

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from more than 20 scientific journal articles, proceedings, and education policy documents published between 2016 and 2025. The inclusion criteria for data sources include:

1. Articles relevant to the keywords “deep learning, implementation, learning, fun”;
2. Published within the last 9 years (2016–2025); and
3. Published in reputable, indexed journals or national/international seminars.

Data collection was conducted through a systematic search using predetermined keywords. The search was conducted in various academic databases, such as Google Scholar, Garuda, DOAJ, and campus repositories. (Abizar et al., 2021) The search process involved three stages: initial article identification, title and abstract relevance screening, and then full article reading to confirm content suitability. (Lenny Kurniati & Ratih Kusumawati, 2023).

The initial search results yielded 36 articles. After further screening, 24 articles were deemed to meet the criteria and were used in this study. Each article was cataloged using reference management software (Zotero), which facilitates citation and bibliography management and maintains referential integrity (Salleh et al., 2022).

The analysis technique used is thematic analysis. This technique aims to identify the main themes from the various literature reviewed (Imron et al., 2025). The analysis procedure is carried out in four stages: (1) data reduction, (2) thematic coding, (3) narrative synthesis, and (4) contextual interpretation (Istiqomah et al., 2019).

Data reduction was performed by selecting important sections of the article content relevant to the research focus, then coding them into specific units of meaning, such as "meaningful learning strategies" or "implementation challenges (Hafiz Salleh et al., 2022)." Narrative synthesis was performed by combining information from various sources into a logically interconnected and in-depth description (Aryzona et al., 2023) .To ensure validity, source triangulation techniques were used, comparing data from different articles to test the consistency of the findings (Fitriah & Soehari, 2024). Validity was also strengthened through the use of strict inclusion criteria and the use of data from official and indexed academic sources (Sulastri et al., 2020) .

This study did not involve human subjects or respondents because all data were secondary documents (Hammond et al., 2017). Therefore, the sampling technique used was purposive sampling of documents, which is selection based on purpose and relevance (Gunawan & Asrifan, 2020).

During the analysis process, the researcher also upheld the principle of reflectivity, namely awareness of potential interpretive bias and active efforts to maintain objectivity (Atmojo, 2021). This method allows for a complete and reliable picture of *deep learning*

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implementation, including its strategies, challenges, and potential successes within a fun learning context (Dewanto et al., 2024). Therefore, the use of this literature review method is highly relevant to the article's objective, which is to develop theoretical and practical foundations for teachers, academics, and policymakers to effectively implement deep learning strategies (Agustini et al., 2020).

RESULTS AND DISCUSSION

1. Understanding Teacher Competence

Teacher competence is the foundation for carrying out professional duties in education. In general, teacher competence is a set of knowledge, skills, and attitudes that a teacher must possess to carry out the learning process effectively (Hammond et al., 2017) . In the Indonesian education system, teacher competence is divided into four main aspects: pedagogical, professional, social, and personality (Directorate General of Teachers and Education Personnel, 2023) . These four aspects complement each other and determine a teacher's quality in educating and shaping the character of students (Diana, 2021)

1) Pedagogical Competence

Pedagogical competence refers to a teacher's ability to design, implement, and evaluate learning. Teachers must be able to understand student characteristics, develop curricula creatively, and select learning strategies appropriate to their needs (Istiqomah et al., 2019) . This competence is increasingly important in facing the challenges of differentiated and personalized learning in the digital age (Mei Kin et al., 2022).

2) Professional Competence

Professional competence relates to mastery of teaching materials, scientific structures, and continuous scientific development. Professional teachers not only have a deep understanding of content but are also able to transform that knowledge into contextual and meaningful learning practices (Damayanti & Kuswandi, 2024) . Furthermore, professional teachers are also required to continuously keep abreast of developments in science and technology relevant to their teaching field (Hakim et al., 2022).

3) Social Competence

Social competence emphasizes teachers' ability to communicate and interact effectively with students, fellow educators, parents, and the wider community (Ortega-Ochoa et al., 2024). As public figures, teachers must be able to build inclusive, democratic, and culturally appropriate relationships (Directorate General of Teachers and Education Personnel, 2023) . Strong social skills contribute to the creation of a conducive learning climate.

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https://e-journal.citakonsultindo.or.id/index.php/IJETER

E-ISSN: 2986-0733

4) Personality Competence

Personality competency reflects a teacher's moral integrity, maturity, wisdom, and exemplary behavior (Purwanti & Suhargo, 2024). This aspect determines a teacher's self-image before students and the community. Teachers with positive personalities will be role models in being honest, disciplined, responsible, and fair (Ganti et al., 2025) .

5) Integration of Competencies and 21st Century Demands

Anticipating the disruption of the impact of the industrial revolution 4.0 which has the potential to diminish the role of humans and erode human identity, the concept of Smart Society 5.0 has emerged (Mulyadi et al., 2024). This concept will lead humans to think critically, solve problems and improve character and persistence in facing challenges and changes in the world by utilizing increasingly rapid technological sophistication. So, teachers are required to have fundamental skills in teaching by mastering various supporting applications, such as Google Classmeting, Google Classroom, Zoom Meeting, etc. (Siahaan, 2022) . In addition, teachers need to integrate basic competencies with the **TPACK** (Technological Pedagogical Content Knowledge) framework, in order to be able to design technology-based learning effectively. With this approach, teachers not only deliver material, but also train students to think critically, creatively, and collaboratively (Mei Kin et al., 2018).

6) Strengthening Competence Through Professional Development

Continuous professional development is a crucial strategy for improving teacher competency. Programs such as the "Teacher Leader" program, Learning Communities, and practice-based training are key tools for holistically improving teacher quality (Directorate General of Teachers and Education Personnel, 2023) . In this context, collaboration, reflection, and innovation are key principles (Khoiriyah & Husamah, 2018).

2. Deep Learning Implementation Strategy

Deep learning in an educational context is a profound, reflective, and meaning-based learning process. This strategy focuses on strong conceptual understanding, knowledge transfer, and active and emotional student engagement.

According to (Dewi et al., 2025) , integrative strategies such as *meaningful, mindful, and joyful learning* are the main frameworks for creating learning that is not only cognitively effective but also touches students' affective aspects. *Meaningful learning* emphasizes the connection of subject matter to students' real lives. This makes knowledge more applicable and contextual, thus encouraging authentic engagement in learning. *Mindful learning* directs students to be fully aware of the learning process, avoiding automatic learning without understanding. Teachers encourage in-depth and critical exploration of concepts. *Joyful learning*

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presents enjoyable learning through interactive media, contextual stories, or game-based activities that still have academic content.

On the other hand, Rosiyati et al. (2025) emphasize the importance of *project-based learning* (PjBL) strategies, reflective discussions, and student collaboration as concrete applications of *deep learning.* This strategy engages students in independent exploration, group work, and project creation oriented toward solving real-world problems. With this method, students not only receive knowledge but also produce meaning and knowledge through reflection and dialogue.

3. The Nature of Learning

Understanding the nature of learning is a crucial foundation for developing a *deep learning paradigm.* Siregar, J. (2019) states that learning is an interactive process involving cognitive, affective, and psychomotor changes. He also emphasizes that learning is not simply the provision of information, but the process of constructing knowledge through active interactions between teachers, students, and the learning environment.

This essence aligns closely with the *deep learning approach,* which rejects passive, mechanical, and teacher-centered learning processes. Instead, students are viewed as active subjects who shape and develop their own understanding.

4. Changing Roles of Teachers

The implementation of *deep learning* will not be effective without shifting the teacher's role from teacher-centered to student-centered. (Dewindari et al., 2025) emphasize that today's teachers must act as learning facilitators, not simply transmitters of material. Teachers become guides for students' thinking and reflection processes. Teachers also need to be skilled at designing activities that stimulate curiosity, enable exploration, and support students' reflective processes so that understanding is truly formed independently and deeply (Fransiska et al., 2021).

5. Impact on Students

deep learning strategies have a positive impact on students' cognitive and affective development. Curiosity is enhanced as students are faced with real-world challenges relevant to their experiences. Furthermore, critical thinking skills are developed when students are required to analyze, evaluate, and relate concepts to real-world contexts.

A positive and supportive learning environment reduces academic stress levels. Students study not only for exams, but also to understand and apply knowledge. Emotional engagement also increases. When students feel happy, valued, and engaged, they tend to retain information longer and are more able to apply it flexibly.

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6. Implementation Challenges

Despite the enormous potential *of deep learning,* its implementation is not without challenges. One major obstacle is the lack of teacher training on deep learning design (Nurlaila & Lufri, 2021). Many teachers don't fully understand what *deep learning is,* let alone how to implement it within a busy curriculum and limited learning time (Danilaev & Malivanov, 2020).

Darmayanti et al. (2025) noted a gap between national policy and the reality on the ground. The Independent Curriculum supports reflective and exploratory learning, but many schools remain trapped in rote-based evaluation and procedural learning. Furthermore, inadequate facilities, teacher digital literacy, and the availability of contextual teaching materials are also challenges that must be addressed to ensure sustainable in-depth learning (Ubaidah et al., 2021).

CONCLUSION

The conclusion of this study indicates that a deep learning approach not only creates an emotionally enjoyable learning environment but also fosters conceptual and reflective depth. The findings from this literature review reveal that integrating strategies such as meaningful learning, project-based learning, and student collaboration can foster curiosity, long-term understanding, and active student engagement in the learning process. Shifting the teacher's role from instructor to learning facilitator is key to creating a transformative learning ecosystem. This research reinforces constructivism theory and broadens the scope of student-centered learning implementation within the context of the Independent Curriculum. Socially and culturally, these findings emphasize the importance of education that is adaptive, contextual, and relevant to students' lives. However, this study's limitation lies in its qualitative, literature-based approach, which does not fully reflect the dynamics of direct classroom practice. Therefore, further research based on concrete actions and direct student involvement is recommended to empirically and contextually test the effectiveness of this deep learning model across various levels and educational settings.

Based on the findings of this study, it is recommended that teachers and education practitioners undertake ongoing training focused on designing deep learning-based instruction to enable them to create reflective, meaningful, and enjoyable learning experiences. For policymakers, it is important to develop flexible thematic curricula and encourage the integration of students' lived experiences into learning, as well as to conduct holistic evaluations of education policies to strengthen active and contextual learning. Academics are expected to be involved in the development of adaptive pedagogical models based on field research. Future

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research should expand the scope of the aspects studied, use richer data triangulation methods (observation, interviews, and documents), and incorporate a concrete action approach to strengthen the validity and depth of understanding of deep learning implementation in diverse socio-cultural contexts.

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