

MEASURING THE SIGNIFICANCE OF DEEP LEARNING IMPLEMENTATION AND TEACHER PROFESSIONALISM IN BOOSTING THE QUALITY OF STUDENT LEARNING OUTCOMES

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Abstract

The quality of education is highly dependent on the professionalism of teachers as the spearhead of the learning process. However, reality shows that student learning outcomes are still suboptimal, partly due to weak professional competence and teachers' low ability to design and implement adaptive learning. This study aims to analyze the significance of the application of deep learning and teacher professionalism in improving the quality of student learning outcomes through a comprehensive review of various previous studies. The type of research used is qualitative research with a library research method. Data sources come from scientific journals, academic books, proceedings, and credible documents published between 2019 and 2024. Data were collected through documentation techniques and analyzed using a qualitative descriptive approach through the stages of reduction, presentation, and drawing conclusions. The results show that teacher professionalism contributes significantly to improving student learning outcomes through mastery of pedagogical, professional, social, and personality competencies. Professional teachers are able to create a productive learning environment, implement innovative learning strategies, and foster student learning motivation. In addition, factors such as ongoing training, principal support, teaching experience, and intrinsic motivation also strengthen teacher professionalism. deep learning has also been shown to improve conceptual understanding, intrinsic motivation, and student engagement. This study confirms that improving teacher professionalism and implementing deep learning are strategic prerequisites for strengthening the quality of 21st-century education.

Keywords: deep learning; learning outcomes; teacher professionalism; quality of education

Abstrak

Mutu pendidikan sangat bergantung pada kualitas profesionalisme guru sebagai ujung tombak dalam proses pembelajaran. Namun, realitas menunjukkan bahwa capaian hasil belajar siswa masih belum optimal, antara lain disebabkan oleh lemahnya kompetensi profesional dan rendahnya kemampuan guru dalam merancang serta melaksanakan pembelajaran yang adaptif. Penelitian ini bertujuan untuk menganalisis signifikansi penerapan pembelajaran mendalam dan profesionalisme guru dalam meningkatkan mutu hasil belajar murid melalui kajian komprehensif terhadap berbagai penelitian terdahulu. Jenis penelitian yang digunakan adalah penelitian kualitatif dengan metode studi pustaka (*library research*). Sumber data berasal dari jurnal ilmiah, buku akademik, prosiding, dan dokumen kredibel yang diterbitkan antara tahun 2019–2024. Data dikumpulkan melalui teknik dokumentasi dan dianalisis menggunakan pendekatan deskriptif kualitatif melalui tahapan reduksi, penyajian, dan penarikan kesimpulan. Hasil penelitian menunjukkan bahwa profesionalisme guru berkontribusi signifikan terhadap peningkatan hasil belajar siswa melalui penguasaan kompetensi pedagogik, profesional, sosial, dan kepribadian. Guru profesional mampu menciptakan lingkungan belajar yang produktif, menerapkan strategi pembelajaran inovatif, serta menumbuhkan motivasi belajar siswa. Selain itu, faktor seperti pelatihan berkelanjutan, dukungan kepala sekolah, pengalaman mengajar, dan motivasi intrinsik turut memperkuat profesionalisme guru. Pembelajaran mendalam juga terbukti meningkatkan pemahaman konseptual, motivasi intrinsik, serta keterlibatan siswa. Penelitian ini menegaskan bahwa peningkatan profesionalisme guru dan implementasi pembelajaran mendalam merupakan prasyarat strategis untuk memperkuat mutu pendidikan abad ke-21. **Kata Kunci:** hasil belajar, pembelajaran mendalam, profesionalisme guru, mutu pendidikan

A. INTRODUCTION

1. Contents of the Introduction

The progress of a nation is fundamentally inseparable from the quality of its education. Education is a human-centered activity, so its success is largely determined by the quality and active role of every element involved. Efforts to improve the quality of education can only be achieved through mutually supportive collaboration between teachers, students, parents, and a conducive social environment. Furthermore, all parties must be prepared to face transformation in the education sector. This transformation can be interpreted as a process of change towards a better condition that is relevant to future needs (Hidayati, 2022). However, in practice, not all elements of education are able to play their roles optimally. As a result, the quality of education in Indonesia has yet to achieve the desired results, as evidenced by low student learning outcomes at various levels.

One policy that encourages the optimization of education is the deep learning approach. This learning approach is designed to be conscious, meaningful, and enjoyable. Deep learning places students at the center of the learning process, emphasizing differentiation, meaningful experiences, and the development of critical thinking. Teachers act as facilitators, helping students build conceptual understanding through reflective and collaborative activities (Putri & Akhwani, 2023). However, in practice, teachers' abilities to design adaptive, student-centered learning vary.

Teachers with high competence and professionalism are required to effectively manage classes and build positive interactions with students. These abilities are key to improving the quality of education, which is oriented towards developing superior, independent, and highly skilled human resources who are critical to future developments in science and technology. An active and effective learning process should encourage students to participate fully, whether through listening, observing, asking questions, or discussing with their peers. In this learning context, the most essential thing for students is the ability to solve problems independently, find various examples of applications, develop skills, and carry out tasks relevant to their existing or ongoing knowledge.

However, this ideal situation has not yet been fully achieved. Currently, students' interest in reading books or articles as a means of building knowledge is declining. Their attention to listening to teacher explanations is also less than in previous generations. This trend is evident in the increasing time spent accessing digital platforms such as YouTube, social media, entertainment content, and online games (Gillpatrick, 2020). Furthermore, research shows that more than 70% of students now prefer online learning over conventional methods, as they are considered more engaging and flexible in implementation (Thuy, 2019).

Professional teachers continually strive to improve their competencies through reflection, training, and ongoing self-development. The relationship between teacher professionalism and the quality of student learning outcomes has become a major focus in various modern educational studies. Empirically, various studies have shown that teacher professional competence is positively correlated with student academic achievement. Research conducted by Ihsaniyah et al., 2023 found that teachers with high professional competence are able to create a productive learning environment and motivate students to achieve maximum performance. Similar results were also reported by Hepa & Sembiring, 2024, who stated that teacher professionalism in planning and implementing learning significantly contributes to improving student learning outcomes in elementary schools. These findings reinforce the view that teacher professionalism is not only an indicator of educational quality but also a key catalyst in developing superior and competitive human resources.

Based on this, this study aims to comprehensively examine the contribution of deep learning and teacher professionalism to the quality of student learning outcomes through a literature review. Although previous studies

have examined teacher professionalism and deep learning separately, limited studies synthesize both constructs within a single analytical framework. Therefore, this study aims to fill this gap by systematically reviewing empirical evidence on how the integration of the deep learning approach and teacher professionalism contributes to improving student learning outcomes.

B. RESEARCH METHOD

This research employed a qualitative approach using a library research method. This method was chosen because it provides a comprehensive understanding of the concepts, theories, and previous research findings regarding teacher professionalism and its relationship to improving student learning outcomes. The literature review was conducted by reviewing various relevant scientific sources, including research journals, academic books, study reports, conference proceedings, and credible digital documents related to the topic of teacher professionalism and educational quality (Ismabela, 2020).

These literature sources were used to obtain an in-depth understanding of how teacher professionalism can influence student learning outcomes in various elementary education contexts. The research subjects in this study were a collection of scientific articles published between 2019 and 2024, selectively selected based on their relevance to the research theme.

The research procedure was carried out through several systematic stages, namely:

1. Identifying the research focus, by examining the main problems related to the relationship between teacher professionalism and the quality of student learning outcomes.
2. Collecting scientific sources by searching for relevant journal articles, proceedings, and education policy documents through online scientific databases such as Google Scholar, DOAJ, and ResearchGate.
3. Literature selection, based on several criteria, including topic relevance, year of publication, author or publisher credibility, and clarity of research methodology.
4. Data organization and synthesis, namely the process of grouping and analyzing information from various sources to identify relationships between concepts and findings.

Data collection techniques were conducted using documentation methods, namely tracing and recording relevant research findings from written sources. Meanwhile, data analysis used a qualitative descriptive approach, with the aim of describing and interpreting the data in depth in narrative form (Tiyas et al., 2025).

The analysis stages include:

1. Data reduction, namely filtering information to ensure only data relevant to the issue of teacher professionalism and the quality of learning outcomes is analyzed further.

2. Data presentation, where the reduced findings are systematically arranged in descriptive form to facilitate interpretation.
3. Analysis of patterns and relationships between findings, including:
 - a. Identification of general patterns, namely finding themes or conclusions that frequently appear in various related literature.
 - b. Identification of similarities and differences, by comparing findings across studies to find consistency and variation in empirical contexts.
4. Drawing conclusions and formulating recommendations, conducted by synthesizing findings from various sources to answer the research question regarding the significance of teacher professionalism in boosting the quality of student learning outcomes.

C. RESULTS AND DISCUSSION

Main Findings from the Literature Review

1. Syahrial's (2025) research aimed to explore and understand the concept of meaningful literacy using a Deep Learning approach through community service activities conducted by lecturers and students of the Teacher Professional Education (PPG) program at the University of Jambi at SMP 65 Muaro Jambi. The results of this community service activity demonstrated an increase in teachers' understanding of the concept of meaningful literacy and a new awareness that literacy is not merely an academic goal, but an essential part of building a generation that is critical, creative, and ready to face the challenges of the times (Syahrial et al., 2025).
2. Prastyo's (2025) research aimed to analyze teachers' level of understanding of the PM concept, identify learning issues that can be addressed through this approach, and formulate strategies to strengthen the ecosystem supporting its implementation. Teachers also showed a high preference for practice-based training such as workshops and offline learning. These findings demonstrate strong teacher support for learning transformation, as well as the need for concept dissemination and application training. PM has proven to be a relevant approach to improving the quality of education oriented toward character, global competence, and student self-awareness (Prastyo & Santos, 2025).
3. Xu et al. (2025) conducted a quantitative survey study to analyze the effect of teacher autonomy support on deep learning through self-efficacy and peer support variables. The results showed that when teachers provide autonomy support, students' learning interest increases, resulting in better academic outcomes (Xu et al., 2025).
4. Sholeh's (2021) study aimed to determine the contribution of classroom teacher professionalism and student reading interest to improving achievement in integrative thematic learning outcomes. This study used an ex-post-facto survey at MI Raden Fatah Pujon. The data analysis technique used inferential statistical analysis with multiple regression analysis. The results of this study indicated that achievement in integrative thematic learning outcomes was influenced by

classroom teacher professional competence and student reading interest, with a combined contribution of 36.7% (Sholeh, 2021).

5. The research by Irfanuddin et al. (2025) aimed to analyze the implementation of the Deep Learning (PM) approach in the Islamic Religious Education (PAI) curriculum at SD Negeri 125 Ogan Komerling Ulu (OKU), South Sumatra. The research method used was a qualitative approach with observation techniques, in-depth interviews, and documentation analysis, as well as data analysis using the Miles and Huberman interactive model. The subjects of this study included the principal, PAI teachers, and fifth-grade students at SD Negeri 125 OKU, who were selected through purposive sampling based on their direct involvement in the implementation of PM. The results showed that SD Negeri 125 OKU has begun to integrate the PM approach, primarily through the use of simple digital media in religious learning. However, its implementation still faces obstacles such as limited facilities, teachers' low understanding of the PM concept, and varying levels of student engagement. Nevertheless, the enthusiasm of teachers and students in implementing active discussions indicates strong potential for further PM implementation (Irfanuddin et al., 2025).

6. Atmojo (2025) conducted research aimed at improving the pedagogical competence of elementary school teachers in Surakarta City through training in implementing the Deep Learning approach. Pedagogical competence encompasses the ability to understand student characteristics, design learning, and integrate technology to create immersive and enjoyable learning experiences. The implementation methods for this community service included counseling, practice, and individual mentoring. The evaluation instruments used were pre-tests and post-tests, which were analyzed descriptively. The results of this community service showed that 20 elementary school teachers in Surakarta demonstrated a 45% increase in pedagogical competence in designing and implementing deep learning strategies that focus on critical thinking, creativity, and joyful learning. By implementing deep learning, especially joyful learning, teachers are able to create a dynamic and meaningful learning environment for students (Atmojo et al., 2025).

7. Siswanto and Arbani's (2021) research aims to determine: (1) The influence of learning interest on online learning outcomes, (2) The influence of teacher professionalism on learning outcomes, (3) The influence of the use of learning media on online learning outcomes, (4) The influence of learning interest, teacher professionalism and the use of learning media on online learning outcomes in the Financial Accounting subject at SMK Muhammadiyah 1 Borobudur. This study uses an associative approach. Based on the research results, the following conclusions were drawn: (1) There is a 48.5% influence of learning interest on online learning outcomes (2) There is a 16.0% influence of teacher professionalism on online learning outcomes (3) There is a 35.5% influence of the use of learning media on online learning outcomes (4) There is a 27.9% influence of learning interest,

teacher professionalism, and the use of learning media together on online learning outcomes in Financial Accounting (Siswanto & Arbani, 2021).

8. Kurniawan's (2017) research aimed to analyze: 1) the influence of teacher professionalism on Arabic language learning outcomes, 2) the influence of learning interest on Arabic language learning outcomes, and 3) the influence of teacher professionalism and learning interest on Arabic language learning outcomes. The research used a causal survey method with path analysis techniques. The results showed that the total influence of teacher professionalism on changes in students' Arabic language learning outcomes was 33.3%, learning interest on changes in students' Arabic language learning outcomes was 30.3%, and there was a positive direct effect of teacher professionalism on students' learning interest of 21.1%, with the remainder determined by variations in other variables outside the research variables (Kurniawan, 2017).

9. Sam and Sulastri's (2024) research aimed to explore teacher professionalism and its impact on student learning outcomes, focusing on three main aspects: continuous professional development, effective classroom communication and management, and establishing positive relationships with students. This research used mixed methods, combining quantitative surveys and qualitative interviews with teachers and students in several secondary schools. Research findings indicate that ongoing professional development, such as training and classroom action research, improves teacher competence and innovation in teaching. Clear communication and good classroom management create a conducive learning environment, while positive relationships with students increase their motivation and engagement. In conclusion, enhanced teacher professionalism through ongoing development, effective communication, and positive relationships with students significantly contribute to improved student learning outcomes (Sam & Sulastri, 2024).

Discussion

Analysis of the Contribution of Deep Learning

Findings from various studies indicate that deep learning pedagogy significantly contributes to improving the quality of student learning processes and outcomes. When viewed from various research contexts, this approach not only strengthens academic abilities but also shapes character, motivation, and a more reflective learning awareness.

Research by Syahrial et al. (2025) illustrates that deep learning plays a role in broadening teachers' understanding of meaningful literacy. This increased understanding is important because the quality of literacy taught by teachers is directly related to students' ability to critically process information. When teachers recognize that literacy is not just a reading activity, but a process of constructing meaning, students' learning experiences become more relevant and meaningful. This reinforces the theory of Biggs & Tang (2011), which states that deep learning occurs when students are actively involved in the process of

constructing concepts, rather than simply receiving information superficially. (Biggs & Tang, 2011).

Furthermore, the findings of Prastyo & Santos (2025) emphasize that the success of deep learning is greatly influenced by teacher readiness and support. Teachers demonstrated high enthusiasm for training that provided practical experience, such as workshops and offline learning. This enthusiasm reflects teachers' need to develop more applicable pedagogical competencies. Implementing deep learning requires teachers to design activities that foster critical thinking, collaboration, and student self-awareness. Therefore, without adequate training support, the effectiveness of this approach will be less than optimal. This finding aligns with Hattie (2018), who emphasized that the quality of teacher instruction is the most important factor determining learning outcomes.

From a psychological perspective, research by Xu et al. (2025) showed that teacher autonomy support increases students' self-efficacy and learning interest. This autonomy is a crucial element in deep learning because it provides students with the space to explore and develop understanding based on their own experiences. When students feel in control of their learning process, intrinsic motivation increases and is positively correlated with academic achievement. This finding aligns with the concept of Self-Determination Theory (Deci & Ryan, 2000), which states that psychological needs for autonomy, competence, and connectedness are the foundation of sustained learning motivation. (Deci & Ryan, 2000).

Furthermore, research by Sholeh (2021) confirms that teacher professionalism and student reading interest contribute significantly to learning outcomes. The 36.7% contribution indicates that teacher mastery of learning materials and methods is a fundamental factor in driving successful learning. In relation to deep learning, teacher quality is key to ensuring that learning activities are reflective, purposeful, and cognitively challenging. This demonstrates that deep learning cannot stand alone without adequate teacher professional competence.

Research by Irfanuddin et al. (2025) provides additional perspective, noting that the implementation of deep learning in elementary schools still faces structural challenges, such as limited facilities and low teacher understanding. However, the enthusiasm of teachers and students in engaging in active discussions demonstrates great potential for the future development of deep learning. The use of simple digital media, which has been implemented at SD Negeri 125 OKU, also aligns with the principles of deep learning, which emphasizes the connection between concepts and real-life contexts. These implementation challenges highlight the need for ongoing training and strengthening the learning ecosystem so that deep learning can have a more optimal impact on student learning outcomes.

Overall, the synthesis of these various studies indicates that deep learning positively impacts student learning outcomes through several mechanisms:

improved conceptual understanding, increased intrinsic motivation, strengthened teacher pedagogical skills, and the creation of a reflective and collaborative learning environment. Although its implementation still faces challenges related to facilities and teacher competency, this approach has proven relevant and promising in improving the quality of learning at various levels of education.

Analysis of the Contribution of Teacher Professionalism

Within a theoretical framework, teacher professionalism can be seen through four core competencies: pedagogical, professional, social, and personality (Erviana et al., 2021). Pedagogical competency encompasses teachers' understanding of student characteristics, selection of appropriate learning strategies, and the ability to evaluate the learning process (Salamah & Tinursani, 2023). Meanwhile, professional competency emphasizes mastery of material, utilization of learning technology, and continuous self-development (Rahmah & Kadi, 2022). Social competency relates to teachers' capabilities in establishing interpersonal relationships with students, parents, and fellow teachers, while personality competency concerns the character, ethics, and professional attitude of teachers who serve as role models in the learning process (Rifaudin et al., 2024). Teacher professionalism makes a significant contribution to improving the quality of student learning outcomes. Based on various previous studies, teacher professionalism is not only related to technical teaching skills but also encompasses aspects of professional, pedagogical, social, and personality competencies that interact to create an effective and meaningful learning process. In terms of professional competence, teachers are required to have a deep mastery of subject matter, understand scientific structures, and be able to relate concepts to real-life contexts. Research by Sholeh (2021) shows that teacher professional competence contributes 36.7% to improving students' integrative thematic learning outcomes. This indicates that teachers who comprehensively understand subject content are able to manage learning in a more focused and contextual manner, thereby encouraging improved student achievement. Furthermore, pedagogical competence plays a crucial role in teachers' ability to design, implement, and evaluate the learning process. Research by Siswanto and Arbani (2021) confirms that teacher professionalism contributes 16% to online learning outcomes. These findings demonstrate that teachers' skills in selecting appropriate learning methods, media, and strategies for students can determine the level of engagement and success of learning, particularly in technology-based learning contexts.

Meanwhile, teachers' social competence also contributes significantly to learning outcomes. Teachers who are able to establish effective communication and build good interpersonal relationships with students can create a positive and enjoyable learning environment. Research by Sam and Sulastri (2024) found that open communication and good classroom management foster motivation and active student engagement. Harmonious social relationships between teachers

and students form the basis for a conducive learning climate, enabling students to feel valued, supported, and motivated to achieve higher levels of achievement. Personality competencies reflect a teacher's moral integrity, exemplary behavior, and emotional maturity in carrying out their profession. Research by Kurniawan (2017) showed that teacher professionalism directly impacted students' Arabic language learning outcomes by 33.3% and indirectly increased their interest in learning by 21.1%. This indicates that a positive teacher personality fosters trust, discipline, and enthusiasm for learning in students. A teacher's consistent, patient, and ethical attitude creates a classroom atmosphere full of empathy and mutual respect, making it easier for students to absorb learning materials.

Based on these overall findings, it can be concluded that the four dimensions of teacher professionalism—professional, pedagogical, social, and personality—contribute directly and indirectly to improving student learning outcomes. The combination of strong teaching skills, strong social relationships, and a personality of integrity makes teachers a key determinant of educational success. Therefore, efforts to improve teacher professionalism need to be a strategic priority in education policy, particularly in facing the challenges of 21st-century learning that demand creativity, flexibility, and technological proficiency.

Implications for Improving the Quality of Education

Based on the synthesis of the research reviewed, the implementation of deep learning and strengthening teacher professionalism have strategic implications for improving the quality of education in primary education. First, deep learning encourages a more meaningful, reflective, and contextual learning process. When teachers are able to design cognitively challenging lessons, provide space for student autonomy, and encourage collaborative activities, the quality of the learning experience improves. This implication is important because educational quality is measured not only by grades but also by critical thinking skills, creativity, and student readiness to face 21st-century challenges. This approach strengthens the quality of long-term learning outcomes by increasing intrinsic motivation and deepening conceptual understanding.

Second, the study results indicate that teacher professionalism is a key foundation for the effectiveness of deep learning. Teachers with strong pedagogical and professional competencies are better able to manage classes adaptively, select appropriate instructional strategies, and facilitate learning activities that emphasize problem-solving and reflection. The implication for educational quality is the need for continuous investment in teacher professional development through applied training, practical mentoring, and strengthening a culture of reflection in schools. Practice-oriented teacher development programs have been proven to improve the quality of instruction and have a direct impact on learning outcomes.

Third, the implementation of deep learning requires a supportive school ecosystem. Various studies confirm that the availability of digital facilities,

principal support, and a collaborative culture among teachers are key factors in successful implementation. This implication suggests that improving the quality of education must be carried out systematically, not solely relying on the capacity of individual teachers. Schools need to develop internal policies that facilitate the use of learning technology, create teacher learning communities, and encourage innovation in lesson planning and implementation.

Fourth, the positive relationship between teacher professionalism, student learning interests, and learning outcomes indicates that educational quality will improve when teacher-student interactions are effective. Teachers who are communicative, empathetic, and able to build pedagogical rapport can increase student motivation and engagement in learning activities. This implication reinforces the need to strengthen teachers' social and personal competencies, as these aspects have been shown to contribute significantly to a conducive classroom climate and the development of student character.

Thus, the integration of deep learning and teacher professionalism has both direct and indirect impacts on improving the quality of education. This approach focuses not only on improving learning outcomes but also on transforming the learning culture in schools. If implemented consistently and supported by progressive education policies, these two aspects have the potential to become key strategies in realizing adaptive, relevant, and quality basic education.

Table: Implications for Improving Educational Quality

No	Aspect	Strategic Implications
1	Learning Process	Learning becomes more contextual, reflective, and meaningful
2	Teacher Development	The need for continuous practice-based professional training
3	School Policy	Strengthening the learning ecosystem and educational facilities
4	Social Interaction	Enhancing communication and pedagogical interaction between teachers and students
5	Educational Outcomes	Improvement in motivation, creativity, and critical thinking skills

D. CONCLUSION

The implementation of deep learning and teacher professionalism have been proven to be influential in determining the success of student learning processes and outcomes. Deep learning strengthens conceptual understanding, fosters intrinsic motivation, and creates reflective and collaborative learning experiences. Meanwhile, teacher professionalism through pedagogical, professional, social, and personality competencies is the main foundation for successful learning.

The two complement each other: deep learning requires professional teachers, and teacher professionalism becomes more effective when supported by appropriate learning approaches. Therefore, continuous professional development for teachers, training in the implementation of deep learning, and strengthening the learning ecosystem are important recommendations for education policymakers.

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