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Exploration of the Implementation of the Deep Learning Approach in the Teaching and Learning Process at SMK Tiwikrama Mamuju: A Qualitative Study

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ABSTRAK

Penelitian ini bertujuan untuk mengeksplorasi penerapan pendekatan Deep Learning dalam proses pembelajaran di SMK Tiwikrama Mamuju. Penelitian ini menggunakan desain kualitatif untuk memperoleh pemahaman yang mendalam mengenai bagaimana pendekatan tersebut diterapkan dalam praktik pembelajaran di kelas serta bagaimana pengaruhnya terhadap keterlibatan dan pengalaman belajar siswa. Populasi dalam penelitian ini berjumlah 30 siswa kelas XI SMK Tiwikrama Mamuju. Karena jumlah populasi relatif kecil, teknik total sampling digunakan sehingga seluruh 30 siswa dijadikan sebagai sampel penelitian. Pengumpulan data dilakukan melalui observasi kelas, wawancara semi-terstruktur dengan siswa dan guru, serta studi dokumentasi terhadap perangkat pembelajaran seperti RPP dan bahan ajar. Observasi difokuskan pada strategi pembelajaran, partisipasi siswa, serta interaksi dalam proses belajar. Wawancara dilakukan untuk memperoleh informasi mendalam mengenai persepsi siswa dan pengalaman guru dalam menerapkan pendekatan Deep Learning. Dokumentasi digunakan untuk mendukung dan memvalidasi temuan hasil observasi dan wawancara. Analisis data dilakukan secara deskriptif kualitatif dengan menggunakan model analisis interaktif Huberman dan Miles yang meliputi reduksi data, penyajian data, serta penarikan dan verifikasi kesimpulan. Hasil penelitian menunjukkan bahwa penerapan pendekatan Deep Learning mampu mendorong partisipasi aktif siswa, meningkatkan kemampuan berpikir kritis, memperkuat kolaborasi, serta memperdalam pemahaman konsep. Siswa menunjukkan peningkatan motivasi dan keterlibatan selama proses pembelajaran berlangsung. Meskipun demikian, terdapat beberapa tantangan, seperti keterbatasan waktu pembelajaran dan kesiapan guru dalam merancang aktivitas pembelajaran berbasis berpikir tingkat tinggi. Secara keseluruhan, pendekatan Deep Learning memberikan kontribusi positif dalam meningkatkan kualitas proses pembelajaran di SMK Tiwikrama Mamuju.

Kata Kunci: *Deep Learning, Proses Pembelajaran, dan Penelitian Kualitatif.*

ABSTRACT

This study aims to explore the implementation of the Deep Learning approach in the teaching and learning process at SMK Tiwikrama Mamuju. The research employed a qualitative design to gain an in-depth understanding of how the approach is applied in classroom practice and how it influences students' engagement and learning experiences. The population of this study consisted of 30 second-grade students of SMK Tiwikrama Mamuju. Since the total number of students was relatively small, total sampling was applied, resulting in 30 students serving as the research sample. Data were collected through classroom observations, semi-structured interviews with students and teachers, and documentation review of lesson plans and learning materials. The observation focused on

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instructional strategies, student participation, and learning interactions. Interviews were conducted to obtain detailed insights into students' perceptions and teachers' experiences in implementing the Deep Learning approach. Documentation was used to support and validate findings from observations and interviews. The data were analyzed using qualitative descriptive analysis following the interactive model of Huberman and Miles, which includes data reduction, data display, and conclusion drawing/verification. The findings reveal that the implementation of the Deep Learning approach encouraged active student participation, critical thinking, collaborative learning, and deeper conceptual understanding. Students demonstrated increased motivation and engagement during the learning process. However, challenges were identified, including limited instructional time and the need for teacher readiness in designing higher-order learning activities. Overall, the Deep Learning approach contributed positively to improving the quality of the teaching and learning process at SMK Tiwikrama Mamuju.

Keywords: Deep Learning, Teaching Learning Process, & Qualitative Research

Introduction

The development of education in the 21st century demands a transformation in the learning process that is no longer oriented toward rote memorization, but toward the mastery of higher-order thinking skills (Osborne, 2013; Van Zile-Tamsen, 2016). The challenges of globalization, technological advancement, and the dynamic demands of the workforce require students to possess critical thinking, creativity, collaboration, and communication skills. Therefore, modern educational paradigms emphasize the importance of meaningful learning and student-centered learning (Khazaei et al., 2025; Saxena, 2020). In this context, instructional approaches that promote deep understanding have become increasingly relevant across all levels of education, including vocational high schools.

Vocational High Schools (SMK) have distinctive characteristics compared to general secondary schools, as they focus on strengthening vocational competencies and work readiness. Students in vocational education are not only expected to understand theoretical concepts but also to apply knowledge in real-life situations (Ferm, 2021; Xia & Fei, 2025). Consequently, the learning process in vocational schools should ideally be designed to develop strong analytical and problem-solving skills. However, in practice, instructional processes are often still conventional, teacher-centered, and more focused on content delivery than on conceptual understanding. Such conditions may hinder the development of students' higher-order thinking skills (Alotaibi, 2025; Asok et al., 2017).

One approach considered capable of addressing these challenges is the Deep Learning approach. In the educational context, Deep Learning does not merely refer to the use of technology or artificial intelligence, but rather to an instructional approach that emphasizes deep conceptual understanding, connections between ideas, reflection, and the application of knowledge in various contexts (Ayari et al., 2025; Liu et al., 2022). This approach encourages students not only to know "what" but also to understand "why" and "how." Through Deep Learning, students are expected to actively construct knowledge, develop critical thinking skills, and build meaning from their learning experiences.

The implementation of the Deep Learning approach requires changes in teachers' instructional strategies, starting from lesson planning and method selection to assessment techniques (Wang, 2025). Teachers need to design challenging activities that are problem-based, collaborative, and reflective. In addition, the learning environment must support active student engagement. In the context of vocational education, the application of this

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approach becomes even more essential, as it helps students integrate theory and practice in a meaningful way (Sithebe et al., 2023; Wakid et al., 2024). However, the successful implementation of Deep Learning largely depends on teacher readiness, student characteristics, and the learning culture within the school.

SMK Tiwikrama Mamuju, as one of the vocational education institutions in Mamuju Regency, plays a strategic role in preparing competent graduates who are ready to compete in the workforce. In its efforts to improve instructional quality, the school continues to adapt to various educational innovations. However, the extent to which the Deep Learning approach has been optimally implemented in the teaching and learning process requires further in-depth investigation. It is important to examine how teachers implement this approach in the classroom, how students respond and experience the learning process, and what factors support or hinder its implementation (Cheng & Wang, 2023; Heitink et al., 2016).

Research on the application of the Deep Learning approach at the vocational high school level remains relatively limited, particularly within the local context of Mamuju. Most previous studies have focused primarily on measuring learning outcomes quantitatively, while the processes, experiences, and dynamics of classroom implementation have not been extensively explored. To fully understand the effectiveness of an instructional approach, a comprehensive understanding of how it is practiced in real classroom settings is essential. Therefore, a qualitative research approach is considered appropriate, as it enables researchers to explore experiences, perceptions, and interactions that occur during the learning process in depth.

Based on the above considerations, this study focuses on exploring the implementation of the Deep Learning approach in the teaching and learning process at SMK Tiwikrama Mamuju. The study aims to provide a comprehensive description of instructional practices, student engagement, and their impact on students' understanding and learning motivation. Furthermore, this research seeks to identify both the challenges and opportunities in implementing the Deep Learning approach within the vocational school environment. The findings of this study are expected to contribute theoretically to the development of research on Deep Learning-based instruction and practically to teachers and school administrators in improving the quality of vocational education. Thus, this study is important to conduct as an effort to gain an in-depth understanding of the dynamics of implementing the Deep Learning approach at SMK Tiwikrama Mamuju and its implications for improving the quality of vocational education.

Method and Materials

This study investigates the implementation of the Deep Learning approach in the teaching and learning process at SMK Tiwikrama Mamuju. In qualitative research, variables are not treated in a strictly statistical sense as in quantitative studies; rather, they are understood as key research focuses that guide data collection and analysis. Therefore, this study centers on the exploration of the Deep Learning approach as the main research focus and its manifestation within the teaching and learning process.

The primary variable of this study is the implementation of the Deep Learning approach in classroom instruction. This variable is explored through several key indicators, including: (1) the extent to which learning activities promote deep conceptual understanding rather than surface memorization; (2) students' engagement in critical thinking and problem-solving activities; (3) collaborative learning practices; (4) reflective learning processes; and (5) the integration of theory and real-world application. These

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indicators are used to examine how Deep Learning principles are embedded in instructional practices.

The secondary focus variable is the teaching and learning process, which encompasses classroom interactions, instructional strategies, student participation, and learning atmosphere. This variable is examined to understand how the Deep Learning approach shapes the dynamics of classroom instruction. Specific aspects observed include teacher roles, types of learning tasks, questioning strategies, student responses, peer interaction, and the use of learning resources.

Additionally, this study considers students' learning experiences and perceptions as a supporting focus. Students' perspectives provide valuable insights into how they interpret and respond to the Deep Learning approach. Their motivation, engagement, perceived challenges, and perceived benefits are explored to enrich the analysis. Because this is a qualitative study, these variables are not measured numerically but are explored descriptively and interpretively to generate a comprehensive understanding of the phenomenon.

This study employed a qualitative research design with a descriptive approach. The qualitative design was chosen because it enables an in-depth exploration of instructional practices, classroom interactions, and participants' experiences. Rather than testing hypotheses, this research aims to describe and interpret how the Deep Learning approach is implemented and experienced in a real educational setting.

The research was conducted at SMK Tiwikrama Mamuju. The population consisted of 30 second-grade students. Due to the relatively small number of students, total sampling was applied, meaning that all 30 students were included as research participants. In addition, the subject teacher responsible for implementing the Deep Learning approach was also involved as a key informant to provide comprehensive data regarding instructional planning and execution.

Data were collected using three primary techniques: classroom observation, semi-structured interviews, and documentation review.

1. Classroom Observation

   Observations were conducted during the teaching and learning process to examine how the Deep Learning approach was implemented in practice. The researcher observed instructional strategies, teacher-student interactions, student engagement, collaborative activities, questioning techniques, and the integration of higher-order thinking tasks. Field notes were systematically recorded to capture significant events and patterns during instruction.

2. Semi-Structured Interviews

   Interviews were conducted with selected students and the subject teacher. The interviews aimed to explore participants' perceptions, experiences, and reflections regarding the implementation of the Deep Learning approach. An interview guide was prepared to ensure consistency, while still allowing flexibility for participants to elaborate on their responses. The interviews were recorded and transcribed for analysis.

3. Documentation Review

   Relevant documents such as lesson plans, teaching materials, worksheets, and assessment instruments were analyzed to identify how Deep Learning principles were embedded in instructional design. Documentation served to support and triangulate data obtained from observations and interviews.

The data were analyzed using qualitative descriptive analysis following the interactive model of Miles and Huberman. This model consists of three interconnected

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steps: data reduction, data display, and conclusion drawing/verification.

In the data reduction stage, raw data from observations, interviews, and documentation were organized, coded, and categorized according to themes related to Deep Learning implementation and classroom processes. In the data display stage, the organized data were presented in narrative descriptions and thematic matrices to facilitate interpretation. Finally, in the conclusion drawing and verification stage, patterns and relationships were identified, and findings were continuously verified through triangulation of data sources to ensure credibility and trustworthiness. Through these systematic procedures, the study aims to provide a comprehensive and credible description of how the Deep Learning approach is implemented in the teaching and learning process at SMK Tiwikrama Mamuju.

Result

This study explored the implementation of the Deep Learning approach in the teaching and learning process at SMK Tiwikrama Mamuju. Based on classroom observations, interviews, and documentation analysis, the findings indicate that the Deep Learning approach was implemented through structured, student-centered learning activities that encouraged active engagement and higher-order thinking.

First, the findings reveal that the teacher designed learning activities that emphasized conceptual understanding rather than memorization. During classroom observations, students were frequently asked to analyze case-based problems related to real-world vocational contexts. Instead of merely receiving explanations, students were encouraged to discuss, question, and connect theoretical concepts with practical applications. The lesson plans reviewed also showed the inclusion of problem-based tasks and reflective questions, indicating alignment with Deep Learning principles.

Second, student engagement significantly increased during collaborative activities. Group discussions and project-based tasks were commonly implemented. Students demonstrated active participation by sharing ideas, debating solutions, and presenting their findings in front of the class. Interview data confirmed that students felt more motivated and challenged when learning activities required them to think critically rather than simply complete routine exercises. Many students reported that they better understood the material when they were involved in discussions and practical simulations.

Third, the Deep Learning approach fostered the development of critical thinking and problem-solving skills. Students were observed analyzing scenarios, identifying key issues, and proposing alternative solutions. The teacher played the role of facilitator rather than sole knowledge provider, guiding students through probing questions. This shift in teacher role contributed to a more interactive classroom atmosphere.

However, the findings also identified several challenges. Time constraints were one of the main obstacles. Some students required more time to explore problems deeply, which occasionally limited the completion of planned activities. Additionally, the teacher acknowledged the need for continuous professional development to design more varied higher-order thinking tasks. Despite these challenges, both teacher and students expressed positive perceptions of the approach.

Overall, the implementation of the Deep Learning approach at SMK Tiwikrama Mamuju positively influenced classroom dynamics, enhanced student engagement, and improved conceptual understanding. The triangulation of observation, interview, and documentation data supports the conclusion that the approach contributed to a more meaningful and student-centered learning process.

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Discussion

The findings of this study demonstrate that the implementation of the Deep Learning approach at SMK Tiwikrama Mamuju contributed positively to the teaching and learning process. The results indicate improvements in conceptual understanding, student engagement, and critical thinking skills. These findings are consistent with the fundamental principles of Deep Learning, which emphasize meaningful learning, active knowledge construction, and higher-order thinking development.

First, the improvement in students' conceptual understanding reflects the effectiveness of learning activities that move beyond rote memorization. Students were encouraged to analyze real-world vocational cases, connect theoretical concepts with practical applications, and reflect on their learning experiences. This aligns with constructivist learning theory, which suggests that knowledge is actively constructed through interaction and experience. When students engage in meaningful tasks that require analysis and interpretation, they develop deeper comprehension rather than surface-level knowledge. The observed classroom practices indicate that the teacher successfully facilitated such learning conditions.

Second, the increased level of student engagement observed during collaborative discussions and project-based activities highlights the importance of student-centered instruction. Students demonstrated greater participation when given opportunities to explore ideas, discuss solutions, and present their findings. This suggests that the Deep Learning approach supports a more interactive and participatory classroom environment. Engagement is a crucial component of effective learning, as students who are actively involved tend to retain knowledge more effectively and develop stronger problem-solving abilities. The interview results further confirm that students perceived the learning process as more interesting and challenging compared to conventional lecture-based methods.

Third, the development of critical thinking and problem-solving skills indicates that Deep Learning can enhance higher-order cognitive processes. Through case analysis and guided questioning, students practiced identifying problems, evaluating alternatives, and formulating solutions. The teacher's role as a facilitator, rather than a sole information provider, allowed students to take greater responsibility for their own learning. This shift reflects contemporary educational trends that emphasize inquiry-based and problem-based learning strategies. The findings suggest that when properly implemented, Deep Learning can cultivate independent and analytical learners.

However, the discussion also reveals certain challenges that need attention. Time constraints were identified as a significant limitation, as deep exploration of topics often requires extended classroom time. This indicates the need for careful instructional planning and time management strategies. Additionally, teacher readiness remains a critical factor. Designing higher-order thinking tasks and facilitating reflective discussions require pedagogical competence and ongoing professional development. Without adequate preparation, the implementation of Deep Learning may not reach its full potential.

Overall, the findings suggest that the Deep Learning approach is highly relevant and beneficial within the vocational education context. By integrating conceptual understanding, collaboration, and critical inquiry, the approach supports the development of competencies required in the 21st-century workforce. Nevertheless, sustainable implementation requires institutional support, teacher training, and continuous reflection on instructional practices.

In conclusion, this study confirms that the Deep Learning approach enhances the quality of the teaching and learning process at SMK Tiwikrama Mamuju. While challenges exist, the overall impact demonstrates that meaningful, student-centered instruction can

significantly contribute to improved educational outcomes in vocational settings.

Conclusion

This study aimed to explore the implementation of the Deep Learning approach in the teaching and learning process at SMK Tiwikrama Mamuju. Based on the findings, it can be concluded that the Deep Learning approach was effectively integrated into classroom instruction through problem-based activities, collaborative discussions, and reflective learning practices. The approach shifted the learning process from teacher-centered instruction to a more student-centered environment, encouraging active participation and deeper conceptual understanding.

The results demonstrate that students developed stronger critical thinking and problem-solving skills as they engaged in analyzing real-world cases and connecting theoretical knowledge with practical applications. Increased student motivation and engagement were also evident, as learners expressed positive perceptions of interactive and challenging learning tasks. These outcomes indicate that the Deep Learning approach contributes significantly to improving the quality of the teaching and learning process in vocational education.

However, the study also identified challenges, particularly related to time constraints and the need for continuous teacher professional development. Therefore, sustained implementation of the Deep Learning approach requires careful instructional planning and institutional support. Overall, the study confirms that Deep Learning is a relevant and effective approach for enhancing meaningful learning experiences at SMK Tiwikrama Mamuju.

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