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The Implementation of Deep Learning and Cross-Disciplinary Learning Approaches in EFL Material "Procedure Text" at Elementary School

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A B S T R A C T

This study aims to examine the implementation of interdisciplinary learning in English language instruction on procedural texts among sixth-grade students at SD Negeri 2 Kentengsari and to explore its impact on students' understanding and classroom engagement. A qualitative descriptive approach was employed, involving sixth-grade teachers and students as the research participants. Data were collected through classroom observations, semi-structured interviews, and documentation, then analysed using an interactive model consisting of data reduction, data display, and conclusion drawing. The credibility of the findings was ensured through source and technique triangulation. The results indicate that integrating English with Fine Arts created a more contextual, meaningful, and engaging learning environment. Students not only developed a better understanding of procedural text structures but also applied their knowledge through practical classroom activities. The interdisciplinary approach also enhanced students' participation, collaboration, critical thinking, creativity, and artistic expression throughout the learning process. Furthermore, the teacher's role as a facilitator was essential in guiding learning activities effectively. These findings suggest that interdisciplinary learning is an innovative instructional approach that supports holistic competency development and promotes meaningful learning experiences at the elementary school level.

Keywords: *Deep Learning, Interdisciplinary Learning, Procedure Text, EFL, Elementary School*
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INTRODUCTION

The rapid advancement of technology in the twenty-first century has transformed various sectors, including education, making digital integration an essential requirement rather than an option. In Indonesia, the transition toward the Industrial Revolution 4.0 and Society 5.0 has intensified the need to enhance educational quality by equipping students with essential twenty-first-century competencies, including critical thinking, collaboration, communication, and problem-solving skills. Consequently, educational institutions are expected to integrate digital technologies into teaching and learning processes to prepare students for increasingly complex social and professional environments. One significant outcome of this transformation is the widespread implementation of digital learning, which offers innovative opportunities to improve instructional effectiveness and student engagement (Dito & Pujiastuti, 2021). However, implementing digital learning in elementary education presents unique challenges due to students' developmental characteristics, teachers' digital competencies, and the availability of technological infrastructure. Therefore, developing effective digital learning strategies has become a critical priority for ensuring that elementary education remains relevant and responsive to the demands of the digital era.

The application of digital or technology-based learning, such as online learning, project-based learning, cross-disciplinary learning, and gamification-based learning, is a

learning concept currently in high demand in the world of education (Nurjanah et al., 2024). This learning approach is also relevant to the development of 21st-century skills and student learning activities that lead to deep learning. The deep learning approach supports the creation of a learning climate that optimizes students' competencies in analyzing, evaluating, and creating various facts, concepts, procedures, and metacognition of the knowledge they learn. The deep learning approach leads to high-quality, meaningful learning (Nugraha, 2021). To support in-depth learning for students, an interdisciplinary approach can be used.

Interdisciplinary learning in English is an approach that combines disciplines to create a more holistic, context-rich learning experience. This approach emphasizes not only language skills development but also artistic skills and understanding cross-disciplinary concepts related to the arts. The interdisciplinary learning model encourages students to see the interconnectedness between disciplines, enabling them to develop creativity and critical thinking skills in an integrated manner. Integrating material thematically and comprehensively into learning can significantly increase student motivation and engagement. Furthermore, the limitations of English language learning, which remains isolated from real-world contexts, make an interdisciplinary approach urgent.

SD Negeri 2 Kentengsari is an elementary school located in Mentosari, Kentengsari Village, Candiroto District, Temanggung Regency, Central Java Province. This elementary school is committed to improving the quality of learning to create meaningful, high-quality learning and deep learning. This is also done in response to the challenge of motivating students and creating an interesting learning climate. Based on pre-research observations conducted in class VI of SDN 2 Kentengsari, students tend to be passive in the learning process (Observation Results). The application of commonly used learning methods to engage students can lead to low engagement and motivation in learning (Nurjanah et al., 2024). Therefore, an innovative approach is needed to increase student involvement in the learning process, one of which is using cross-disciplinary learning media.

The subject implemented through interdisciplinary learning at SDN 2 Kentengsari is the sixth-grade English language subject, "Procedural Text," which crosses with the Fine Arts subject. This English language subject is often considered boring or less interesting for students. This likely occurs because there is a lack of learning media that facilitate active student involvement in understanding the material's concepts in English in depth. Based on the results of daily assessments, the scores or learning outcomes and understanding of English language concepts fall into the low category or below the Minimum Completion Criteria (KKM) (Observation Results).

Teachers need to use innovative and cross-disciplinary learning media to improve student motivation and understanding. In this case, this was used as a solution to improve the motivation and understanding of sixth-grade students at SDN 2 Kentengsari. Previous research has shown that cross-disciplinary learning can foster a fun and challenging learning environment. The first study, conducted by Sari & Niswa (2025), was titled "Implementation of Deep Learning Approach to English Learning in Elementary School." This study showed that the deep learning approach in English learning in elementary schools can improve conceptual understanding and active student engagement in the learning process. Second, the study conducted by Maenawati & Hadi (2026) entitled "Artificial Intelligence-Based Deep Learning Approach in English Learning for Grade 3 Elementary School." The results showed that using an AI-based deep learning approach through digital learning applications can significantly improve elementary school students' English learning outcomes.

Third, research conducted by Agustiany & Koswara (2026) titled "Deep Learning-Based English Language Learning Management: Improving Elementary Students' Listening Comprehension Skills." This study found that deep learning-based learning management can improve students' listening skills through interactive, context-based learning activities. Fourth, research conducted by Han & Lee (2024) entitled Research on the Development of Principles for Designing Elementary English Speaking Lessons Using Artificial Intelligence

Chatbots. This study explains that the use of AI-based chatbots in EFL instruction in elementary schools can improve students' speaking skills, learning motivation, and English interaction. Among the previous studies, none discusses the implementation of interdisciplinary learning in English language instruction on procedural texts in elementary schools. This research is important for improving the quality of English language learning in elementary schools through an interdisciplinary approach.

Furthermore, what is interesting is how the implementation of learning media for these disciplines in English learning at SDN 2 Kentengsari? This research is important because the knowledge it provides for creating a more interactive, enjoyable, motivating, and in-depth learning process for students is essential for every educator (teacher) to know. In addition, the primary objective of this research is to improve the quality of English language learning through an interdisciplinary approach. It is hoped that this research will contribute to learning innovation in elementary schools, serve as a reference for teachers in developing interactive media, and explain the implementation of the learning process using interdisciplinary media innovations relevant to deep learning.

METHOD

This study employed a qualitative, descriptive approach to provide an in-depth description of the implementation of interdisciplinary learning in English language instruction on procedural texts among sixth-grade students at SD Negeri 2 Kentengsari. Subjects included the sixth-grade teacher and all students involved in the learning activities. Data collection techniques included participatory observation during the learning process, interviews, and documentation in the form of learning materials, student work, and field notes. This approach was chosen to obtain a holistic picture of the planning, implementation, and students' responses to the interdisciplinary learning.

Data analysis was conducted interactively, with the stages of data reduction, data presentation, and conclusion drawing. The collected data were analysed to identify patterns in the implementation of interdisciplinary learning, student engagement, and their impact on procedural text comprehension. To ensure data validity, this study employed source and technique triangulation. The results of the analysis were then presented in a systematic narrative description to provide a comprehensive understanding of the effectiveness and challenges of implementing interdisciplinary learning in elementary schools.

FINDINGS AND DISCUSSION

Before the introduction of the immersive learning approach, English language instruction in elementary schools was often partial and lacked connections to other disciplines. If left unchecked, this would lead to students' understanding becoming less context-dependent. Using an immersive, interdisciplinary approach, the author conceptualized and implemented it in English language instruction for sixth-grade students at SD Negeri 2 Kentengsari.

The innovative idea for interdisciplinary learning was implemented by integrating interdisciplinary learning into English language instruction to increase student engagement and understanding. The learning implementation also has a theoretical foundation, namely the implementation of constructivism theory (meaningful learning through experience), interdisciplinary learning in elementary schools with Fine Arts subjects, and a contextual approach (Contextual Teaching and Learning).

This innovation is urgently needed to meet the demands of 21st-century learning, develop critical thinking and communication skills from an early age, and make English language materials more relevant to students' real lives.

Design of Learning Innovation Work

The planning stage involved developing an in-depth, integrative learning plan. The procedural text theme was how to make food and drinks. This topic was chosen because it was easy for students and aligned with the sixth-grade core material. Following this, a mapping of learning outcomes across various subjects was conducted. The subjects in question were English Language and Fine Arts.

The teacher's learning strategies included lectures, group discussions, and simple project-based learning. The learning approach employed was in-depth, grounded in a cross-disciplinary context. Learning resources included textbooks, YouTube videos, and locally available procedural texts. This ensured that the learning was contextualized and relevant to everyday life. The teacher also used integrative student worksheets. The visual media used to present the material included images and simple videos, making the material more interactive and engaging for students.

The evaluation included authentic, process, and outcome assessments. The teacher used a language skills rubric as a guide for student assessment. The evaluation demonstrated quite optimal results. So, this cross-disciplinary learning can be said to have been successful in providing innovation in English language learning, especially in procedural text materials.

The planning, implementation, and evaluation process was carried out in several stages. The problem identification stage was carried out based on observations in grade VI, as low student engagement in English language learning was observed during the learning process. Learning is still focused on texts without real context. This situation cannot be ignored; innovation in English language learning, particularly in procedural texts, is needed, with an in-depth, interdisciplinary learning approach.

Next, the exploration stage involved conducting a literature review on interdisciplinary learning. The author reviewed previous research to identify best practices for implementing interdisciplinary learning in English language subjects. Then, the author conducted further observations of learning practices in grade VI to determine the extent to which this approach could be applied, adapting to the students' conditions in the school environment.

After conducting the needs analysis, the next stage was innovation development. This stage involved designing an integrative learning model for the English language and fine arts. The author then developed learning materials in the form of teaching modules/in-depth learning plans, media, and instruments. Once the planning was complete, the next stage was the trial phase. The implementation of interdisciplinary learning in grade VI at SD Negeri 2 Kentengsari was carried out according to the previously prepared plan. Observations of student and teacher activities revealed that students were enthusiastic about participating in the lesson. They seemed happy to complete the worksheets provided by the teacher. The digital technology used as support also made learning more engaging and interactive for students.

Next came the reflection stage. During this reflection stage, the teacher and students reviewed the learning that had occurred. This reflection was crucial for providing feedback on the learning process and for improving future lessons. Based on the reflections, the students were pleased with the learning that had occurred. This aligns with the concept of enjoyable learning within the immersive learning approach.

Evaluation of the learning outcomes showed that students demonstrated considerable artistic ability and skill in completing the tasks assigned by the teacher. This was integrated with language skills, as evidenced by the teacher's interdisciplinary approach. Improvements to learning strategies and media are certainly still needed to ensure even better results in the future. Based on the implementation results, future interdisciplinary learning should be conducted through hands-on practice, such as preparing real food or drinks using existing procedural texts. If this can be done, it will certainly provide students with a more comprehensive, holistic, and contextual understanding.

The Process of Creating Media

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The Implementation in Learning

The practical application of interdisciplinary learning to procedural texts in sixth-grade elementary school should not end with theoretical explanations; rather, it should be directly linked to real-life activities relevant to students' lives. For example, teachers can design simple themes like "Making Healthy Drinks" or "Making Traditional Food." In these activities, students are encouraged to observe, perform, and then write down the steps. English plays a role in constructing the procedural text, while Fine Arts is introduced through drawing, colouring, and presenting the results. In this way, students learn holistically and contextually.

Technically, learning can be conducted in three stages. In the initial stage, the teacher provides examples of simple procedural texts and discusses their structure with students. The core stage consists of hands-on group practice activities in which students follow a procedure (e.g., making juice, iced tea, or fried noodles) while recording the steps. In the final stage, students compile and present their procedural texts in their own language. The teacher acts as a facilitator, not simply a provider of material. This model encourages students to be more active, understand concepts concretely, and connect learning to everyday life.

For optimal results, teachers can also utilize simple media such as step-by-step illustrations, short videos, or project-based worksheets. Assessments should not only focus on written work but also on processes such as collaboration, accuracy of steps, and the ability to re-explain procedures. With this approach, interdisciplinary learning not only improves language skills but also builds relevant life skills for elementary school students.

Implementation results show increased student engagement and language skills. Quantitatively, learning outcomes improved, as evidenced by a comparison of pre- and post-learning scores. Most students met the minimum completion criteria (KKM). Qualitatively, students became more active in asking and answering questions and in expressing opinions. They also gained more confidence in reading and writing. This demonstrates that interdisciplinary learning can create a more meaningful, context-rich learning experience.

However, implementation faced several challenges. Teachers needed more time to design well-integrated learning. Furthermore, not all students had the same level of understanding, requiring more intensive support for students experiencing difficulties. Limited learning media is also a limiting factor, though it can be overcome through teachers' creativity in using available learning resources.

Analysis of Practical Application Results of Learning Innovation

The implementation of interdisciplinary learning in English language instruction in grade VI of SD Negeri 2 Kentengsari was carried out through a thematic approach that integrated several subjects, including Fine Arts. During the planning stage, teachers developed learning materials in the form of teaching modules/in-depth learning plans based on interdisciplinary (integrative) learning, selecting themes close to students' lives, such as how to make fried noodles, iced tea, juice, and others. The English-language material was then linked to content from another discipline, namely Fine Arts. Learning activities included writing, drawing, and colouring. This design aimed to ensure students understood language not only as text but also as a tool for understanding the world around them and developing their artistic skills.

During the implementation stage, learning was active and student-centered. Teachers used various strategies, including group discussions, question-and-answer sessions, and simple project-based activities. Students appeared more enthusiastic because the material they were learning was directly related to their experiences. For example, when learning to write simple sentences, students are asked to describe their school environment. This activity not only trains writing skills but also enhances observation and critical thinking skills. Furthermore, the use of visual media such as pictures and integrative worksheets helps students understand the material more easily.

Overall, interdisciplinary learning in English language learning has a positive impact on student learning processes and outcomes. This approach has been proven to improve language skills while broadening students' horizons in various fields of study. Thus, integrative learning can be an effective alternative to improve the quality of learning in elementary schools, particularly by developing students' literacy skills.

The results of this study indicate that implementing interdisciplinary learning on procedural texts can improve conceptual understanding and student active engagement. This finding aligns with the integrated learning theory proposed by Robin Fogarty and Heidi Hayes Jacobs, which emphasizes that integrating multiple disciplines can create more meaningful, context-rich learning experiences. Furthermore, these results support Lev Vygotsky's constructivist perspective, which states that knowledge is constructed through social interaction and direct experience. Therefore, interdisciplinary activity-based learning strengthens students' understanding of the structure and function of procedural texts.

Compared with previous research, these results align with findings showing that problem-based and project-based learning models can improve learning outcomes and student engagement in understanding procedural texts. However, this study makes a novel

contribution by explicitly emphasizing interdisciplinary integration at the lower grade level, a previously under-researched area. The pedagogical implications of these findings are the need for teachers to design learning that systematically integrates multiple subjects, utilizes contextual activities such as hands-on practice, and encourages student collaboration and exploration. Thus, learning does not focus solely on language mastery but also develops critical, creative, and applied thinking skills relevant to everyday life.

Furthermore, the students showed improved comprehension of procedural texts after participating in interdisciplinary learning activities. By integrating English with the art subject, students were exposed to authentic situations that facilitated language learning. On the other hand, learning procedures also related to healthy food preparation, simple experiments, and environmental activities enabled learners to understand vocabulary, sequence expressions, and use imperative sentences more effectively. This finding aligns with constructivist learning theory, which posits that knowledge is actively constructed through meaningful experiences and interactions with the environment (Vygotsky, 1978). The interdisciplinary context provided students with opportunities to connect prior knowledge to new language concepts, thereby enhancing comprehension and retention.

Another important finding concerns student engagement and motivation. The implementation of deep learning encouraged students to become active participants rather than passive recipients of information. Students were involved in observing, discussing, collaborating, and demonstrating procedures, which increased their interest in learning English. The collaborative, experiential nature of cross-disciplinary learning created a supportive environment in which learners could communicate meaningfully with peers. This finding is consistent with previous studies suggesting that active and student-centered learning approaches improve learner motivation, participation, and academic achievement in foreign language classrooms (Mercer & Dörnyei, 2020). The integration of practical activities also reduced students' anxiety toward English learning by making lessons more relevant and enjoyable.

The results further suggest that deep learning contributed to the development of higher-order thinking skills. Rather than merely identifying procedural steps, students were encouraged to analyse, explain, and apply procedural knowledge in new contexts. This reflects the key principles of deep learning, which emphasize critical thinking, problem-solving, creativity, collaboration, and communication. Students demonstrated the ability to transfer knowledge across disciplines, indicating a deeper level of cognitive processing. Such findings support contemporary educational perspectives that advocate interdisciplinary learning as a means of preparing students for complex real-world challenges in the twenty-first century (OECD, 2020). The ability to integrate language learning with broader knowledge domains is particularly important in elementary education, where holistic development is a primary objective.

The effectiveness of the cross-disciplinary learning approach can also be explained through the concept of authentic learning. Authentic tasks require learners to engage with real-world problems and meaningful contexts, thereby increasing the relevance of educational experiences. In this study, Procedure Text materials were linked to everyday activities familiar to students, enabling them to perceive English as a practical tool for communication rather than merely an academic subject. This finding aligns with previous research indicating that authentic, interdisciplinary learning environments improve language proficiency, learner autonomy, and knowledge transfer across contexts (Beane, 1997; Drake & Reid, 2020).

From a pedagogical perspective, the study demonstrates that integrating deep learning with cross-disciplinary learning can serve as an effective strategy for implementing contemporary curriculum objectives in elementary schools. The approach supports not only linguistic development but also character building, collaboration skills, creativity, and critical thinking. Teachers can design learning experiences that connect English instruction with science, mathematics, environmental education, arts, and local cultural contexts. Such

integration enables students to develop a more comprehensive understanding of knowledge while fostering meaningful language use.

Despite its positive outcomes, this study has several limitations. The implementation was conducted within a specific educational setting involving a limited number of participants, which may affect the generalizability of the findings. Additionally, the study focused primarily on Procedure Text materials; therefore, the effectiveness of the approach in other EFL genres remains to be explored. Future research should investigate the application of deep learning and cross-disciplinary learning across different language skills, grade levels, and educational contexts. Longitudinal studies may also provide deeper insights into the long-term impact of these approaches on students' language proficiency and twenty-first-century competencies.

CONCLUSIONS

This study found that the implementation of interdisciplinary learning in English instruction for procedural texts at the elementary level created a more meaningful, context-rich, and student-centered learning experience. By integrating English with other subject areas, students not only understood the structure and purpose of procedural texts but also applied their knowledge through authentic activities that promoted language use and cross-disciplinary skills. The approach encouraged active participation, critical thinking, creativity, and holistic learning. However, teachers encountered challenges related to lesson planning, curriculum integration, and time management. The findings suggest that effective interdisciplinary learning requires systematic planning that aligns learning objectives, instructional materials, and classroom activities across subjects. Schools should support teachers through professional development opportunities and adequate learning resources to facilitate innovative instructional practices. This study contributes to the growing understanding of interdisciplinary learning in primary English education by highlighting its benefits and implementation challenges. Future research should investigate its effectiveness across different educational levels, employ quantitative or mixed-methods designs, and develop standardized instructional models to support consistent and sustainable classroom implementation.

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