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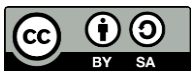

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Implementation of Deep Learning Approach to English Learning in Elementary School

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Abstract

One definition of deep learning is a strategy that prioritizes key knowledge application and conceptual comprehension. The goal of the research is to offer both theoretical and practical support for creating deep learning strategies that work in elementary school settings, particularly when it comes to teaching English. Observations, interviews, and an engineering triangulation approach are among the qualitative techniques employed. Teachers and elementary school pupils made up the study subjects. Through data reduction, data display, and conclusions, the gathered data is examined. The results of the study show that the application of Deep Learning to mathematical studies has a positive effect on students' understanding. This method encourages students' active involvement through various interactive activities, such as simulations and experiments, making the learning process more meaningful and enjoyable. However, the application of this method is also faced with a number of challenges, such as limited time to complete the curriculum and uneven access to technology among students

Keywords: *Deep Learning, English Learning, Elementary Education.*

Introduction

The era of globalization is a period in which countries experience very rapid development along with the passage of time. The advancement of science and the development of increasingly sophisticated technology come in line with the changing times. This development has a wide impact on various aspects in real life, especially in the implementation of learning. The implementation of learning is now undergoing a modification period to become a more effective system and bring in a brilliant young generation and be able to compete healthily in the future. Behind all these advances, teachers have an important role in achieving learning goals (Effendi & Wahidy, 2019).

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According to Triwardhani et al., (2020), the task of an educator is not easy. They are faced with various challenges in the teaching process and help students to interpret the material presented. Therefore, it is important for teachers to implement various learning models and methods that adapt to the needs of students. In addition, schools also need to design creative and innovative strategies in the development of education, so that they can create and improve values that are beneficial to the community and the surrounding environment, as well as enable the application of these values in real life.

The transformation of the learning paradigm is a must to face the dynamics of changing times. One of them is the conventional learning model which has been a reference in transferring knowledge between teachers and students. Previous learning methods are often considered less effective in developing students' critical, creative, and innovative thinking skills (Aziz & Zakir, 2022).

Innovation in learning methods is very important to prepare students to face the complexities of the modern world. One interesting approach is the application of deep learning in the context of education. The term "Deep Learning" is often associated with artificial intelligence technology, which is developing very rapidly. Artificial intelligence has the potential to provide solutions to various problems that were previously difficult for humans to overcome, making it easier to solve these issues. Therefore, learning artificial intelligence is very important so that it can be implemented in real life, especially in the field of education. (Sandy et al., 2023)

According to Arifudin (2021) in Raup et al., (2022), it is stated that future learning models will increasingly involve technology in their application. With the use of artificial intelligence technology, learning methods and approaches will continue to evolve, allowing concepts that were previously only considered imagination or fiction to be realized. Today, many services resulting from the development of AI technology already play a role in human life.

The Deep Learning approach seeks to transform the traditional learning paradigm that tends to emphasize memorization and repetition of information, into more constructive and reflective learning. This change is not only to provide assistance to students in understanding the learning material, but also to encourage students to develop critical thinking skills, creativity, and problem-solving skills (Putri, 2024). Furthermore, (Ginting et al., 2019), provides a more specific definition of Deep Learning as a learning approach that emphasizes deep mastery, beyond just the ability to quickly recognize facts. The main goal of this approach is to ensure students not only gain cognitive improvement through a deep understanding of the core of a concept or theory, but also be able to relate it to relevant practical context in real life.

Deep learning is defined as an approach that emphasizes conceptual understanding and the critical application of knowledge. This approach prioritizes the creation of a supportive learning atmosphere, where the learning process takes

place with awareness, meaning, and provides an exhilarating experience. In the study, Hattie (2012), found that the application of deep learning strategies had an effect, which has a significant influence on the development of student learning outcomes. In line with that, Darling-Hammond (2017), states that Deep Learning is a learning process that encourages student participation in exploring and applying important concepts. This process supports students in terms of improving critical thinking skills and prepares them to face various obstacles in the real world (Ulfah et al., 2022).

In the context of basic education, the implementation of Deep Learning requires careful adjustment taking into account the characteristics of students' cognitive development. Vygotsky's theory of social constructivism highlights the importance of scaffolding and proximal developmental zones in supporting deep learning for children (Tohari & Rahman, 2024). South Korea also participates in utilizing the Deep Learning approach in basic education. The South Korean government partnered with tech companies to develop an AI-based learning system designed specifically for elementary school students. The system mentioned above, not only supports students to understand the subject matter, but also monitors their mental health by analyzing their learning patterns (Kim & Kwon, 2023).

The implementation of Deep Learning includes learning principles that are a basic part of the characteristics of deep learning. This approach is based on three fundamental elements, the first of which is Meaningful Learning in meaning, being the first foundation and the main element in the Deep Learning-based learning approach, this approach allows students to understand learning more deeply and comprehensively. This process involves integrating the latest information with the knowledge that students already have. This cognitive process does not simply add new information, but creates a complex and integrated network of understanding. When students actively connect new phenomena with existing knowledge, they develop a deeper and lasting understanding, in contrast to rote learning which tends to be superficial (Kholifah Al Marah Hafidzhoh et al., 2023).

Mindful Learning in a deep sense, as a second element, plays an important role in developing students' awareness and active involvement in the learning process. Awareness here is directed at building a mindset by becoming a model that shows an open attitude to new experiences, critical reflection on assumptions and beliefs, and a willingness to learn. This approach encourages students to become conscious and reflective learners. Mindful Learning not only focuses on concentration, but it also includes the development of metacognitive awareness that allows students to understand and manage their learning process independently. In other words, students are taught to not only pay attention to the material being studied, but also to understand the way they learn, the strategies used, and how to increase the effectiveness of their learning (Diputera, 2024)

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Empirical findings that corroborate the effectiveness of Mindful Learning in improving various aspects of learning. Research shows that this approach contributes significantly to developing innovative thinking, increasing intelligence, and strengthening metacognitive awareness. More importantly, Mindful Learning has been shown to have a positive correlation with the development of creativity and critical thinking skills. Students who engage in Mindful Learning tend to be better able to analyze information in depth, evaluate various perspectives, and come up with innovative solutions to the problems at hand (Wang et al., 2023).

Joyful Learning in the sense of exhilarating, as a third element, provides an important emotional dimension in the learning process. This approach integrates aspects of activeness, creativity, effectiveness, and fun in learning. The creation of a pleasant learning atmosphere does not reduce the substance of learning, but rather strengthens its effectiveness. The conditions of a cheerful and conducive learning environment can develop students' intrinsic motivation, making them very enthusiastic and eager to face academic challenges.

Teachers can choose from a variety of methods that can be used such as game-based learning, where lesson concepts are taught through engaging educational games; creative projects, which allow students to express their ideas through art, design, or other media; and collaborative activities that encourage teamwork and positive social interaction. Thus, students become comfortable and inspired to learn, because they see the learning process as something fun and rewarding (Sitompul, 2018). Other; and collaborative activities that encourage teamwork and positive social interaction. Thus, students become comfortable and inspired to learn, because they see the learning process as something fun and rewarding (Nur, 2019).

This research aims to provide both theoretical and functional assistance in developing a Deep Learning approach that is in accordance with the context of elementary schools, especially in English learning. From the theoretical side, this study seeks to adapt the three main elements in the Deep Learning approach with the principles of Meaningful Learning, Mindful Learning, and Joyful Learning so that they are more relevant and can be applied effectively, especially at the elementary school level. It is hoped that this approach can improve the quality of learning by creating a learning experience that is not only in-depth but also relevant, and enjoyable for students.

Practically, the findings of this research can be used as a guideline for various needs organizers in the educational environment, including the government, policymakers, and education practitioners. The findings are expected to be the basis for the development of education policies and operational guidelines for elementary schools that want to adopt and adjust the Deep Learning approach according to local conditions because each region has its own characteristics and challenges, so a learning strategy is needed that can be applied optimally based on the local context.

Method

Approaches and Types of Research

In this study, a qualitative approach was adopted with the type of research method of triangulation techniques. Triangulation is essentially an approach applied by researchers to collect and analyze data. Therefore, triangulation serves as a way to verify the validity of data or information through various perspectives, with the aim of reducing ambiguity and double meanings that may arise during the process of data collection and analysis (Agustina & Nurlizawati, 2023).

Data Source

This research is based on primary and secondary data sources. Primary data is information received directly from the original source. Some of the techniques used in primary data collection include observation, and interviews. The research was conducted in the 4th grade of SD IT AULIA Deli Serdang, with the research subjects being homeroom teachers and 4th grade students of SD IT Deli Serdang. Secondary data is obtained by collecting information from various existing sources. This resource includes books, reports, journals, and all relevant information regarding the application of the Deep Learning approach to English language learning.

Data Collection Techniques

The triangulation method of the technique helps in conducting research to obtain information and data which is relevant so that it makes it easier to make a scientific paper, one of which is in making articles. In this method, several techniques are used, namely: observation and interview.

Research Location The research location in the 4th grade of SD IT Deli Serdang which is located on the bejo road of Bnadar Khalipah village, Deli Serdang Regency Data Analysis According to Noeng Muhadjir (1998: 104) in Ghofilah et al., (2022), data analysis is a sequential process carried out to find and compile records obtained from observations, interviews, and other sources. This analysis aims to understand more deeply about the case being studied, and present the findings to other parties. To achieve a deeper understanding, it is necessary to analyze the data and continue with efforts to explore the meaning of the findings that have been obtained.

Finding and Discussion

Research and Discussion Results From the results of observations carried out in several English learning sessions in grade 4 of SD IT Aulia, it shows how this approach can be applied systematically and oriented to student experience. Starting with the classroom atmosphere, teaching methods, and student involvement in learning activities. All of these aspects are designed to support a deeper and more significant understanding so that it can have an impact on students' lives and provide enlightenment that English is not just a subject in

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school, but can be a skill that has direct relevance to daily life.

One of the strategies applied in learning is by using simulation in understanding the concept of fractions, where teachers use a simulation of dividing cakes as a tool to clarify the material. In this simulation, students are divided into small groups and given a cake that a must They distribute it fairly according to the scenario that has been prepared. The application of Mindful Learning can be done by asking students to observe the shape and size of the cake, consider different ways of division, and relate it to the concept of fractions that have been learned. For example, when students divide one cake into two equal parts, they consciously realize that each piece represents 1/2 of the entire cake. The cake is further divided into four parts, they can compare that each piece is now worth 1/4 of the whole. Through this approach, students not only tend to receive information passively but also engage critical and analytical thinking skills in understanding fractions.

Some students quickly grasp the concept, while others need further guidance. Teachers actively accompany each group with each progress that has been made, provide directions, and ask triggering questions. This approach refers to Bruner's (1966) theory in Siagian & Tacap, (2012), on Discovery Learning, which states that students learn best when they discover new concepts on their own through hands-on experience. With this simulation, students not only understand fractions theoretically but also see their application in everyday life, such as when sharing food with friends or family.

This method allows for Meaningful Learning because students can relate academic concepts to their real experiences, such as when they share a meal with a relative or friend. Learning becomes more meaningful because students can directly see the application of fractions in daily life. This approach is in line with the research of Rahma (2013), who states that meaningful learning occurs when a person learns something new by connecting it into the knowledge structure they already have. In the learning process, individuals build understanding themselves by associating new experiences, phenomena, and facts with existing knowledge (Rahmah, 2018).

This activity also created the concept of the Joyful Learning approach applied in this simulation of student engagement in learning, which shows that learning that involves social interaction and fun activities can increase students' motivation and knowledge retention. By making learning a fun experience, students are more encouraged to actively participate and feel more confident in understanding the material taught (Mubaroq, 2025).

In a study conducted by Anggoro (2017) in Kane et al., (2016), it was emphasized that learning strategies that integrate games and simulations can help students not only in understanding academic material but also in developing their social skills. The Joyful Learning approach ensures that the learning process is not only effective but also fun for students. In the activity of dividing cakes, a fun learning atmosphere can be created by making the activity a game or group

challenge. In this way, students do not feel pressured or afraid of making mistakes, but instead enjoy the learning process and are more enthusiastic.

This application is in line with the research of Ashura (2014:12) in Nurul Fajri, (2016), who said that Joyful Learning uses the learning process with a fun approach so that it helps students feel more motivated, excited and unburdened in learning.

This approach aims to eliminate boredom and tension experienced by students by applying through games, quizzes, and other physical activities so that learning in the classroom becomes less monotonous in the results of interviews were conducted with teachers and 4th grade students of SD IT Aulia as resource persons. This interview aims to understand how Deep's approach Learning is implemented in learning and its impact on engagement and student understanding. The 4th grade teacher explained that the Deep Learning approach has brought positive changes in the learning process.

According to him, the use of this method is very effective in helping students to better understand learning materials not only memorize theories but also apply them in daily activities. For example, the use of a cake splitting simulation in English learning fractional material, with this student more quickly grasps the concept of the material through practice than just through explanations on the board.

Although the Deep Learning approach has brought many benefits in grade 4 learning at SD IT Aulia, teachers revealed that there are several challenges in implementing this method. One of the main obstacles is having limited time to complete the entire curriculum. Exploration-based learning often takes longer than traditional lecture methods, because students need to experience the learning process themselves through discussions, experiments, or simulations. As a result, teachers must be good at managing time so that all material can still be delivered. In addition, teachers also highlighted the gap in access to digital technology among students.

The limited use of digital technology devices does not allow all students to be able to access additional materials that have been provided by teachers through online platforms. This causes difficulties for those who want to obtain additional learning resources as well as participate in technology-based learning activities. This digital divide is a challenge in ensuring that all students get the same learning opportunities, especially in the increasingly growing digital era in the world of education.

Another challenge is the lack of training for teachers in developing Deep Learning-based learning methods. This method demands the role of teachers who are not only teachers, but also able to Designing learning that involves exploration, in-depth discussion, and training students in critical thinking in solving problems. Teachers feel the need to receive further training in order to implement this method more effectively, especially in terms of the use of technology and classroom

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management that involves students actively participating in the learning process.

In addition, some students feel that the Deep Learning method helps them become more confident in asking questions and expressing opinions. A more open and collaborative classroom atmosphere allows them to discuss with their peers. One of the students revealed that previously he was often hesitant to ask questions because he was afraid of being considered a lack of understanding of the lesson, but after the application of this method, it made students more comfortable conveying their questions and opinions. Activities such as dividing the cake into small groups not only make the concepts easier to understand, but also encourage them to communicate and work together in solving the challenges given by teachers.

However, on the other hand, not all students feel comfortable in the use of this method. Some students tend to prefer traditional methods because they are used to a more structured approach and focus on the teacher's explanations. The use of exploratory methods is still considered too free, allowing students to experience difficulties in following the learning process. For them, listening to direct explanations from the teacher and doing practice questions in a clear format will be easier to understand than having to explore concepts independently or in groups.

Conclusion

Based on interviews with teachers and students, it can be concluded that the implementation of Deep Learning in grade 4 of SD IT Aulia has a positive impact on increasing understanding and encouraging student involvement to actively learn. However, there are some challenges that need to be considered, such as limited time in completing the curriculum, lack of access to technology for some students, and the need for additional guidance in implementing Mindful Learning. With further support in terms of teacher training and increased access to technology, the Deep Learning approach can be further optimized to produce more effective and meaningful learning for students. Deep learning in the context of education is not only tied to artificial intelligence but also reflects learning methods of deep understanding, clear and rational thinking and applying knowledge in real life.

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