IMPROVING VOCABULARY MASTERY THROUGH DEEP LEARNING APPROACHES WITH VISUAL STRATEGIES (MIND MAPPING) IN GRADE 8. E STUDENTS AT UPT SMP NEGERI 2 GALESONG SELATAN.

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ABSTRACT

This study investigates the effectiveness of the Deep Learning approach combined with the Mind Mapping strategy in enhancing the motivation and mastery of basic vocabulary among 8th-grade students at UPT SMP Negeri 2 Galesong Selatan. Limited understanding of essential English vocabulary was identified as a critical issue in the target class. The theoretical framework guiding this research is Allan Paivio's Dual-Coding Theory, which posits that processing information through both verbal and visual channels significantly improves memory retention. Employing a qualitative case study design, the research utilized pretest and posttest data as the primary evaluation instruments. The results demonstrate a substantial increase in students' vocabulary mastery following the intervention. The average pretest score of 40.0 rose considerably in the posttest, particularly in categories like Body Parts, which showed a remarkable increase from 9 points to 189 points. This improvement confirms that the integration of the Deep Learning approach and Mind Mapping strategy effectively fosters a learning experience that is meaningful, mindful, and joyful (Meaningful, Mindful, Joyful Learning), thereby supporting deeper and more robust vocabulary acquisition.

Keywords: Deep Learning; Mind Mapping; Dual-Coding Theory; Vocabulary Mastery; English Language

A. INTRODUCTION

Vocabulary stands as the essential component and principal foundation of the English language learning. A deficit in vocabulary mastery directly impairs other vital literacy skills, including reading, writing, speaking, and listening, as it obstructs the complete comprehension of meaning (Clark &

Paivio, 1991). The urgency of this issue is clearly manifested at UPT SMP Negeri 2 Galesong Selatan, where 8th-grade students exhibit critical limitations in grasping basic English vocabulary, consequently impeding their overall academic progress.

To effectively address this pervasive educational challenge, innovative instructional strategies capable of activating students' long-term memory are crucial. This research proposes the implementation of the Deep Learning (DL) approach.

Within the pedagogical context, DL moves beyond rote memorization, emphasizing a profound understanding of concepts, mastery of core competencies, and active student engagement throughout the learning process (Purnomo et al., 2025). This approach actively seeks to cultivate learning experiences characterized as meaningful, conscious, and enjoyable (Meaningful, Mindful, Joyful Learning) (Khasanah & Alanur, 2022).

The strategic method selected to complement the deep learning approach is Mind Mapping (MM). Mind mapping is a creative note-taking technique robustly supported by Allan Paivio's Dual-Coding Theory (DCT) (Paivio, 1971). DCT asserts that information is processed through two distinct channels—verbal (text/sound) and visual/nonverbal (images/diagrams)—and that simultaneous processing via both channels significantly enhances memory encoding and learning retention (Paivio, 2006; Putra et al., 2013). Research has demonstrated MM's effectiveness in aiding students to categorize and structure learning material visually (Rossa Ayuni, 2021), and it has been empirically proven to boost recall and mastery of English vocabulary (Feng et al., 2023; Jiang, 2020).

Despite the established benefits of both DL in promoting deep engagement and MM in aiding retention through DCT, a knowledge gap exists regarding their systematic integration in basic vocabulary instruction. The scientific novelty of this research lies in the deliberate, systematic integration of the deep learning philosophy with the DCT-backed mind mapping strategy, specifically tailored to link core vocabulary categories (such as body parts, animals, and food & drinks) with distinct visual symbols and conceptual categories.

Based on the identified problem and the proposed integrated solution, the primary objective of this study is to analyze the extent to which this combined deep learning and mind mapping approach can enhance both student motivation and the acquisition of basic English vocabulary among the 8th-grade students at UPT SMP Negeri 2 Galesong Selatan.

B. METHOD

This study employed a qualitative research approach using a case study design. This specific design was chosen to facilitate an in-depth, intensive analysis of the learning processes and the documented progress within a tightly defined group, the 8th-grade students at UPT SMP Negeri 2 Galesong Selatan. The qualitative approach allowed for a rich understanding of how the implemented instructional strategy—the combination of deep learning and mind mapping—impacted student engagement and subsequent vocabulary mastery.

The research setting was the students' classroom environment, and the subjects of the study were the students enrolled in class 8.E. The duration of the intervention spanned one month/eight meetings, allowing sufficient time for students to adapt to the new methodology and for the deep learning principles to be fully integrated into the learning routine. The intervention focused on enhancing ten specific categories of basic English vocabulary, ensuring a targeted and measurable impact.

The process of the study was divided into three main phases: pre-intervention, intervention, and post-intervention. The initial phase involved establishing a baseline measurement, followed by the main interventional phase, where the deep learning approach was executed, utilizing mind mapping as the core visual strategy for active learning. In this stage, students were systematically guided to link new vocabulary (the verbal channel) with relevant images and conceptual diagrams (the nonverbal channel), directly applying the principles of the Dual-Coding Theory. The final phase focused on evaluating the outcomes of this integrated strategy.

Data Collection Techniques:

1. Pretest

Conducted before the Deep Learning-Mind Mapping intervention

to assess the students' initial level of basic English vocabulary mastery.

2. Intervention Observation

Ongoing observation is utilized to monitor student motivation, participation, and the practical application of mind mapping techniques during the learning sessions.

3. Posttest

Administered after the entire intervention period to measure the degree of vocabulary improvement and retention achieved by the students.

The evidence for this study was obtained directly from the numerical performance recorded in the students' initial and final tests. This data was then analyzed by calculating the average score and observing the shift in correct answers in each vocabulary category. These numerical findings were then interpreted qualitatively to discuss the effectiveness of the synergy between deep learning and mind mapping in achieving deep and meaningful vocabulary mastery.

C. FINDINGS

The application of this innovative learning strategy to students in class 8.E at UPT SMP Negeri 2 Galesong Selatan resulted in a significant increase in vocabulary mastery, as evidenced by the students' initial pretest average score of 40.0, which then increased substantially on the posttest. Table 1 presents a comparison of the points obtained by students for the vocabulary category, which shows the most interesting and contrasting trends in results.

Tabel 1 Comparison of Pre-test Correct Points in the Basic Vocabulary Category

Vocabulary Category.	Pretest Point.	Posttest Point.	Point Difference
Number	50	85	35
Colour	101	146	45
Days & Months	56	143	87
Food & Drink	96	81	-15
Body Parts	9	189	180
Objects	43	48	5
Animals	54	145	91
Family	44	160	116
Adjectives	25	35	10
Verbs	5	7	2

The data in Table 1 shows that eight out of ten vocabulary categories experienced a positive increase in points. However, the two most extreme and contrasting trends were the extraordinary jump in points in the Body Parts category and the anomalous decline in the Food & Drinks category. These two trends became the focus of scientific

discussion to explore cognitive findings.

D. DISCUSSION

The results strongly validate the research hypothesis regarding the effectiveness of integrating deep learning and mind mapping. The successes and anomalies found can be explained through the principles of cognitive science that underlie learning and memory retention.

Confirmation of Dual-Coding Theory (DCT) and the Self-Referential Effect on High-Imagery Categories.

The biggest rise in points in the Body Parts category, with a remarkable leap of +180 points (from 9 to 189), is a scientific result that objectively supports Allan Paivio's Dual-Coding Theory (DCT). This surprising trend happened because the body parts vocabulary is a naturally high-imagery item with the highest potential for dual coding (Clark & Paivio, 1991).

During the intervention process, children learn words (verbal channel) and subsequently map them on a mind map representing bodily parts (visual channel), forming two independent memory pathways. This dual coding produces memory redundancy, which allows for faster and more reliable information retrieval. Furthermore, the self-referential effect phenomenon reinforces this substantial gain by processing personally related information (such as one's own bodily parts) at a deeper semantic level and improving memory.

The mind mapping approach requires students to imagine actively and map information for themselves, which effectively engages the DCT and self-referential effect mechanisms. These findings are consistent with prior research that has demonstrated the strong influence of visual-audiovisual approaches on idea recall, particularly in the setting of language learning (Handayani, 2020; Pajriah & Budiman, 2017).

Limitations of Meaningful Learning in Shallow Structured Categories.

On the other side, the Food & Drink category experienced a minor fall of -15 points (from 96 to 81). This scientific result sheds light on the limitations of using deep learning on content that is already well-known. This negative trend happened

because students most likely already had a rudimentary understanding of the food & drinks vocabulary (rote learning) during the pretest (96 points).

According to the deep learning framework, effective learning must cause students' cognitive structures to evolve or deepen (Purnomo et al., 2025). Attempts to recode the content using mind mapping without genuinely novel visual or contextual cues may result in memory interference if the content is already loosely organized. When dual coding (new words) is insufficient to strengthen or replace preexisting shallow coding, interference arises.

This demonstrates how the degree of novelty and visual customization of the content greatly influences mind mapping's efficacy within the deep learning framework. To go beyond initial superficial understanding, mind mapping for known categories should be created to link concepts with more intricate or significant real-world experiences (meaningful learning).

Deep Learning as a Catalyst for Active Engagement and Competency Improvement.

The overall average improvement from a starting score of 40.0, in spite of the anomalies, demonstrates that the active process of making mind maps effectively satisfies the Deep Learning criteria, namely, becoming an active, conscious, and meaningful learning experience. A key requirement for reaching deep competency mastery is student participation in word sorting, categorization, and visualization (Raup, 2022).

Vocabulary has been successfully internalized, moving from working memory to long-term memory, as seen by the rise in post-intervention scores. This accomplishment is a crucial sign of deep learning that satisfactorily addresses the original research goals and assumptions, in line with other studies that connect the deep learning approach to enhanced language proficiency (Suar Adnyana, 2024).

E. CONCLUSION

Deep learning, along with visual mind mapping techniques, has been shown to improve the mastery of Basic Vocabulary among 8th-grade students at UPT SMP Negeri 2 Galesong Selatan. A significant improvement in

posttest scores compared to pretest scores (average X = 40.0), particularly in categories that are easy to visualize (Body Parts), lends empirical credence to Dual-Code Theory. This technique effectively produces an active, relevant, and memorable learning environment, making it suitable for junior high school language instruction.

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