



Vocabulary Discovery Strategy: A Case Study on Autism Spectrum Disorder Students



Luh Diah Surya Adnyani^{1*}, Kisyani Laksono², Syafi'ul Anam³, Ni Nyoman Padmadewi⁴

^{1,2,3} Doctoral Degree in Language and Literature Education, Faculty of Language and Art, Universitas Negeri Surabaya, Surabaya, Indonesia

⁴ English Language Education, Universitas Pendidikan Ganesha, Singaraja, Indonesia

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ABSTRAK

Pembelajar bahasa menggunakan strategi pembelajaran kosakata (VLS) untuk mempelajari kata-kata baru. Meskipun VLS digunakan secara luas, masih kurangnya penelitian tentang bagaimana VLS dimanfaatkan oleh siswa dengan gangguan spektrum autisme (ASD). Studi kasus ini berupaya menganalisis VLS, khususnya strategi penemuan, yang dilakukan oleh empat siswa sekolah dasar penderita ASD. Kerangka taksonomi Schmitt digunakan dalam penelitian ini. Metodologi studi kasus digunakan dalam penelitian ini. Observasi yang berlangsung selama sembilan bulan, empat minggu dalam sebulan, dan empat jam dalam sehari dilakukan karena ketidakmampuan siswa tersebut dalam mengisi angket yang seringkali menjadi syarat pada penelitian-penelitian sebelumnya. Selain itu, wawancara dengan guru memperkuat dan menjelaskan temuan tersebut. Data dikodekan dengan menggunakan perpaduan metodologi bottom-up (induktif) dan top-down (deduktif) dan dianalisis melalui analisis tematik. Hasilnya menunjukkan bahwa siswa ASD memanfaatkan strategi kelompok sesuai taksonomi Schmitt. Mereka mempelajari dan memahami kosakata bahasa Inggris baru melalui tekad dan strategi sosial. Penelitian ini menekankan bahwa siswa dengan ASD juga menggunakan strategi tambahan yang tidak ditentukan dalam taksonomi Schmitt dan tidak dapat mempelajari kosakata bahasa Inggris baru secara mandiri. Intervensi guru diperlukan. Makalah ini menyajikan implikasi praktis dari temuan ini bagi guru yang menangani siswa penderita ASD. Selain itu, perlunya penelitian lebih lanjut di bidang ini juga dibahas.

ABSTRACT

Language learners utilize vocabulary learning strategies (VLS) to learn new words. Although VLS was widely used, there was a lack of research about how it was utilized by students with autism spectrum disorder (ASD). This case study sought to analyze the VLS, especially the discovering strategy, employed by four primary school students with ASD. Schmitt's taxonomy framework was used in this study. A case study methodology was employed in this study. An observation lasting nine months, four weeks in a month, and four hours in a day was conducted due to the inability of those students to fill out the questionnaire, which was often a requirement in previous studies. Furthermore, the interviews with teachers enhanced and elucidated the findings. The data were encoded utilizing a blend of bottom-up (inductive) and top-down (deductive) methodologies and analyzed through thematic analysis. The results indicate that students with ASD utilize the strategy groups according to Schmitt's taxonomy. They learn and understand new English vocabulary through determination and social strategies. This study emphasizes that students with ASD also utilize additional strategies not specified in Schmitt's taxonomy and cannot learn new English vocabulary independently. The teacher's intervention is necessary. This paper presents the practical implications of the findings for teachers who work with students with ASD. Additionally, the necessity for further research in this area is discussed.

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1. INTRODUCTION

Scholars have thoroughly examined the importance of vocabulary in acquiring language. Nevertheless, vocabulary learning has been given minimal emphasis and the strategy via which children with autism spectrum disorder (ASD) acquire vocabulary is not widely understood (Haebig et al., 2017; Rahmani, 2023). Vocabulary acquisition is a significant challenge for young learners diagnosed with ASD. The obstacle may stem from difficulties in communication and social interaction that are consistently present in many situations and other specific requirements associated with the autistic phenotype (Shemy et al., 2023; Thepvong et al., 2024). Therefore, it is essential to examine the acquisition of second language vocabulary in children with ASD while considering the distinctive traits of these children (Afzal, 2019; Thordardottir, 2019). The social and communication difficulties associated with autism prompt the question of whether this affects the process of

language acquisition in autistic children. Further investigation is required to precisely delineate the learning processes involved in neurodevelopmental disorders (Kover & Weismer, 2014; Vulchanova et al., 2020). Additional research is also needed to thoroughly analyze how they acquire or learn second language vocabulary for the first time. The information on the vocabulary learning strategy will enable the teachers to develop appropriate and effective learning resources for practical conversation (Ghalebi et al., 2021; Goundar, 2019). According to previous study second language learners initially acquire vocabulary by learning the meaning of words using discovery strategies (Pawlak, 2020). Subsequently, they consolidate their understanding of the term by recalling it once its meaning has been discovered. This study explicitly targets the discovery strategy. The meaning can be acquired through two methods: autonomously, by utilizing determination strategies such as inferring, or socially, by seeking guidance from teachers or peers who possess established social techniques (Nurlia & Suardiman, 2020; Yuditseva, 2015).

Vocabulary discovery strategy is a critical aspect of language learning that focuses on the methods and techniques used by learners to discover, understand, and retain new vocabulary. This strategy is fundamental to language acquisition, as it equips learners with the tools needed to expand their lexicon efficiently. The discovery of new vocabulary is not merely about memorizing words; it involves a comprehensive understanding of how to utilize these words in different contexts to enhance communication skills. Vocabulary discovery strategies encompass a range of activities designed to aid learners in identifying and internalizing new words. These activities include the use of context clues, which help learners infer the meanings of unknown words from the surrounding text. Additionally, word formation analysis, such as understanding prefixes, suffixes, and root words, allows learners to deconstruct and comprehend complex vocabulary. Engagement with authentic texts, including literature, media, and real-world conversations, provides learners with exposure to vocabulary in its natural usage, thereby reinforcing their learning. Research has demonstrated that effective vocabulary acquisition is essential not only for language comprehension and production but also for academic success and cognitive development. A robust vocabulary enables learners to understand and produce more complex and nuanced language, facilitating better communication (Knauer et al., 2020; Thordardottir, 2019). In academic settings, a well-developed vocabulary supports reading comprehension, writing proficiency, and overall academic achievement. Moreover, vocabulary knowledge contributes to cognitive development by enhancing memory, critical thinking, and problem-solving skills. By employing a variety of discovery strategies, learners can enhance their ability to infer the meanings of unknown words, thereby improving their overall language proficiency (Chen et al., 2021; Walkington et al., 2019). These strategies encourage active engagement with the language, promoting deeper understanding and retention of new vocabulary. Learners who utilize diverse discovery techniques are better equipped to encounter and comprehend unfamiliar words in different contexts, leading to more effective and sustainable language learning (Darmaji et al., 2022; Yerimadesi et al., 2019). The current study seeks to analyze the vocabulary learning strategy (VLS), with a particular emphasis on the discovery strategy employed by students with ASD who are learning English as a second language. This study aimed to analyze the vocabulary discovery strategy employed by four elementary students with ASD, using Schmitt's taxonomy as a framework. The novelty of this study is vocabulary learning strategy (VLS) discovery strategy employed in ASD.

2. METHOD

A case study methodology was employed in this study. This methodology is appropriate for the study's objective since it enables researchers to investigate research phenomena in the natural setting (Duff, 2008; Yin, 2003). The study aimed to explore the discovery strategies used by ASD students to improve their vocabulary learning in a second language. This study involved the participation of four students diagnosed with ASD. Student 1 was a third-grader who was verbally active and possessed excellent English language abilities. He was interested in the animals' English names and enjoyed drawing them. Student 2 was a fourth-grader. His communication was nearly nonverbal. Student 3 was also in the fourth grade. He was capable of depicting every tiny component of an electronic device and consistently discussed electricity without regard for the opinions of others. Moreover, Student 4 was in the first grade and had no prior exposure to the English language. He was adept at imitating his peers, enjoyed movement, and could be disruptive to other students. Additionally, he was capable of initiating conversations in the first language. Nevertheless, those students engage in various lessons, such as physical education, English, music, and art, in collaboration with their peers. In addition, two teachers specialized in special needs classrooms participated as interviewees to validate the observation data. All participants were assigned pseudonyms. The data were obtained through the process of observing and conducting interviews. Observations were performed on a four-day-per-week basis, with each observation spanning four hours over nine months. Fieldwork must be conducted for at least nine months for educational research to be classified as longitudinal. The interview was conducted after the observation to clarify the observed process further. The grid of instrument is show in Table 1.

Table 1. The Grid of Instrument

Strategies for the Discovery of a New Word's Meaning	
Indicator	Sub Indicator
Determination Strategy (Initial discovery of word meaning and remembering the word)	Strategies Based on Schmitt's Taxonomy Analyze part of the speech Analyze affixes and roots Check for L1 cognate Analyze any available pictures or gestures Guess from textual context Use bilingual dictionary Use monolingual dictionary Make word lists Use Flashcards
	Another Strategies Not Mentioned in Schmitt's Taxonomy
	Strategies Based on Schmitt's Taxonomy Ask the teacher for an L1 translation Ask the teacher for paraphrase or synonym of a new word Ask the teacher for a sentence including the new word Ask classmates for meaning Discover new meaning through group work activity
	Another Strategies Not Mentioned in Schmitt's Taxonomy
	Social strategy (Involving cooperation with others)
	Strategies Based on Schmitt's Taxonomy Ask the teacher for an L1 translation Ask the teacher for paraphrase or synonym of a new word Ask the teacher for a sentence including the new word Ask classmates for meaning Discover new meaning through group work activity
	Another Strategies Not Mentioned in Schmitt's Taxonomy

The data were encoded utilizing a blend of bottom-up (inductive) and top-down (deductive) methodologies and analyzed through thematic analysis (Maguire & Delahunt, 2017). The deductive analysis was driven by theory, in this case, the vocabulary learning strategy by Schmitt. Meanwhile inductive analysis was driven by the data. The data were identified and analyzed, and the pattern was described. The researchers examined the vocabulary discovery strategies used by the participants, which were mentioned and not mentioned in Schmitt's taxonomy. There were six steps in the thematic analysis, starting from acquainted with the observation and interview data, identifying the initial codes, theme, then the theme were reviewed, defined, and decided the labelling for the theme before writing the report. Triangulation enhances a study's internal validity. This study used two data sources gathered through observation and interviews to verify the emerging facts. Additionally, member checking-in, in which the teachers confirmed the researcher's interpretation, was used to ensure internal validity.

3. RESULT AND DISCUSSION

Result

After In this study, Schmitt's taxonomy of VLS was utilized to examine the English vocabulary discovery strategies employed by four students with varying degrees of autism spectrum disorder. In contrast to prior research, the data for this study were not obtained through a questionnaire. Instead, they were collected through nine months of observation and teacher interviews. The findings of this study indicate that ASD students utilized two specific discovery strategies, namely determination and social strategies, as classified by Schmitt's taxonomy, to ascertain the meaning of unfamiliar words. The determination strategy involves autonomously uncovering the meaning of a new word without relying on guidance from teachers or peers, whereas the social strategy consists of seeking assistance from others. Furthermore, this finding also revealed the strategies employed to uncover new English vocabulary that was not explicitly stated in the taxonomy.

Determination strategy

In this study, the four ASD students analyzed the pictures in the worksheets or books and the gestures made by the teacher. They did not conduct other determination strategies mentioned in the taxonomy, such as analyzing parts of speech, affixes, and roots, verifying the presence of first-language cognates, or making educated guesses based on textual context. In addition, they never utilize flashcards or a bilingual or monolingual dictionary to create word lists. Analyzing a picture or gesture based on Schmitt's taxonomy means that the learners independently guess the vocabulary in the picture or the meaning of the gesture. Unlike in previous studies in which the students discovered the meaning of the new word without the assistance of others, ASD students needed teachers' guidance, instruction, or explanation when dealing with English vocabulary in

pictures and gestures. Autistic students are visual learners. The teacher used a "first and then" card to make them aware of what they needed to do at that time and what came next. For example, the teacher put a picture of a garden in the "first" section and a photo of YouTube in the "then" section. When the students saw that card, they understood they needed to do gardening first. After that, they could do their reward activity by watching a video on YouTube. The "then" picture could motivate them to finish the "first" activity. The teacher showed a "first and then" card and talked to the students while pointing to the "first" picture and then the "then" picture. The students learned the meaning of a garden from the picture. Their understanding was better when they went to the garden at the back of the school.

Social Strategy

Only one ASD student in this study used one of Schmitt's social strategies to discover the word's meaning. Student 1 was the most proficient in speaking English among the fourth students. Student 1 often asked the teacher to translate the English word to an Indonesian word. ASD students in this study never used other social strategies from Schmitt's taxonomy. They never asked the teacher to paraphrase or provide a synonym for them. They never requested the teacher to make a sentence using the newly learned word. Moreover, they never sought help from their classmates and conducted discussions about the meaning. Instead, based on the observation, the participants discovered the meaning of the new words through the translation given by the teacher and peers and the instruction that the students should do or repeat. Only one student often asked for the translation of the new words. He and the other three students in the special needs classroom acquire the meaning from the teacher's answer. This study revealed that discovering new meaning through the translation given by the teacher and peers was not mentioned in Schmitt's taxonomy but employed by ASD students. In the taxonomy, the learners discover the meaning using a monolingual or bilingual dictionary. The ASD students did not perform those activities. Instead, the translation was learned from the teachers' instruction or statements. The translation was also learned from Student 1, who sometimes translated the words. In addition, ASD students learned new English vocabulary through repetition. This repetition was different from the repetition that characterized the autistic students. The repetition of discovering a new meaning based on the observation was conducted intentionally. The students repeated the teacher, repeating syllable by syllable or the whole word.

Discussion

Four ASD students applied two strategy groups from Schmitt's VLS taxonomy to discover the new English words. They used determination and social strategies. One of the determination strategies commonly used by typically developing students was using monolingual or bilingual dictionaries to find out the meaning, pronunciation, and usage of the new word independently (Adam & Magfirah, 2022; Goundar, 2019). Dictionaries and online tools are essential and advantageous for students to enrich their vocabulary (Adinda & Rahayu, 2023; Boonmoh & Kulavichian, 2023; Liando et al., 2021). Unlike the previous research, the ASD students in this study never utilized a dictionary. They counted on the teachers' translation, explanation and repetition. Repetition was essential to minimize the cognitive burden caused by the first and second language distance (Boonmoh & Kulavichian, 2023; Ghazi-Saidi & Ansaldo, 2017). Repetitive action and speech are frequently observed in ASD students. Meaningless repetition or echoing the prior speech may function in autism for communicative goals (Ghazi-Saidi & Ansaldo, 2017; Xie et al., 2023). The ASD students were placed in the special needs classroom and studied based on their Individual Education Plan. Mostly, they had to do worksheets in Indonesian or in English. They acquire a new English vocabulary for the first time by looking at the pictures in the worksheet. However, they did not analyze them by themselves. Instead, they needed stimulation from the teacher. The students looked at the picture in that worksheet, and the teacher introduced its English word. In addition, the teacher explained in the first language. Moreover, it was found that sometimes, Student 1 could help other students relate to the English words of the pictures.

The finding that Student 1 could help other students suggested that highly verbal ASD students could play as experts in peer interaction. As language experts, the students played a role as language and social mediators (Erdemir & Brutt-Griffler, 2020; Yu et al., 2021). Meanwhile, the low-verbal ASD students acquired a new word meaning from strategies that were not stated in Schmitt's taxonomy. They discovered the new meaning as a receptive exposure through the translation and some repetitions. They might not produce the English word immediately, but later when ready. The finding suggested that low-verbal ASD student could produce English vocabulary at their convenience with or without prompting. Due to their preference for visual learning, individuals with ASD have an advantage towards acquiring knowledge through images and pictures. This is because comprehending the material being taught becomes more difficult for them in the absence of visual aids (Hartley et al., 2019; Hashim et al., 2022). The students were assisted by the use of visual, audio, and audio-visual media (Andreou & Raxioni, 2022; Mahadewi, P., W. et al., 2018). The early expressive vocabularies of children with Autism Spectrum Disorder (ASD) can be more accurately characterized by their imageability (Kover & Weismer, 2014; Lin et al., 2022). Students could not independently infer the meaning

when analyzing pictures and attempting to interpret the gesture. They required teachers to present English vocabulary and offer definitions or explanations. Consequently, the teachers can aid students in acquiring and retaining new vocabulary through the use of cues, verbal guidance, gestures or pointing, physical assistance, and other forms of prompting. Direct instruction may not be effective in helping elementary students enhance their vocabulary knowledge. However, ASD students require verbal instruction and other forms of teacher prompting (Cervetti et al., 2023; Horvath et al., 2018). Based on the study conducted on four students with Autism Spectrum Disorder (ASD) who have different levels of severity, it was shown that they could memorize new English vocabulary by applying the discovery strategies outlined in Schmitt's taxonomy: the determination and social strategy. Nevertheless, they were not consistently able to accomplish it autonomously. The role of teacher urging is essential. Hence, it is advisable to educate teachers in both special education and inclusive schools on the proper ways of guiding students with ASD, taking into account their cognitive capabilities and specific autistic characteristics. The teachers should design and implement appropriate teaching strategies to enhance students' English vocabulary and learning behaviour. In addition, the teachers require visual media to assist students in acquiring vocabulary in a second language. This study highlights the importance of future research in investigating how the vocabulary discovery mechanisms employed by students with Autism Spectrum Disorder (ASD) impact the extent and depth of their second language vocabulary. Additional study is necessary to reduce teacher prompting and promote independent learning of new vocabulary both inside and outside the school environment. This study provided compelling evidence that prompting given by the teacher is essential. This study exclusively utilized classroom observation and teacher interviews without demanding the completion of Schmitt's taxonomy questionnaire by the ASD students. Furthermore, this study solely included male participants. Hence, it is imperative to interpret the findings of this study with due consideration to these constraints.

4. CONCLUSION

This study addresses the vocabulary learning strategy used by students with autism spectrum disorder based on Schmitt's VLS taxonomy to fill the gap in the existing literature. The findings indicate that four students with ASD, each exhibiting distinct autistic symptoms, employed determination and social strategies to learn new English vocabulary. Due to their autistic characteristics, they also applied additional strategies not included in the taxonomy, such as discovering the new meaning from the teacher's translation and purposeful repetition.

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