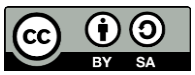
IDEAS

Journal of Language Teaching and Learning, Linguistics and Literature

ISSN 2338-4778 (Print)
ISSN 2548-4192 (Online)

Volume 13, Number 1, June 2025
pp. 2177 - 2199



Issued by English study program of IAIN Palopo

Exploring English Vocabulary Mastery in Student with ASD At Upper Primary School Level: Case Study of Multisensory Approach Implementation

Ela Carmelia Mukti Sambas[1], Emeliyah Sukma Dara[2]
[1,2]English Language Education Study Program,
Universitas Negeri Sumatera Utara
Corresponding E-mail: elacarmeliamukti0304212027@uinsu.ac.id

Received: 2025-04-28 Accepted: 2025-06-30
DOI: 10.24256/ideas. v13i1.6488

Abstract

This study examines how a multisensory approach is implemented so that this approach has effects on the learning for elementary school students with ASD (Autism Spectrum Disorder) especially in mastering vocabulary. The research is rooted in the difficulty's students with ASD encounter in vocabulary mastery, especially concerning sensory information processing and understanding language. The methodology employed is qualitative, using case study with data collected through observations against 1 ASD student in 6th grade to 11 years old and interviews with shadow teacher and homeroom teacher in one of Islamic Elementary School in Medan. The research was carried out for about a month, this was due to time efficiency in achieving certain goals. The findings indicate that the implementation of methods involving various sensor modalities—visual, auditory, kinesthetic, and tactile—significantly aids student in understanding word meanings, using them in appropriate context, and strengthening their memory skills where this progress can be measured as average is 30%, which is initially only got 5 - 6 vocabularies, became 7 - 8 new vocabularies. The conclusion of this research emphasize that personalized and context-rich approaches can provide the necessary support for language development in student with ASD. Therefore, it is crucial for educators to apply relevant and adaptive methods in inclusive education.

Keywords: *ASD Student, English Vocabulary Mastery, Multisensory*

Introduction

It is important to note that English has a very strategic role in various aspects of modern life today. One of the official languages of the United Nations (UN) besides Arabic, Chinese, French, Russian and Spanish, English has developed into a global lingua franca that unites nations and cultures around the world. In the realm of education, English is a gateway for foreign information; most scientific publications are written in this language. Therefore, mastery of English is important for students. Ensuring equitable access to English language education, especially for those with diverse learning needs, is important to encourage global participation and empowerment of individuals or students pursuing education.

Furthermore, the value of English is not limited to a specific population. In line with this, the idea of inclusive education emphasizes that global languages must be accessible to all individuals, especially those with special needs (Ainscow & Miles, 2008). Adaptive and inclusive English language training can help students with various characteristics and abilities, this will develop their global communication competence (Florian & Spratt, 2013). Investment in English education, especially an inclusive approach, is a method for preparing young people to face the difficulties of a more connected and complex world.

Therefore, language teaching methods need to be designed in such a way as to accommodate the various learning needs of students, including students with special needs. Teaching methods ideally facilitate effective interaction between teachers and students (Gagne, 1965). However, in practice, this ideal often faces challenges as education sometimes feels rigid and inflexible, making students reluctant to learn, including those with special needs (Padmadewi & Artini, 2017). A rigid education system is the main contributing factor. High academic pressure, expectations to achieve uniform grades, and inadequate adaptive support exacerbate these problems.

This is very detrimental for students with special needs, including those with Autism Spectrum Disorder (ASD), who usually require more adapted and flexible learning methods and tools (Lee, 2021). For example, a student with ASD who has heightened sensory sensitivity may struggle to focus in a noisy classroom but is still required to complete tasks simultaneously. This situation can cause them to fall behind in lessons and have difficulty understanding the content.

Students with special needs have diverse learning motivations and are influenced by many facts, students with ASD for example. ASD is a developmental disorder that affects communication, social interaction, and individual behavior (Kanner, 1943). Students with ASD have different characteristics and learning needs, so they require special and appropriate learning strategies (Vygotsky, 1978). One approach that has proven effective is sensory stimulation. According to Piaget's (1954) cognitive theory, children learn through interaction with their

ISSN 2338-4778 (Print)
ISSN 2548-4192 (Online)

environment and for ASD children, targeted sensory stimulation can help them understand and process information better. Examples include of the use of interesting visuals, kinesthetic activities, and the use of audio for hearing. Given the unique needs of students with ASD, the challenges to providing effective inclusive education in Indonesia are clear.

In Indonesia, concerns regarding the implementation of inclusive education for children with special needs, especially children with ASD, have still not been resolved. Law Number 48 of 2023 concerning the Ministry of Education and Culture– Research and Technology mandates the implementation of inclusive education, where children with special needs have the same rights to obtain quality education and services compared to other students. However, in real implementation, the realization of inclusive education at the elementary school level still has many obstacles (Puspitasari, 2017).

The main obstacles in inclusive education include the lack of teachers who have expertise in the field of inclusive education, lack of coordination with the parents of the students involved, and limited facilities. Apart from that, students with ASD also experience their own obstacles in learning English, especially in mastering English vocabulary, which can be related to difficulties in processing sensory information, remembering information or processing figurative language through their sensory abilities. In light of these challenges, a multisensory learning approach or individual learning can be used as an alternative learning method for students with special needs, especially students with ASD, to develop their English language skills. Despite these obstacles, previous research has described and published the effectiveness of multisensory methods in assisting the learning process of students with ASD.

Previous research revealed that sensory control in children with ASD is very important for the learning process. According to research conducted by Unwin, Powel, and Jones (2022), controlling sensory changes can increase attention and reduce repetitive behavior in children so that controlled sensory input can help increase focus on important aspects in the learning process, including mastery of English vocabulary. This aligns with other previous research which is a theory supporting the development of English vocabulary and the use of technology in multisensory learning for students with ASD.

This method provides the possibility to help students build a stronger connection between words and actions through the Total Physical Response (TPR) technique, a method that combines body movements with an increased focus on developing English vocabulary (Thompson et al., 2020). Studies (Alcantud-Marín et al., 2021; Ganz et al., 2020; Rispoli et al., 2020) show that interventions combining visual, auditory and kinesthetic techniques, especially with digital tools, significantly improve vocabulary acquisition.

Research conducted by Lee (2021) also found that technology-based multimodal programs increase motivation and language competence in teenagers with ASD, so that they can be used as a promising learning alternative by integrating modalities such as visual, auditory and kinesthetic elements, which is directly in line with the principles of the multisensory approach applied in this research. Literature reviews (Mintz et al., 2019; Tager-Flusberg, 2024) further highlight personalized, context-rich, multimodal strategies and multimodal approaches to vocabulary development abilities in this population group.

Although there have been many studies investigating improving English vocabulary mastery in students with special needs, there is a significant gap in research that focuses specifically on students with ASD t in Medan State Elementary Schools, especially discussing the relationship between English vocabulary mastery and the application of multisensory methods. This study aims to address this gap by concentrating on the English vocabulary knowledge of students with ASD in a public elementary school in Medan, especially exploring how a multisensory method approach has a significant impact. This technique is applied using various sensory modalities—auditory, visual, and tactile—to support the learning process of students with ASD while still considering the differences in learning styles of autistic individual.

Considering the facts and theories stated previously, this paper seeks to answer the following research questions:

1. What multisensory approach is applied to enhance English vocabulary mastery of students with ASD at the upper primary school level?
2. What evidence demonstrates the impact of multisensory approach on the English Vocabulary Mastery of student with ASD at the upper primary school level?
3. What challenges do teachers face during the implementation of multisensory approaches to enhance vocabulary mastery for students with ASD at upper primary school level?

This study seeks to address a substantial research gap by investigating the effectiveness, procedures, and challenges of multimodal strategies in improving English vocabulary acquisition in children with Autism Spectrum Disorder (ASD) in public elementary schools. Previous research has tended to focus on students with special needs in general, or on students with ASD in special schools, leaving little information regarding how this method can be used and successful with students with ASD in regular schools despite the challenges that must be faced. This research will look specifically at how multimodal strategies improve English vocabulary mastery of children with ASD in upper elementary school by focusing on visual and auditory learning styles.

ISSN 2338-4778 (Print)
ISSN 2548-4192 (Online)

English Vocabulary Learning for Student with Special Needs

For students with special needs, especially those with cognitive or sensory processing differences, comprehensible input may require modifications such as visual supports, simplified language, or slower pacing (Pieget, 1970). An emphasis on interaction is also important, as opportunities for meaningful communication allow students to actively use and internalize new vocabulary. Furthermore, the role of output (Swain, 1995) is very important to strengthen knowledge of English vocabulary.

By encouraging students with special needs to produce language, whether through speaking, writing, or other forms of expression, this will strengthen their understanding and memory of new sets of words. Efficient information processing (Atkinson & Shiffrin, 1968) is an important factor in assisting the expansion of capabilities. Students with special needs can benefit from tactics that break down complex knowledge into easy-to-understand and remember chunks, as well as using mnemonic devices to aid memory. Constructivist theory (Vygotsky, 1978) highlight the value of active and collaborative learning. Social interactions with understanding built with collaborative practice, and learning opportunities from peers have proven to be effective in strengthening conceptual understanding and expanding students' English vocabulary skills through the exchange of ideas and meaning.

Recent studies in learning English vocabulary for students with special needs highlight the effectiveness of multisensory method approaches. For example, research by Kamila et al. (2024) found that the combination of visual, auditory, and tactile elements significantly improved the ability of students with ASD to increase vocabulary. This approach utilizes a variety of meanings so that students are more involved and process new words in more depth. In addition, Grynszpan, Martin, and Nadel (2019) emphasize the importance of personalized learning strategies according to the unique needs of each student with special needs. This can include the use of technology such as interactive applications that provide instant feedback and reinforcement, making learning more dynamic and efficient.

Autism Spectrum Disorder (ASD) and its Implications in Language Learning

A strong theoretical basis is needed to understand ASD in the context of language development. Piaget's theory of cognitive development underlines the cycle of children's cognitive development, including the way they build knowledge with their surrounding environment. Children with ASD have different cognitive development compared to other children, so this can affect their capacity to learn language. Children with ASD often face obstacles and challenges in social situations which are likely to affect their learning capacity through the social environment and other people around them. Information processing theory explains how

information is processed and can be stored in memory. Disturbances in processing information that occur in children with ASD can hinder their ability to learn and master language.

Understanding ASD and the consequences of its understanding of the language acquisition process also requires an understanding of no less important principles. ASD is a mental illness that occurs during neurological development and interferes with communication skills, social relationships and behavior. The main characteristics of ASD include difficulties in verbal and nonverbal communication, reciprocal social relationships, stereotyped repetitive behavior, and also limited interests. Due to the diversity of learning needs, students with ASD have different learning methods for each individual. Some learn through visuals, while others learn through audio or audio-visual, and there are also those who learn through kinesthetic techniques. Some children benefit from a planned and predictable learning environment, while others prefer a regular routine. Students with ASD have special learning requirements. Different students may need more learning support to process information, while others need more effective and efficient help.

Research on ASD and its implications for language learning continues to be developed to produce more efficient methods for students and teachers. A recent relevant study showed that a multisensory approach program provided evidence of improved communication skills in children with ASD (Mason, 2018). Multisensory approach programs, which involve multiple senses such as visual, auditory, and kinesthetic, help children with ASD understand and use language better. Apart from that, the use of technology in this method also has a positive impact. Research conducted by Padmadewi and Artini (2017) shows that interactive and personalized applications can be an effective tool to support the development of ASD students' language learning abilities.

A review of literacy by Zwaigenbaum et al. (2022) highlight the importance of developing learning strategies that are adapted to the individual needs and learning styles of students, as well as the participation of parents and professionals in the learning process. Comprehensively, research confirms that a mutisensory approach and the application of technology tailored to individual needs is an effective way to support the language learning process in children with ASD.

Multisensory Approach in Language Learning

The multisensory approach technique in the language learning process is an efficient strategy that utilizes the presence of various sensory modalities simultaneously to provide language acquisition and understanding. Understanding how the human brain processes information through various sensory pathways is a fundamental understanding for making learning more effective and meaningful. The main principle of the multisensory approach is the active participation of

ISSN 2338-4778 (Print)
ISSN 2548-4192 (Online)

students in the learning process through the use of various sensory modalities (Paivio: 1986). This allows students to learn in a way that best suits each individual's learning style and strengthens the connection between new information and diverse sensory experiences.

Previous research conducted by Rispoli et al. (2020) succeeded in highlighting the results of this research that multisensory provides an increase in aspects of the ability to acquire and understand English vocabulary in AD students by combining visual, auditory and kinesthetic modalities, especially the significant intervention of technology in this method, which can really help ASD sufferers overcome challenges and obstacles in processing abstract sensory information, and maintain their learning focus. Another literature review by Flusberg (2024) underscores the importance of multimodal, individualized and context-rich learning strategies aimed at supporting the development of ASD students' abilities, placing a strategic focus on the importance of choosing teaching methods and techniques that suit students' learning styles.

This research analyzes the impact of implementing a multisensory method approach on the acquisition and understanding of English vocabulary for students with ASD in an Islamic state elementary school. The multimodal approach is used as an independent variable in this research and is interpreted as a learning strategy that integrates various types of sensory modalities—visual, auditory, kinesthetic and tactile— in parallel to provide acquisition and understanding of English vocabulary. Meanwhile, mastery of English vocabulary is used as the dependent variable or research focus through the comprehensiveness of word meanings, the knowledge capacity to use words in appropriate contexts, and the ability to remember words or retention.

Student characteristics, such as age, learning style (visual, auditory, kinesthetic), and severity of ASD, were identified as moderator variables that may influence the relationship between multisensory approaches and English vocabulary acquisition. A student's age may influence their cognitive and language abilities, their learning style may influence their preference for certain sensory modalities, and the severity of ASD may influence their ability to process information and interact with the learning environment.

Method

This research uses a case study as a research design in qualitative research. With the aim of exploring the desired depth of data in accordance with real life understanding while still paying attention to resource availability (Yin, 2015). This research was conducted at one of the Islamic boarding schools in Medan at the 6th grade elementary school level where this class was chosen because there was one student who was diagnosed with ASD. The choice of the number of subjects is determined by the aim of qualitative research, namely an in-depth understanding of a small number of participants. Even though it only conducted research on 1

student, this research collected data from non-research subjects around the students, such as the shadow teacher with the aim of enriching the information collected.

The subject is an 11-year-old boy which is diagnosed with ASD, specifically resembling Kanner's Syndrome or what is sometimes referred to as 'mindblindness'. His characteristics include difficulty socializing, unique communicating patterns, repetitive behavior, narrow interests and sensory sensitivities. The student with ASD being studied is already at an intermediate beginner level of English proficiency. His academic history shows that he is consistently faces challenges in large group learning settings, even though he tends to be an individual learner. He is placed in a regular classroom with 15 other students. This class generally comprises 16 students, including the student with ASD being studied, with and average age range of 10-12 years old. The other 15 students consist of 7 males and

8 females. The class where the research took place was a class measuring approximately 6x7 meters, with a flexible and collaborative class setting and 2 air conditioners so that the class felt comfortable. Curriculum adaptation is carried out individually by class teachers with the assistance of the school principal, where the principal is a child psychologist. The school where the research took place is a private Islamic elementary school with a focus on forming children's religious and academic character.

For data collection, researchers used interviews and observations as research instruments. Observations were carried out on 1 student with ASD and the shadow teacher to observe changes in the development of English vocabulary acquisition using a multisensory approach, an integrated system that is used by shadow teacher regularly. Meanwhile, interviews were conducted with non-subject research, namely shadow teacher and homeroom teacher of ASD student to strengthen statements from the results of observations.

The shadow teacher interviewed was a graduate majoring in early childhood education (ECE) who had been trained by the school principal with training for students with special needs. The training was carried out approximately 2 months before starting to teach students who have special needs at the school. In addition to in-depth interviews and direct observation, analysis of relevant research documents was also used as a source of data collection. This approach aims to strengthen the validity of the findings through data triangulation.

The following are the procedural steps carried out by researchers to answer questions from the research issue. The researcher identified the research problem that will be studied, namely how multisensory influences ASD students who acquire English vocabulary. Researchers conducted a literature review to examine theory and previous research with the aim of finding research gaps. Researchers

ISSN 2338-4778 (Print)
ISSN 2548-4192 (Online)

formulate temporary hypotheses based on the results of literature reviews from previous research that are relevant to the research problem. After that, the researcher conducted research on students and have asked for permission from the authorities (principal, teachers, shadow teachers, parents) that these students would be used as research subjects.

Data analysis was carried out in three stages: data reduction, data presentation, and drawing conclusions (Miles & Huberman, 1994). At the data reduction stage, information from observations and interviews is summarized, selected and grouped based on relevant themes. The reduced data is then presented in the form of a descriptive narrative. Finally, conclusions are drawn based on data that has been analyzed and verified continuously during the research process.

Results and Discussion

This section presents the main findings and discussion from the observations and interviews conducted. Important insights emerge during the data collection process, highlighting important patterns and themes that contribute to a deeper understanding of the subject matter. The research findings show that the principles of inclusion adopted in the schools studied are not only related to the idea of integration, but also address the concerns of students with special educational needs to facilitate the development of their independence. The results of this study align with the theoretical framework and empirical evidence from previous research, which emphasizes that tailored approaches are often necessary to meet students' unique needs.

Specifically, the observations and interviews revealed some key findings regarding the implementation, effectiveness, challenges of the multisensory approach as a media to improve vocabulary acquisition and retention in student with ASD.

The Implementation of Multisensory Approach in Student with ASD at Upper Primary School Level

Based on the results of interviews and observations of ASD student and their accompanying teachers, it is known that shadow accompanying teachers apply multisensory methods using a variety of media and the determination of media use is carried out randomly depending on the need for teaching materials. This reflects a deep understanding of the diverse sensory needs of student with ASD, which often vary significantly and of course the choice of teaching media is aimed at adapting teaching to the individual needs of students (Tomlinson, 2021).

The media in question include picture cards used for visual stimulation (Mayer, 2022), real objects such as toys and fidget toys which provide tactile experiences to support student self-regulation (Cheung & Yau, 2023), videos as visual-auditory learning tools, songs and music for auditory stimulation (Odom,

2021), stories as narrative context for learning, situation cards to simulate the use of vocabulary, and technology which includes smartphones, tablets, headphones, and various learning applications that support interaction and personalization of material (Rusli, 2022). Although the selection appeared random, the collaborative teachers' approach demonstrated a high awareness of the diverse sensory needs of students with ASD, allowing for flexibility and adaptation in each learning session.

In implementing a multisensory approach, the shadow teacher demonstrated a deep understanding of the importance of rich sensory stimulation for students with ASD. They do not just rely on one type of stimulation, but carefully design a series of procedures that involve many things. This is also guided by the school principal so that the media and techniques used are in accordance with the importance of the objectives of the material to be taught.

Table 1. The Media and Implication

Stimulated Sensory	**Media / Technique**
Visual Stimulation	-pictures card -Videos -Mobile Application
Kinesthetic Stimulation	- Body movement -Imitating movement
Tactile Stimulation	- Real Objects -Fidget Toys
Auditory Stimulation	-Songs and Music -Videos -Smartphone / Mobile app -Headsets
Contextual Learning	-Stories -Regular repetition -Games -Puzzle

Visual stimulation: Pictures Card

One of the most commonly used media is picture cards. The use of picture cards designed with bright colors and clear images provides strong visual stimulation, helping student associate vocabulary with concrete visual representations. This is in line with visual learning theory which emphasizes the importance of visual representations in facilitating understanding and retention of information (Mayer, 2020). The cards have pictures whose subject matter is adapted to the open material so that students do not experience any lag in understanding the vocabulary that the teacher wants to maintain. When bright, vividly colored picture cards are shown, students with ASD often show a strong

ISSN 2338-4778 (Print)
ISSN 2548-4192 (Online)

visual response.

For example, when the shadow teacher shows a card with a picture of a red car, the subject spontaneously points to the picture while saying "red car" with clear intonation or even tries to reach for the card with the picture, this shows that there is a strong visual association between the word and the object. This media and method is carried out once a week in each English subject so that the visualization of the nouns being taught can be absorbed well.

Kinesthetic activities

Kinesthetic activities, such as body movements that accompany the pronunciation of vocabulary, allow student to understand and remember vocabulary through physical experiences. This activity is often associated with the use of picture cards where the shadow teacher will show a certain card and invite student to imitate a movement, such as a picture card showing a picture of someone running, then the shadow teacher invites student to run with the shadow teacher in an effort to increase student's retention ability with a range of certain words with the experience of student's body movements (Rusli, 2022). This kinesthetic application technique is carried out once a week or in every English subject and when the students with ASD under study begin to feel bored with English lessons, the shadow teacher will use kinesthetic techniques to restore their motivation to learn.

Tactile experience: Real Objects

The next media is the use of real objects, such as toys or everyday objects, providing a direct tactile experience, strengthening the connection between vocabulary and the objects that convey it. For the application of this media, teachers usually use it to calm ASD student and use it as a break while remembering what they have learned. The shadow teacher will provide media and invite ASD student to have a light conversation about the teaching material that has been provided.

The application of this technique shows fast results in increasing student engagement. In the first two sessions after the running technique was introduced along with picture cards, the subjects appeared more enthusiastic when asked to relearn the skill by imitating the movements independently. This approach aims to create a holistic learning experience (Mason, 2021), where student can actively engage and build a deeper understanding of English vocabulary. This media and method is usually carried out with a frequency of 2 weeks 1 every time an English lesson is held.

Auditory stimulation: Songs and Musics

Auditory stimulation plays an important role in this multisensory approach. The shadow teacher creatively combines songs that are catchy and relevant to the

learning topic. These songs not only make learning more fun, but also help students remember vocabulary through melody and rhythm (Odom, 2021). For auditory stimulation, shadow teacher uses smartphones and apps as media sources such as searching for videos from video and sound apps. To distribute his own voice, the shadow teacher uses a headset to help student focus on the sound from the video and prevents distraction from learning focus from sounds outside the video.

Structured word repetition is also an important part of this strategy. The shadow teacher consistently repeats new vocabulary, giving student the opportunity to hear and process the words repeatedly. Through a combination of songs and structured word mix, teacher aides create a learning environment rich in auditory stimulation, which is especially important for student with ASD who often have high hearing sensitivity. This technique is carried out every 2 weeks in English subjects, so that it doesn't take up a lot of time studying individually.

Contextual learning: Repetition and review

Regular repetition and review of learned material is a key strategy in this multisensory approach. Shadow teacher understand that student with ASD often require more frequent repetition to strengthen understanding and retention of information. Therefore, they consistently repeat and review the vocabulary and concepts they have learned, using a variety of interesting and interactive methods. Sometimes shadow teacher also uses different media to increase retention of ASD student's English vocabulary if the vocabulary is difficult to remember and learn the context of its use.

The use of stories and relevant contexts helps student connect vocabulary with real situations, making learning more meaningful and memorable (Mitsea, 2023). Shadow teacher also use various repetition techniques, such as games, quizzes, and group activities, to keep student engaged and make the review process more fun. Through structured and regular repetition and review, shadow teacher help student build a strong vocabulary foundation and ensure long-term retention. The frequency of shifts for this technique is once a week or during English subjects. This technique is usually carried out by shadow teachers after the English subject ends so that the lesson is recalled and not easily forgotten.

Evidence Demonstrates the Impact of Multisensory Approach in the English Vocabulary Mastery of Student with ASD at the Upper Primary School Level

After the explanation regarding the implementation of the multisensory approach carried out by the shadow teacher, it is known that there is an effective influence on the learning outcomes of student with ASD. This section will describe the significant impact of the multisensory approach on ASD student's English vocabulary learning resulting from interviews and observations of ASD student and

ISSN 2338-4778 (Print)
ISSN 2548-4192 (Online)

shadow teachers, as follows:

Increasing Retention English Vocabulary

Observation data shows that students are able to remember English vocabulary using the multisensory method, by showing identification and being able to use new vocabulary with two or three repetitions by the shadow teacher. This is because the sensory stimulation experienced by students produces richer memory traces, where words are not only remembered as sounds, but also as images, touches or movements, thus creating a more comprehensive mental representation of vocabulary. This is in accordance with the results of interviews with shadow teachers:

> *"When applying the multisensory approach, it becomes easy for him (the student) to **memorize the vocabulary** he is studying and he can even easily master new vocabulary too."*

This ease of memorization, as reported by shadow teacher, suggests that a multisensory approach not only facilitates immediate recall but also fosters a deeper and longer-lasting understanding of vocabulary (Erika & Rusli, 2022). Student's ability to 'easily master new vocabulary' implies a transfer of learning, indicating that multisensory methods equip them with effective strategies for independent vocabulary mastery outside of direct lessons.

Improve Understanding of Word Meaning

Observations and Narrative Interviews from shadow teacher highlight that although multisensory methods are effective in facilitating understanding of word meaning in student with ASD, repetition remains an important component in the learning process. This application consistently facilitated accelerated mastery of English vocabulary in students with ASD studied, with only two to three repetitions involving visual and kinesthetic stimulation.

> *"Yes, he can easily **understand the meaning** and significance of the vocabulary that we give him if he uses this multisensory method, but we have to repeat it continuously so that he can easily understand vocabulary that is a bit difficult to understand, such as verb vocabulary."*

This quote shows that although the sensory stimulation of multisensory methods provides initial access to the meaning of understanding, repetition and the use of interesting media function as mechanisms to strengthen and solidify that understanding. This is especially relevant for student with ASD, who often need clear structures and routines to process information. This is in line with research

showing the efficacy of multisensory methods in improving pronunciation for students with special needs (Erika & Rusli, 2022). The combination of these techniques ensures the development of stronger and more effective pronunciation skills

Improving Pronunciation Ability

During observations, student demonstrated the ability to imitate the pronunciation of audible vocabulary words, and improvements in the pronunciation of previously difficult words, by showing consistent and independent efforts to imitate the intonation and vocal sounds of the words heard by the shadow teacher through song and music and often accompanied by expressive mouth movements. This is also supported by interviews with shadow teacher:

> *"His **pronunciation is getting quite good because it follows the vowels of the multisensory method used**, but we also have to continue to help him to pronounce the word 2 or 3 times so that the student's pronunciation can be more accurate".*

This quote shows that the multisensory method, where results are obtained through auditory stimulation, is effective in helping student imitate correct pronunciation. The ability to imitate vowels, which are a basic component of pronunciation, shows that student can process and reproduce English sounds quite well (Nurfadhilla, 2023). However, the shadow teacher also emphasized the importance of additional assistance to achieve more accurate pronunciation. Repetition 2 or 3 times, as mentioned, shows that although the multisensory method provides a solid foundation, additional practice and correction are still needed to perfect pronunciation.

Improve Understanding of the Context of Word Use

Observations and interviews show that the multisensory method is effective in increasing ASD student's understanding of the context of English vocabulary use. During observations, student demonstrated better abilities in using vocabulary in appropriate situations, understanding stories, and connecting new vocabulary with relevant contexts. For example, if the shadow teacher turns on the classroom light, he or she may say "bright" or "bright" without even being directly told to. This is supported by an interview with a shadow teacher:

> "When using this method, **he understands where, when and what words are appropriate** when he is in certain conditions, like he

ISSN 2338-4778 (Print)
ISSN 2548-4192 (Online)

understands what the context of the words is".

Multisensory methods, with an emphasis on concrete and contextual experiences, help student build a better understanding of how vocabulary is used in various situations, developing the pragmatic skills through role play and simulation (Schmitt, 2020; Rusli, 2022).

Increase Student Learning Motivation

During observations, students demonstrated a high level of engagement in multisensory learning activities (Rusli, 2022). This involvement is clearly visible from the student's enthusiasm and enthusiasm in completing the assignments given. Student often show the initiative to actively participate in every activity, this shows the great curiosity. They also seemed to enjoy the learning process as shown through smiles and happy expressions.

This one finding is based entirely on direct observation data, as there is no interview data to specifically confirm the level of student engagement and motivation in this context. Careful observations record student behavior during learning sessions, including level of focus, duration of focus, participation in group activities, and responses to various types of sensory stimuli. These behaviors, such as asking questions, trying new activities without being asked, and staying attentive on task, are strong indicators of student's intrinsic motivation. Positive facial expressions and body language, such as smiling and laughing, are also considered signs that student is having an enjoyable and satisfying learning experience. In this context, observational data provide valuable insight into how a multisensory approach can influence the learning motivation of student with ASD, even without the support of interview data for triangulation.

Increase Learning Independence

Observations and interviews show that ASD student experience significant development of learning independence after implementing multisensory methods. Student no longer depend entirely on the help of teacher or friends in completing learning assignments; they begin to demonstrate the ability to initiate and complete activities independently. This is demonstrated by the subject's proactive behavior which begins spontaneously using newly learned English words both in learning situations and outside class hours such as lunch time. This is confirmed by interviews with shadow teacher:

> *"So since using this method* ***he will understand how to repeat the material independently as if it has become a habit*** *during his learning period, we no longer need to give too much direction as before because he will already feel confident and independent that he can."*

This independence is not only reflected in student's ability to complete assignments, but also in increasing their ability to manage their own learning process. The use of multisensory methods, which provide clear visual and auditory structure and support, appears to facilitate the development of these skills (Feldman, 2023).

The Challenges Teacher Faced During the Implementation of Multisensory Approach at Upper Primary School Level

Having discussed the positive side of a teaching technique, of course there is a negative side, namely the challenges and shortcomings experienced during the application of the technique. Teacher face various challenges that need to be overcome so that the application of multisensory methods can provide optimal results. In this section, the challenges and shortcomings of the multisensory methods that have been applied will be described and these points will be based on the results of observations and interviews.

Resource and Material Constraints

One of the significant challenge's teachers face in implementing multisensory methods is limited resources and materials. These methods often require a variety of tools, from picture cards and tactile objects to specialized software, requiring significant budget methods (Darling-Hammond & Hyler, 2020). Limited school budgets or lack of access to these materials can be a serious obstacle.

> *"Sometimes we alternate in the application of this method because the tools and materials used are sometimes inadequate and not in accordance with the teaching needs".*

In addition, teacher also experience difficulties in providing enough diverse and relevant materials to meet the learning needs of student with ASD, who have different learning preferences and styles to teach with this multisensory approach.

Individualization of Learning

Student with special needs have unique learning profiles, which necessitates that multisensory methods be tailored to the individual needs of each student. Each student brings a distinct way of understanding information, interacting with materials, and expressing themselves. Therefore, effective approaches must consider various factors, including learning styles, interests, and the challenges students face (Alrasheed, 2022). However, teachers often encounter difficulties in designing personalized learning plans for each student. This is reinforced by the results of an interview with the shadow teacher.

ISSN 2338-4778 (Print)
ISSN 2548-4192 (Online)

> *" Besides having to develop his ability to learn, it is also important to integrate him into the environment with his friends, whereas when teaching multisensory, it must be individual or separated from his friends so that he can focus."*

This challenge becomes even more complex in classrooms with a large number of students, where attention and resources are limited. In such situations, teachers are required to demonstrate creativity and flexibility in developing strategies that can meet diverse learning needs. They need to integrate various methods and appropriate tools to ensure that each student can have an optimal learning experience and feel supported in their learning process. Thus, it is crucial for teachers to continually develop their skills and knowledge in individualizing instruction, creating an inclusive and responsive environment that caters to the needs of all students.

Limited Time

Implementing multisensory methods requires careful planning and preparation, which can take significant time and resources. Teachers often find it difficult to find sufficient time to design and implement multisensory learning activities in the midst of a busy teaching schedule (Unwin, 2022). With many subjects to teach and administrative demands to fulfill, time to plan creative and interactive activities is often limited. This is shown from each observation result which sometimes exceeds the English subject session. This can affect the quality of learning provided as teachers may have to sacrifice important elements of the multisensory approach to meet deadlines or agendas. It is therefore important for schools to provide the necessary support for teachers to integrate this method effectively in the learning process.

This statement is supported by interviews with shadow teacher and homeroom teacher.

-Shadow teacher stated:

> *"This multisensory is only applied to certain subjects, one of which is English because the application itself takes quite a lot of time in learning sessions."*

-Homeroom teacher stated:

> *"Over time this multisensory has begun to be reduced in its implementation from several subjects because of the potential for new potentials that must also be developed as the student ages, therefore this multisensory has a time complexity that seems a little and somewhat rushed when implemented."*

Training and Skills Needs

The effective implementation of multisensory methods requires a deep understanding of the principles of multisensory learning and how to adapt them for various types of student needs (Wei, Darling-Hammond, 2020). Each student has a unique learning style, making it essential for teachers to recognize and

understand these differences in order to design appropriate learning experiences. With a strong foundational knowledge of these principles, teachers can more easily identify the right strategies to use in their instruction.

To achieve this, teachers may require specialized training designed to develop their skills in designing and implementing multisensory learning activities. This training not only provides theoretical knowledge but also the practical experience needed for teachers to effectively apply these approaches in the classroom. With the right skills, teachers can create a more inclusive and responsive learning environment, allowing every student—regardless of their background or special needs—to actively engage and gain maximum benefit from the learning process.

To support this statement, the following are the results of the interview conducted with the shadow teacher, highlighting key insights and observations regarding the educational experience and progress.

> *"For the preparation of this method itself, I must first be trained or given psychological knowledge by the principal, whose husband is a child psychologist. This is done after conducting a weekly evaluation of the student's learning progress."*

Therefore, it can be summarized that structured and ongoing training support is crucial for teaching assistants to effectively optimize multisensory methods, ensuring they can meet the diverse needs of students and enhance their learning experiences.

ISSN 2338-4778 (Print)
ISSN 2548-4192 (Online)

Conclusion

This study shows that the multisensory approach significantly improves English vocabulary acquisition in ASD students at the primary school level. Through the application of a method that combines various sensory modalities-visual, auditory, kinesthetic, and tactile-student are able to not only understand the meaning of words, but also apply them in the right context, improve pronunciation, motivate learning, and strengthen recall.

Moreover, this research states that the effectiveness of multisensory is very dependent on the system implemented by the teacher himself, the facilities provided. Apart from that, this research also analyzes the challenges and obstacles faced by teachers who implement the multisensory method approach, such as limited resources, the need to carry out individual learning, limited time, and the need for early training that must be mastered by teachers.

However, this obstacle can certainly be overcome with support from the school, such as receiving adequate training and cooperation from experts. The results of this research are in line with previous research (Kasari, 2021; Ridlo, 2023; Rusli, 2022) which underlines the importance of an individual approach and enriching the context in the teaching process of students with ASD. To determine the long-term impact of these multisensory methods, future longitudinal studies of the English language learning independence of students with ASD are needed. Apart from the efforts and techniques available from the school, the learning of students with ASD will develop more if there is long-term parental involvement.

Although this research has limitations in terms of the relatively small number of participants, namely one student and 2 related teachers, the results of this research provide knowledge that is rich in the latest information and is also harmonized with the results of previous research regarding increasing the comprehension ability and acquisition of English vocabulary in student with ASD using a multisensory approach method. This research is anticipated to explore multisensory strategies more widely.

Acknowledgement

The researcher would like to express the thanks to God Almighty for completing the research, as well as thank the supervisors and respondents involved, thank the parents and best friends who continued to provide support throughout the research process and even until completion.

References

Ainscow, M., & Miles, S. (2008). Making Education for All Inclusive: Where Next?. International Journal of Inclusive Education, 12(1), 15–37. https://doi.org/10.1007/s11125-008-9055-0

Al Rasheed, L. S. (2022). The Effects of a Psycholinguistic Approach to Multisensory Instruction on Psycholinguistic Abilities of Children with Learning Disabilities. Psycholinguistics, 32(1), 143–162. https://doi.org/10.31470/2309-1797-2022-32-1-143-162

Ar, N. A. E., & Syam, A. T. (2024). Increasing Students' Reading Skills Using Reading Box in Junior High School. IDEAS: Journal on English Language Teaching and Learning, Linguistics and Literature, 12(2), 1249-1260.

Atkinson, R. C., & Shiffrin, R. M. (1968). Human memory: A proposed system and its control processes. Psychology of Learning and Motivation, 12, 89–195. https://doi.org/10.1016/S0079-7421(08)60422-3

B. Miles, M., & Huberman, A. M. (1994). Qualitative Data Analysis: An Expanded Sourcebook. SAGE Publications, https://books.google.co.id/books?id=U4lU_-

Brian, J., Drmic, I., Roncadin, C., Dowds, E., Shaver, C., Smith, I. M., Zwaigenbaum, L., Sacrey, L. R., & Bryson, S. E. (2022). Effectiveness of a parent-mediated intervention for toddlers with autism spectrum disorder: Evidence from a large community implementation. Autism, 26(7), 1774–1788. https://doi.org/10.1177/13623613211068934

Breslin, L., Guerra, N., Ganz, L., & Ervin, D. (2020). Clinical Utility of Multisensory Environments for People With Intellectual and Developmental Disabilities: A Scoping Review. The American Journal of Occupational Therapy, 74(1), 7401205060p1–7401205060p12. https://doi.org/10.5014/ajot.2020.037267

Breslin, L., Guerra, N., Ganz, L., & Ervin, D. (2020). Clinical Utility of Multisensory Environments for People with Intellectual and Developmental Disabilities: A Scoping Review. The American Journal of Occupational Therapy, 74(1), 7401205060p1–7401205060p12. https://doi.org/10.5014/ajot.2020.037267

Cheung, L. L., Kee, M. J. Y., & Chen Yau, P. L. (2023). How do attentional resources of the same or across sensory modalities and task load affect cognitive performance? A multisensory integration study. Journal of Cognitive Psychology, 35(8), 812–820. https://doi.org/10.1080/20445911.2023.2249627

Courchesne, V., Tesfaye, R., Mirenda, P., Nicholas, D., Mitchell, W., Singh, I., Zwaigenbaum, L., & Elsabbagh, M. (2022). Autism Voices: A novel method to access the first-person perspective of autistic youth. Autism, 26(5), 1123–1136.

ISSN 2338-4778 (Print)
ISSN 2548-4192 (Online)

https://doi.org/10.1177/13623613211042128

Darling-Hammond, L., & Hyler, M. E. (2020). Preparing educators for the time of COVID and beyond. European Journal of Teacher Education, 43(4), 457–465. https://www.tandfonline.com/doi/full/10.1080/02619768.2020.181696 1

Edyburn, D. L. (2020). Rapid literature review on assistive technology in education. University of Wisconsin-Milwaukee.

Feldman, J. I., Dunham, K., DiCarlo, G. E., Cassidy, M., Liu, Y., Suzman, E., Williams, Z. J., Pulliam, G., Kaiser, S., Wallace, M. T., & Woynaroski, T. G. (2023). A Randomized Controlled Trial for Audiovisual Multisensory Perception in Autistic Youth. Journal of Autism and Developmental Disorders, 53, 4318–4335. https://doi.org/10.1007/s10803-022-05709-6

Florian, L., & Spratt, J. (2013). Enacting inclusion: a framework for interrogating inclusive practice. European Journal of Special Needs Education, 28(2), 119–135. https://doi.org/10.1080/08856257.2013.778111

Gagne, R. (1965). The Conditions of Learning. New York: Holt, Rinehart and Winston.

Gass, S. M., Mackey, A., & Pica, T. (1998). The Role of Input and Interaction in Second Language Acquisition: Introduction to the Special Issue. The Modern

Ismayanti, D., Said, Y. R., Usman, N., & Nur, M. I. (2024). The Students Ability in Translating Newspaper Headlines into English: A Case Study. IDEAS: Journal on English Language Teaching and Learning, Linguistics and Literature, 12(1), 108-131.

Language Journal, 82(3), 299-307. https://www.jstor.org/stable/329956

Grynszpan, O., Martin, J.-C., & Nadel, J. (2008). Multimedia interfaces for users with high-functioning autism: An empirical investigation. International Journal of Human-Computer Studies, 66(8), 628–639. https://doi.org/10.1016/j.ijhcs.2008.04.001

Gussen, L. C., Ellerich, M., & Schmitt, R. H. (2020). Equivalence analysis of plastic surface materials and comparable sustainable surfaces by a multisensory measurement system. Procedia Manufacturing, 43, 627–634. https://doi.org/10.1016/j.promfg

Kamila, U. H., Khotimah, N. A., Sarita, R., Nurjaman, I., & Nuary, M. G. (2024). Penerapan Metode Multisensory Learning dalam Meningkatkan Penguasaan Kosakata Bahasa Inggris pada AUD. Jurnal Tembusai, 8(2), 30656-30662.

Kanner, L. (1943). Autistic disturbances of affective contact. Nervous Child.

Kementerian Pendidikan, Kebudayaan, Riset, dan Teknologi. (2023). Peraturan Menteri Pendidikan, Kebudayaan, Riset, dan Teknologi Nomor 48 Tahun 2023. https://www.upnvj.ac.id/id/e-arsip/2023/peraturan-menteri-pendidikan-kebudayaan-riset-dan-teknologi-nomor-48-tahun-2023-ISSN-2338-4778-(Print)-ISSN-2548-4192-(Online)-tentang-akomodasi-yang-layak-untuk-peserta-didik-penyandang-disabilitas-pada-satuan-pendidikan-anak-usia-dini-formal-pendidikan-dasar-pendidikan-menengah-dan-pendidikan-tinggi.html

Lee, J. (2021). The impact of multimodal technology-based learning on motivation and language skills in autistic adolescents. Journal of Educational Technology & Society.

La Valle, C., Shen, L., Butler, L. K., & Tager-Flusberg, H. (2024). Are minimally verbal autistic children's modality and form of communication associated with parent responsivity? Autism Research. Advance online publication. https://doi.org/10.1002/aur.3131

Mason, G. M., Goldstein, M. H., & Schwade, J. A. (2019). The role of multisensory development in early language learning. Journal of Experimental Child Psychology, 183, 48–64. https://doi.org/10.1016/j.jecp.2018.12.011

Mayer, B., Sureth, L., Hartwigsen, G., Macedonia, K. M., & von Kriegstein, K. (2021). Visual Sensory Cortices Causally Contribute to Auditory Word Recognition Following Sensorimotor-Enriched Vocabulary Training. Cerebral Cortex, 31, 513–528. https://doi.org/10.1093/cercor/bhaa240

Mitsea, E., Drigas, A., & Skianis, C. (2023). VR Gaming for Meta-Skills Training in Special Education: The Role of Metacognition, Motivations, and Emotional Intelligence. Education Sciences, 13(7), 639. https://doi.org/10.3390/educsci13070639

Navarro-Pardo, E., López-Ramón, M. F., Alonso-Esteban, Y., & Alcantud-Marín, F. (2021). Diagnostic Tools for Autism Spectrum Disorders by Gender: Analysis of Current Status and Future Lines. Journal for Children Cognitive Development, 8(4), 262. https://doi.org/10.3390/children8040262

Nurfadhilah, R., & Wulandari, R. (2023). Pemerolehan Kosa Kata Anak Autism Spectrum Disorder (ASD). Jurnal Obsesi: Jurnal Pendidikan Anak Usia Dini, 7(5), 5178–5188 https://www.obsesi.or.id/index.php/obsesi/article/download/2374/pdf

Odom, S.L., Thompson, J.L., Hedges, S., et al. Technology-Aided Interventions and Instruction for Adolescents with Autism Spectrum Disorder. J Autism Dev Disord 45, 3805–3819 (2021). https://doi.org/10.1007/s10803-014-2320-6

Piaget, J. (1954). The construction of reality in the child. Basic Books.

Piaget, J. (1936). Origins of intelligence in the child. Routledge & Kegan Paul.

Padmadewi, N. N., & Artini, L. P. (2017). The challenges of inclusive education for children with special needs in Indonesia. Journal of Special Education

Puspitasari, D. (2017). Implementation of inclusive education in primary schools: Challenges and opportunities. International Journal of Inclusive Education.

Paivio, A. (1986). Dual coding and episodic memory: Subjective and objective sources of memory trace components. In F. Klix (Ed.), Memory and cognitive capabilities: Symposium in memoriam of Hermann Ebbinghaus (pp. 225–236). North-Holland

ISSN 2338-4778 (Print)
ISSN 2548-4192 (Online)

Rispoli, M., & Criado, T. (2024). Design Before Design: Learning to be Affected by Neurodiverse Spatial Practices. Disability & Society, 39(3), 357-381. https://doi.org/10.1080/17547075.2024.2375453

Ridlo, M. A., & Fitriani, D. (2023). Penggunaan Metode Multisensori untuk Meningkatkan Kemampuan Membaca Anak Berkebutuhan Khusus: Studi Literatur. Jurnal Pendidikan Tambusai, 7(3), 26367–26377. https://jptam.org/index.php/jptam/article/download/10032/8123/1874 1

Rumelhart, D., & McClelland, J. (Eds.). (1986). Parallel distributed processing: Explorations in the microstructure of cognition. Cambridge, MA: MIT Press.

Rusli, R., Erika, R., & Safitri, J. (2022). Efektivitas Metode Multisensori dalam Meningkatkan Kemampuan Membaca pada Anak Disabilitas Intelektual Ringan. Konferensi Nasional Psikologi Kesehatan V. https://doi.org/10.33476/knpk.v5i1.5172

Swain, Merril. (1995). Handbook of research in second language teaching and learning. Routledge. https://www.taylorfrancis.com/chapters/edit/10.4324/9781410612700-34/output-hypothesis-merrill-swain

Thompson, G., et al. (2020). Total Physical Response: A practical approach to language learning. Language Learning Journal

Tomlinson, M. (2021). 'Clean communication': Felt-sense methodologies and the reflexive researcher in equine-assisted personal development. Sociology of Health & Illness, 72(1). https://doi.org/10.1177/00380261231186752

Unwin, G., Powel, J., & Jones, R. (2022). Sensory processing and learning in children with autism: A review of the literature. Autism Research.

Velligan, D. I., Draper, M., Stutes, D., Maples, N., Mintz, J., Tai, S., & Turkington, D. (2009). Multimodal Cognitive Therapy: Combining Treatments That Bypass Cognitive Deficits and Deal With Reasoning and Appraisal Biases. Schizophrenia Bulletin, 35(5), 884–893. https://doi.org/10.1093/schbul/sbp075

Vygotsky, L. S. (1978). Mind in Society: The Development of Higher Psychological Processes. Cambridge, MA: Harvard University Press.

Yin, R. K. (2015). Qualitative research from start to finish. Guilford Publications.