

Scientific Approach to Teach English Vocabulary for Mentally Retarded Students

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Abstract. For mentally retarded children, a structured and careful teaching method is needed to facilitate students' understanding of learning English vocabulary. This study aims to: (1). Describe the application of a scientific approach to English vocabulary subjects; (2). Describe the obstacles to applying a scientific approach to learning English vocabulary for mentally retarded children; (3). Describe the benefits of applying a scientific approach to learning English vocabulary for mentally retarded children. The research method used is descriptive qualitative. The subject in this study was 3 teachers with 5 students for each of class VII of State Special Needs Junior High School Pembina . Data collection techniques used are observation techniques, interviews, and documentation. Data analysis is done by organizing the data, breaking it down into units, synthesizing it, arranging it into a pattern, choosing what is important and what be studied, and making conclusions that can be told to others. The results shows that many benefits for both teachers and students, especially for mentally retarded students, including improving students' thinking skills, making it easier for students to understand the learning materials taught by teachers, and being more meaningful for students and this approach has obstacles and shortcomings when applied to mentally retarded children in a different class and should be simplified and adapted to the abilities of these students. The findings of this study highlight the importance of adapting teaching methods to better meet the needs of mentally retarded children, which can lead to more inclusive and effective educational practices. Socially, the research emphasizes the value of equal educational opportunities, contributing to a more inclusive and supportive learning environment for all students

Keywords: *Mentally Retarded, Scientific Approach English Vocabulary*

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INTRODUCTION

Special needs schools provide education for students with a range of disabilities, including autism, hearing impairments, mental retardation, and other physical or cognitive challenges. While these students are given equal opportunities to learn through a curriculum tailored to their needs, the process of teaching subjects, such as English vocabulary, presents unique challenges, particularly for mentally retarded students. The structured and adaptive teaching methods required for these students to grasp new vocabulary are often underexplored, especially with regard to modern pedagogical approaches like the scientific method. There is a gap in understanding how this approach can be effectively applied in special needs classrooms, where both the cognitive abilities and the learning environment of the students differ significantly from traditional settings. This study addresses this gap by investigating how the scientific approach can be implemented in teaching English vocabulary to mentally retarded students, the obstacles encountered, and the benefits it offers, aiming to provide insights that can improve teaching strategies in special education.

Despite the emphasis on inclusive education, there remains a lack of research on how the scientific approach can be adapted and effectively applied in teaching English vocabulary to mentally retarded students. The existing gap lies in the limited understanding of how this method, which is commonly used in mainstream education, can be tailored to meet the specific cognitive needs of these students. This study is necessary to fill that gap by providing detailed insights into the practical application of the scientific approach in special needs classrooms, identifying the challenges teachers face, and evaluating its effectiveness in enhancing students' vocabulary acquisition.

According to [Armatas \(2009\)](#) mental retardation is genetic chaos manifested in significantly below average overall intellectual activity and deficits in adaptive behavior. Mental retardation refers to general intellectual functions that are significantly below average (referring to individual intelligence test results, meaning IQ below average) relating to barriers to adaptive behavior (referring to adaptive skills, namely; communication, caring for oneself, daily life, social skills, community use, self-direction, health and safety, academic, leisure and work) that occur during the development period (from birth to age 18 or 22 years). Students with mental disabilities have low IQs, they have difficulty thinking abstractly, get bored easily, and forget easily in learning, especially in learning English. Accordingly, we need a learning approach that can improve student learning outcomes in learning English vocabulary.

According to the American Association on Intellectual and Developmental Disabilities (AAMD), "intellectual disability is defined by significant restrictions in both intellectual functioning and adaptable behavior, as indicated in conceptual, social, and practical adaptive skills" (AAIDD) ([Clements, 1984](#)). AAMD classified Mentally-retarded into three groups: a) mild intellectual disability: Individuals with mild intellectual disability, characterized by an IQ range of 50-70, can learn to read, write, and perform basic math. With appropriate and competent supervision, they can achieve a degree of independence and succeed in various areas of life. They are

often capable of living independently or semi-independently with minimal support, particularly if given access to effective educational and vocational training, b) moderate intellectual disability: Those with moderate intellectual disability, with an IQ range of 35-49, can make progress in academic studies, social skills, and vocational training. They require more support than those with mild intellectual disability but can develop basic self-care skills and work in supervised settings. Social and adaptive skills may continue to need support, and living arrangements may involve more structured or supported environments, b) Severe and Profound Intellectual Disability: Individuals with severe and profound intellectual disability, whose IQ ranges from 20 to 34, face significant challenges in self-care, socialization, and work. While some may acquire limited self-care skills, communicate to a degree, and adapt to their surroundings, they typically require extensive support. Their ability to manage daily activities and integrate into various environments is significantly constrained, necessitating continuous care and support (Clements, 1984).

The researchers found several teaching realities such as the lack of ability of students with mental problems that cause them to experience difficulties. They cannot catch the subject well, especially when the teacher says something. They just listen to their teacher's explanation without knowing how to express and apply their idea or to respond to the questions.

Teaching English to students with disabilities is not an easy thing to do (Anggraeni, 2016). Teachers must face students with low intellectual abilities with different social behaviors. The lack of ability with some mental problems causes them to be slower in accepting lessons compared to normal students. With all these disabilities, they still have to learn English because of the curriculum and the same treatment of education in Indonesia. Similar to regular schools, English is also tested in exams for schools with disabilities. Faced with this situation, teachers who teach their students must work hard and have appropriate professional support and support from effective media and teaching methods to increase students' memory and interest in learning (Anggraeni, 2016; Sulistyowati & Rukminingsih, 2022).

The process of teaching and learning English becomes unattractive because students have difficulty understanding the meaning of vocabulary. Even though they had obtained the material in the previous lesson, they had forgotten what they had learned. This was also proven by the researchers who educated them. When the teacher asked several questions, only a few students gave answers. Students also have difficulty pronouncing words because the way words are written in English is different from the way they are pronounced. As a result, they get bored easily and forget the vocabulary they have learned. That is why students' vocabulary mastery is low (Rahimi, 2016; Zahroh & Faculty, 2015).

Research on teaching English has also been studied by Anggraeni (2016) with the title *Teaching English Vocabulary to Mentally Retarded Students Through Make-a-Match Technique*. This research after all the data obtained. It can be concluded that learning vocabulary through the technique of "Looking for a Pair" can make the learning process interesting, make students understand the meaning of words, make students have the ability to communicate with others. It is proven

by the existence of vocabulary learning through the "Looking for a Pair" technique to improve students' vocabulary mastery. It is expected that the "Looking for a Partner" technique as one of the techniques in learning vocabulary is used. So that this method can work well and can be relied on as a medium for teaching vocabulary to disabled students.

On other hand, research conducted by [Anandha \(2020\)](#) regarding vocabulary learning for children with special needs at SLB D YPAC Semarang. This study found that online learning media, namely Kahoot! proven effective in teaching English to students with special needs so that students can memorize English Vocabulary.

Through some of the studies above, it can be seen that some researchers have found that vocabulary learning for mentally retarded students is effectively applied using special learning media. However, there are several shortcomings in using media as a vocabulary learning tool, including only focusing on using a learning tool without collaboration with other learning styles, requiring a long time and money to compile it and limited vocabulary learning environment ([Anggraeni, 2016](#); [Rahimi, 2016](#); [Sulistiyowati & Rukminingsih, 2022](#); [Syamsun et al., 2024](#)).

In this research, the researcher used one of the learning approaches that have been proven to be effective in learning English for normal people and in several subjects for children with special needs, especially the mentally disabled. The use of a more general and massive approach is needed considering teaching English for mentally retarded people is not an easy thing to do. The conditions that the researchers found in grade 7 mentally retarded students at Special Needs Junior High School Pembina showed that teachers had to face students with low intellectual abilities; on the other hand, there was a demand to teach English material. The reality that the researchers found shows that not even one student in grade 7 Special Needs Junior High School Pembina can say a single word in English.

The lack of ability with some mental problems causes them to be slower in accepting lessons compared to normal students. And with all these disabilities, they still have to learn English because of the curriculum and the same treatment of education in Indonesia. And similar to regular schools, English is also tested in exams for schools with disabilities. Faced with this situation, teachers who teach their students must work hard and have appropriate professional support and good teaching methods ([Arifin, 2020](#); [Atmarizon & Zaim, 2016](#)).

In addition, teachers also have problems related to teaching English. The teacher handles students with difficulty memorizing new words. This can be seen in the daily teaching and learning process. It is very easy for students to forget the words being taught. Perhaps, this happened because the students were weak and their vocabulary was deficient. Students with special needs or mental retardation become very confused when the teacher asks them to say a word or sentence in English and understand the meaning of some English vocabulary. They did not give a good response. And, whether the problem lies in students' disabilities, English is still considered a foreign language, or the teacher's teaching techniques are not appropriate, these conditions remain a problem in teaching vocabulary to grade 7 students at National Level C Special Needs School in Malang.

In fact, special schools still follow the curriculum like other normal schools, namely using the 2013 curriculum and using a scientific approach. Scientific approach is promoted as the main learning approach for all subjects (Nugraha & Suherdi, 2017). Scientific approach is a teaching method that uses a carefully structured step-by-step approach in giving instructions or instructions. Learning using a scientific approach provides a positive influence on teachers and students, because its learning refers to a scientific thinking process that trains systematic and holistic thinking (Abdulhak, 2017).

This method provides a positive learning experience and increases self-confidence and motivation for achievement. This carefully designed lesson provide feedback to correct and many opportunities to practice these skills. A direct learning strategy is learning that is mostly directed by the teacher. According to the decree of Kemendikbud (2014) Number 81 A 2013 attachment IV, the learning process consists of five main learning experiences, namely: observe, ask, gathering information or experiments, associate or process information, and communicate (Arifin, 2020; Impact et al., 2009; Rohmawati et al., 2019).

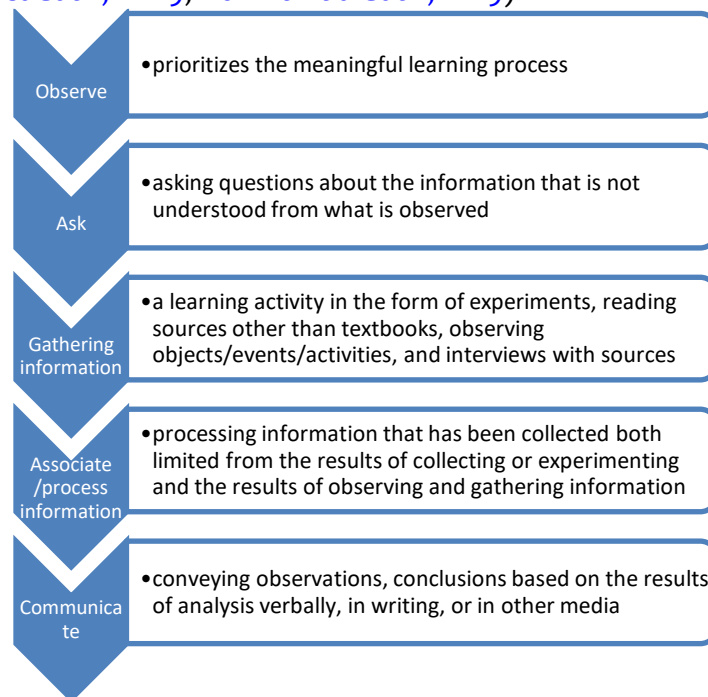


Figure 1. Learning Process of scientific approach(Indrilla, 2018)

Observing is a method that prioritizes the meaningful learning process (meaningful learning). Learning activities carried out in the process of observing are reading, listening, listening, seeing (without or with tools). The competencies developed are training sincerity, accuracy, seeking information

Asking questions is a learning activity that is done by asking questions about the information that is not understood from what is observed or questions to get additional information about what is observed (starting from factual questions to hypothetical questions). The competencies developed are developing creativity, curiosity, and the ability to form questions to form critical thoughts that need to live smart and lifelong learning.

Gathering information or experiments is a learning activity in the form of experiments, reading sources other than textbooks, observing objects/events/activities, and interviews with sources. The competencies developed in the process of gathering information/experiments are developing a conscientious, honest, polite attitude, respecting the opinions of others, communication skills, applying the ability to gather information through various ways that are learned, developing learning habits, and lifelong learning.

Associating or processing information is a learning activity in the form of processing information that has been collected both limited from the results of collecting or experimenting and the results of observing and gathering information. Competence developed in the process of associating or processing information is to develop an attitude of honesty, conscience, discipline, obeying the rules, hard work, the ability to apply procedures, and the ability of inductive and deductive thinking in concluding.

Communicating is a learning activity in the form of conveying observations, conclusions based on the results of analysis verbally, in writing, or in other media. The competition developed in the stages of communicating is developing an attitude of honesty, conscience, tolerance, the ability to think systematically, express opinions briefly and clearly, and develop good and correct language skills. This set of strategies is an effective set of strategies to build skills and determine information for students.

So far, there have been several studies that show scientific methods can be applied effectively when implemented for students with special needs in learning English and other subjects. Research conducted by [Holida \(2013\)](#) found that the scientific approach method applied to science learning for mentally disabled students can improve student learning outcomes. From the results of the study, it was concluded that the scientific approach with herbarium media was successful in improving the science learning outcomes of students with mild mental retardation in inclusion grade IV at SDN Klampis Ngasem I / 246 Surabaya. Furthermore, [Holida \(2013\)](#) states that the scientific approach is an active learning approach that achieves greater learning than conventional lectures.

In addition to being successfully applied effectively to the learning of students with special needs, scientific methods have also been proven to be effective in learning writing. [Indrilla \(2018\)](#) found that (1) There is a significant difference in the learning achievement of writing student recount text among the students being taught with a scientific approach and CTL approach, as well as students being taught with a conventional approach, eighth-grade student of SMP XX Yogyakarta. (2) Using a scientific approach and the CTL approach more effective than conventional approaches in learning to write recount text. This means the scientific approach and the CTL approach has indeed proven to be effective in learning to write ([Indrilla, 2018](#)).

Through some of the studies above, it can be seen that several researchers found that vocabulary learning for mentally retarded students was effectively applied by using special learning media. However, there are several shortcomings in using media as a means of learning vocabulary, including only focusing on the use of

learning tools without collaboration with other learning styles, requiring a long time and money to compile them, and a limited vocabulary learning environment, such as only learning vocabulary for different types of food and animals. As an answer to these limitations, the researcher presents one solution that can be applied, namely the application of the scientific approach method. In several research presentations that have been carried out by several people above, it can also be seen whether the scientific approach can be applied in learning aimed at children with special needs in learning English and other subjects.

The scientific approach is considered important to be studied further in learning vocabulary for mentally retarded students. This scientific approach is important and interesting to study because its application does not require special media but relies on the teaching skills of a teacher so that its application can be more flexible and also makes students more motivated to learn because they are directly involved in every learning (Atmarizon & Zaim, 2016; Indrilla, 2018; Irawati et al., 2023; Nugraha & Suherdi, 2017)

This study examines the teacher's process of applying a scientific approach in learning English vocabulary for students with intellectual disabilities. Understanding how scientific methodologies can be effectively integrated into vocabulary instruction for these students is crucial as it addresses a significant gap in educational practices tailored to their needs. The findings benefit educators, curriculum developers, and policymakers by providing insights into effective teaching strategies and identifying potential challenges in implementation. By exploring the specific obstacles faced during the application of scientific approaches, the research aims to offer practical solutions and recommendations to enhance instructional practices.

Based on the background of study, the research question is formulated as follow: 1) How is the implementation of scientific approach in teaching English vocabulary for mentally retarded students? 2) What are obstacles or problem of the implementation scientific approach for mentally retarded students? 3) What are the benefit of the implementation scientific approach for mentally retarded students?

RESEARCH METHOD

Research Design

The research design for this study is qualitative, utilizing phenomenological research methods. Phenomenology focuses on examining phenomena and visible realities to understand how objects and experiences are created, interpreted, and communicated in everyday life (Creswell, 2014). This approach allows for an in-depth exploration of the implementation of scientific methods in teaching English vocabulary to students with intellectual disabilities, aiming to capture the essence and meaning of these educational practices.

Participants

The study involves participants from National Level C Special Needs School in Malang, specifically targeting the teacher of class VII. The teacher is the primary participant for the semi-structured interviews, which are designed to gather insights

into their experiences and practices regarding the application of a scientific approach in teaching English vocabulary.

Data Collection

Data collection for this study comprises several methods:

- **Interviews:** Semi-structured interviews were conducted with the class VII C teacher. This approach allows for a flexible yet focused exploration of the teacher's experiences and practices.
- **Observations:** Direct observations were made in the English language learning class to assess the practical application of the scientific approach. Observations were conducted with the researcher acting as a passive observer to understand the teaching dynamics and interactions between the teacher and students.
- **Documentation:** Various written documents related to the implementation of the scientific approach were reviewed. This includes lesson plans, photos of learning activities, and student assignments.

Research Instrument

The primary instruments used in this study are:

- **Interview Protocol:** Semi-structured interviews with open-ended questions, allowing for an in-depth exploration of the teacher's perspectives and practices.
- **Observation Notes:** Notes taken during classroom observations, focusing on the implementation of scientific aspects in teaching and interactions within the classroom.
- **Documentation:** Collection of relevant documents such as lesson plans and photos, which provide supplementary evidence to support the observations and interviews.

Research Procedure

The research procedure involves the following steps:

- **Conducting Semi-Structured Interviews:** The teacher of class VII C was interviewed to gather qualitative data about their experiences with the scientific approach in teaching English vocabulary.
- **Performing Classroom Observations:** The researcher conducted passive observations in the classroom, focusing on teaching practices and interactions between the teacher and students. Observations were guided by a set of criteria related to the scientific aspects of teaching.
- **Collecting and Analyzing Documentation:** Relevant documents, including lesson plans and photos, were collected and reviewed to provide additional context and validation for the observed practices and interview responses.

Data Analysis

Data analysis involved:

- **Thematic Analysis:** Identifying and analyzing themes and patterns in the interview transcripts, observation notes, and documentation. This helps in

understanding how the scientific approach is implemented and its impact on teaching English vocabulary.

- **Triangulation:** Combining data from interviews, observations, and documentation to enhance the validity and reliability of the findings. The integration of different data sources provides a comprehensive view of the research focus.
- **Transcription and Interpretation:** Interview responses and observational notes were transcribed and interpreted to extract meaningful insights and explanations regarding the implementation and challenges of the scientific approach in teaching English vocabulary.

RESULT AND DISCUSSION

In this section, the researcher presents the data from interviews, observations, and documentation. The results of the study are presented in the form of text that is narrative as the researcher has mentioned in the research method. Based on the results of interviews, observations, and documentation, researchers analyzed using thematic analysis, three main themes emerged from the analysis of the current data set: (1) Implementation of Scientific Approach in teaching English vocabulary for mentally retarded students, (2) Obstacles or problem of the implementation Scientific Approach in teaching English vocabulary for mentally retarded students, and (3) Benefits of the implementation Scientific Approach in teaching English vocabulary for mentally retarded students.

a. Implementation of Scientific Approach in teaching English Vocabulary for Mentally Retarded Students.

A scientific approach is learning activities consisting of five aspects, namely observing, asking, trying, associating, and communicating. In general, the scientific approach is carried out with opening activities, core activities, and closing activities. In the opening of preliminary activities, the teacher prepares students psychologically and physically to follow the learning process and ask questions about the material that has been studied previously, as well as related to the material to be learned. Preliminary activities aim to create a compelling and fun initial learning atmosphere that allows students to follow the learning process well.

In the preliminary activity, the teacher begins learning by reading greetings and inviting students to pray, after the teacher motivates students by asking students to recall the previous material after the teacher conveys apperception, namely linking events known to students with the material to be discussed. Furthermore, there are core activities, core activities are the main activities in the learning process because they are directly related to the achievement of learning objectives. The core activity in the scientific approach is aimed at obtaining concepts, laws, or principles by students with the help of the teacher through the steps of observing, asking, trying, associating, and communicating. The last activity is the closing activity, in the closing activity, the teacher together with students makes a summary or conclusion of the lesson, conducts an assessment or reflection on the activities that have been carried out, and provides feedback on the learning

process and results, plans follow-up activities in the form of remedial learning, as well as conveying lesson plans at the next meeting.

Observe

Based on the results of observations, in the process of observing this student looked enthusiastic. Teachers use real media to stimulate students to be able to observe more clearly and concretely. On the first day, with the theme "Things in the classroom", the teacher used objects such as bags, pencils, and desks as objects for students to observe. At first, the students did not seem to understand the instructions from the teacher. However, when each student gets a personal approach, they seem to immediately understand and try to describe objects according to simple questions from the teacher. Next, the teacher gives each of these objects paper that has the name of the object in English written on it. This method is intended so that students also observe the form of writing the name of the object in English. This step is accompanied by the teacher by guiding students to imitate how to read and spell the name of the object in English.

Students also show good ability in the observation process when the teacher uses image media. They can describe the objects that are drawn and say the names of the pictures in English. Although the pronunciation is not entirely correct, the spelling is almost correct. Each student experiences a different process in this observation process, but in the end, they can name objects correctly and their meanings, two objects per student. This finding is in line with the information conveyed by the teacher during the interview where students prefer and easily remember something when given a real example. They also need special personal assistance so that their focus is maintained and can continue to follow the learning process properly until it is finished. The teacher also conveys that students with special needs are different from students in general because students with special needs cannot be directly directed to write and interpret. This teacher's statement was proven when there was a session where students were required to write down the meaning of object names in English. In this session, almost all students were not able to answer correctly. However, the students were able to state the meaning in English verbally or verbally.

Ask

At the questioning stage, students showed a fairly enthusiastic attitude. Students several times asked the teacher again about the meaning of object names such as "That bag is a bag, right?". Several times the students asked this, then the teacher answered and explained it again to the students until they were sure that all students understood. However, different conditions occur when the teacher asks students to ask other students. When there are moments like this, students experience more noise because they joke a lot. This session made the atmosphere in the class instantly crowded. The teacher said that situations like this often happened and according to him this was a good moment amid the seriousness of the learning process that had occurred before. Through the results of the interview, the teacher also admitted that students had not been able to ask important questions and had not been able to if they had to be faced with the condition of

throwing questions between friends because they would joke. At this stage, it shows students can ask simple questions. Questions are also often asked when the teacher is explaining the material.

Gather Information or Experience

At the trying stage, students are directed to try to pair the picture with the name of the object in English, then the second is to pair the letters in English with their translation in Indonesian. Students show good ability when pairing pictures with English translations. However, they are indeed less able to pair it with writing so often they immediately say or recite. The lack of ability of students during the observation process related to writing the meaning of objects in English is one of the reasons that are in line with this condition.

The second stage is to match the writing of objects in English with their meanings in Indonesian. More difficult than the previous method, it turns out that this activity makes all students unable to answer independently. They are only able to answer when assisted by the teacher. The teacher finally put in more effort when giving this type of student assignment. However, through this condition, it can be seen that the students' verbal and imitation skills are quite good. This was proven when the teacher started to pronounce the noun in English, and the students answered correctly with the Indonesian translation. They can mention but do not have good skills when asked to show in writing.

Associate or Process Information

This process involves a combination of comprehension with the student's understanding process. In this reasoning process, students can describe pictures or objects in Indonesian. This can be seen when the teacher asks about the function of the characteristics of the object being shown to students. After knowing the description of the object, students are then led to know the name of the object in English. This guidance starts from understanding words verbally using sight, hearing, and verbally to showing the written objects in English one by one. The process of associating turned out to give optimal results when students were encouraged to understand using picture media and verbalize meaning. This reasoning or associating process requires quite a lot of repetition so that students understand and understand because the association process is trained continuously. The success of the process of associating can be reflected in the process of trying.

Other findings in this process also show that the resilience of students with a need in understanding material is still low. In this condition, the teacher takes a personal approach such as repeating instructions many times and inviting students to communicate about the reasons that cause them not to focus. In addition, another method used by the teacher on the second day of the study was by giving a simple and short ice breaker to raise the enthusiasm and focus of the students again.

Communicate

In the process of communicating, not all students have good skills in communicating the results they have obtained either verbally or in writing. This process occurs when the teacher invites students to come forward and re-deliver objects and their translations in English. The teacher gives some words in Indonesian and then the students say the translation in English. In addition, the teacher also asked about the results of student assignments by asking "what is number 1, and so on". Students understand the teacher's instructions even though some students explain them less precisely.

This result is reinforced by the results of interviews with teachers where students with special needs with moderate mental retardation are indeed not too severe in their condition because they still have a fairly good grasping power compared to other disabilities. If they are asked a question or asked to explain something, they are able to do it, but it is often not quite right. The process of communicating learning outcomes also does not always go well depending on the mood of the participants so the task of the teacher here is not only to direct but also to be a calmer as well as an observer of the students so that students can be comfortable learning and the learning process, especially in the process of communicating, can run well.

b. Obstacles or problems of the Implementation Scientific Approach in teaching English Vocabulary for Mentally Retarded Students.

This research identified several obstacles based on observations and interviews, categorized into two main areas. First, variability in student abilities emerged as a significant challenge. In a classroom with students who have intellectual disabilities, the diverse range of learning needs and necessities that scientific approaches: typically involving observation, questioning, experimentation, and conclusion can be simplified and adapted. While there are no inherent technical barriers to these methods, the difficulty lies in modifying them to be both accessible and effective for all students. Second, student characteristics and behavioral issues present another major obstacle. Students with intellectual disabilities often exhibit fluctuating moods and behavioral responses that disrupt their learning. Teachers face challenges in managing these mood swings and inconsistent engagement levels, which impacts the overall effectiveness of the scientific approach.

These obstacles influence various learning strategies in different ways. For instance, variability in attention span poses a problem as students with short attention spans and hyperactivity struggle to stay focused during lessons. This often results in incomplete tasks and frequent reminders, disrupting lesson flow and the learning environment. Fluctuating emotional states further complicate the situation; rapid mood changes and heightened sensitivity can lead to frustration or withdrawal, reducing participation and engagement. Social and behavioral challenges also affect learning, as difficulties with social interactions and inconsistent behaviors can disrupt group activities and hinder effective teamwork. Communication difficulties are another concern, as limited or inconsistent verbal communication hampers students' ability to express themselves and understand

instructions, leading to gaps in comprehension. Finally, adaptive functioning challenges, such as struggles with daily living skills and sensory sensitivities, impact students' comfort and focus, affecting their participation in classroom activities and independent task management. These factors collectively pose significant barriers to maintaining engagement and achieving academic success.

c. Benefits of the Implementation Scientific Approach in teaching English Vocabulary for Mentally Retarded Students.

This study identifies some benefits of the scientific approach, including a) Improving Students' Thinking Skills: the scientific approach fosters the development of critical thinking and problem-solving skills. By engaging students in observation, questioning, experimentation, and conclusion, they learn to analyze information and draw evidence-based conclusions. This method encourages students to think deeply and critically about various concepts, enhancing their cognitive abilities. For instance, when students conduct experiments, they learn to hypothesize, test their ideas, and evaluate outcomes which cultivate analytical skills that are transferable to other subjects and real-life situations. b) Making it easier for students to understand the learning material: the scientific approach often involves hands-on activities and real-world applications, which make abstract concepts more concrete and relatable. By directly engaging with the material through experiments and investigations, students gain a clearer understanding of complex ideas. For example, rather than just reading about chemical reactions, students might conduct their own experiments, allowing them to see and understand the reactions in action. This experiential learning helps bridge the gap between theory and practice, making the content more comprehensible.

The next benefit is c) more meaningful for students, when students play an active role in their learning, the process becomes more meaningful. The scientific approach emphasizes student involvement through active participation in experiments and investigations, making learning a personal experience. This direct engagement helps students connect with the material on a deeper level, as they are not just passively receiving information but actively discovering and exploring it. This involvement fosters a sense of ownership over their learning, which can increase their interest and commitment to the subject matter. And d) easier to apply by students and reducing teacher-centered activities: the scientific approach can simplify the application of learning by encouraging student-driven activities. Instead of relying solely on teacher-led instruction, this approach incorporates a variety of interactive and student-centered activities. For example, students might work in groups to design and conduct experiments, analyze data, and present their findings. This shift reduces the reliance on traditional, lecture-based teaching methods and allows for more diverse and engaging classroom activities. As a result, students become more independent learners, able to manage and direct their own learning experiences. The last is e) positive responses from students: according to interviews and observations, students respond favourably to the scientific approach. The active involvement required by this method helps students stay engaged and interested in their learning activities. When students participate in hands-on experiments and discussions, they are less likely to become bored or

disengaged. This active participation not only makes learning more enjoyable but also increases motivation. By being constantly involved in the learning process, students find the experience more satisfying and are more likely to remain motivated throughout their educational journey

Discussion

A scientific approach is an approach in the learning process that is designed in such a way that students can actively build concepts, laws, or principles through the stages of observing (to identify or find problems), formulate problems, proposing or formulate hypotheses, collect data with various techniques, analyze data, draw conclusions and communicate concepts, laws, or principles found. The implementation of the scientific approach in learning involves process skills such as observing, asking, trying, reasoning, associating, and communicating. Based on the observations of the researcher at Special Needs Junior High School Pembina, this process skill has been applied by teachers in learning English vocabulary for mentally retarded children in grade VIIC (Renni & Muhari, 2017).

The scientific approach is believed to be the golden footbridge for the development and development of students' attitudes, skills, and knowledge. Learning with the implementation of a scientific approach is more effective than conventional learning. The results of the study prove that in conventional learning, information retention from the teacher is 10 percent after fifteen minutes and the acquisition of contextual understanding is 25 percent. In scientific approach-based learning, information retention from teachers is more than 90 percent after two days and the acquisition of contextual understanding is 50-70 percent (Kemendikbud, 2013).

The learning process using a scientific approach is certainly different from conventional learning where the teacher is only a source of information for students and is always active in explaining, and guiding students so that students' understanding is built. The implementation of this approach takes a long time in the learning process for students, making it less efficient. However, in a scientifically based scientific approach, the problems given by the teacher are always based on actual phenomena or events that have occurred in the lives of students, then they try to find answers to the problems given independently. So that students not only known facts or principles but must be skilled in applying their knowledge in life (Atmarizon & Zaim, 2016).

A scientific approach is a learning approach that is often used in regular schools with children without obstacles or normal children, while the application of a scientific approach to children with intellectual disabilities or commonly called mental retardation is something new. This phenomenon finally raises questions to researchers about how the application process carried out by teachers at Special Needs Junior High School Pembina in implementing a scientific approach to learning English vocabulary (Arifin, 2020; Ratheeswari, 2018; Weda et al., 2022).

The results of the researcher's interview with the seventh-grade teacher stated that it had been a long time since applying this scientific approach to teaching English, which was in conjunction with the implementation of the 2013 Curriculum in the learning process. She always tries to apply a scientific approach in

every learning activity by developing more core activities to be more varied and by the character of mentally retarded students, all of which are written in the lesson plans before carrying out the learning process in class (Sulistiyowati & Rukminingsih, 2022; Syamsun et al., 2024).

Learning English vocabulary with a scientific approach based on the 2013 curriculum in class VIIC Special Needs Junior High School Pembina has been seen in the teaching and learning process. The learning process carried out by the teacher includes the five learning experiences in the scientific approach as required by the 2013 curriculum. Of course, with various variations of teaching methods and methods are adapted to the character and needs of mentally retarded students. Because teaching mental retardation must always be patient and painstaking so that they are more motivated and experience learning directly so that the resulting learning process becomes meaningful and fun. This is one of the advantages of the scientific approach which can create a pleasant learning situation (Abdulhak, 2017; Indrilla, 2018).

The implementation of a scientific approach to learning English for mentally retarded students requires the creativity and understanding of the teacher in conveying the material so that the understanding of mentally retarded students in learning can be built properly. The understanding and creativity of teachers in applying the scientific approach can be seen in terms of how the process of applying the approach must be carried out. Teachers must pay attention to several factors that affect the success of the learning process. The success of the teaching and learning process can be influenced by: (1) Students who act as the main actors in the teaching and learning process, (2) The teacher himself as the manager of the teaching and learning process with all its uniqueness, (3) The educational goals that are the target of the achievement goals of the teaching and learning process. teaching and learning, (4) Learning materials used as the main supporting materials for the achievement of learning objectives, (5) Ease of access to teaching materials, and (6) The atmosphere and conditions around the environment used when studying (Abdulhak, 2017; Atmarizon & Zaim, 2016; Indrilla, 2018).

Based on the findings, it can be concluded that the teacher is one of the components that determine the success of students in learning. Therefore, teachers must always try and innovate to find the right strategies, methods, models, and approaches to learning. Especially special school teachers who must always innovate in serving students with various obstacles in their schools. One approach that can be used by teachers to increase student learning motivation is the scientific method approach to learning. The benefits of applying a scientific approach for mentally retarded students, among others, are to improve students' thinking skills and make it easier for students to understand the learning material taught by the teacher, and learning is more meaningful for students because students play a direct role in the learning class so that it is more easily applied by students (Ratheeswari, 2018; Samadovna, 2022; Sulistiyowati & Rukminingsih, 2022).

However, learning with the scientific approach method also has obstacles and shortcomings when applied to mentally retarded children. The obstacle is the ability of each student in a different class so the stages of the scientific approach to

learning must be simplified and adapted to the abilities of these students. The teacher also explained that there were no technical obstacles in the scientific approach. So far, the obstacles experienced by teachers in learning are more on the students themselves. Because students are mentally retarded students whose characteristics are different and their moods change. So the obstacles that are often experienced by teachers so far are only with their students. The obstacles experienced in the application of the scientific approach include the different characteristics and abilities of each student (Anggraeni et al., 2016; Samadovna, 2022).

Learning is a scientific process. Therefore, the 2013 curriculum mandates the essence of a scientific approach in the learning process. The 2013 curriculum emphasizes modern pedagogic dimensions in learning, namely by using a scientific approach which consists of observing activities (to identify things you want to know), formulating questions (and formulating hypotheses), trying/collecting data (information) with various techniques, associate/analyze/process data (information) and draw conclusions and communicate the results consisting of conclusions to gain knowledge, skills, and attitudes (Meidiny et al., 2018; Syamsun et al., 2024)

CONCLUSION

Based on the results of research on the implementation of a scientific approach in learning English vocabulary for mentally retarded students at Special Needs Junior High School Pembina, it can be concluded that the implementation of learning English vocabulary with a scientific approach is by the basic competencies, indicators of achievement and learning objectives that have been made. The role of the teacher in the implementation of learning English vocabulary with a scientific approach is very important because the teacher fosters motivation and enthusiasm for students to participate in active and participatory learning activities, especially students with intellectual disabilities; they need direction from the teacher in every step the application of a scientific approach to English vocabulary subjects. Thus the stages in the application of the scientific approach can be carried out properly.

In the scientific learning model, there are many benefits for both teachers and students, especially for mentally retarded students, including improving students' thinking skills, making it easier for students to understand the learning materials taught by teachers, and being more meaningful for students because students play a direct role in the learning process. This scientific approach also gets a positive response from students, students can follow class learning smoothly and also more easily because in every class activity students are always actively involved. On the other hand, learning with the scientific approach method has obstacles and shortcomings when applied to mentally retarded children in a different class so the stages of the scientific approach to learning must be simplified and adapted to the abilities of these students.

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