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THE EFFECTIVENESS OF A MULTISENSORY APPROACH IN IMPROVING OPEN SYLLABIC READING SKILLS OF SPECIAL EDUCATION NEEDS STUDENTS (SENS)

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ABSTRACT

Mastery of reading skills of SENS (learning) is at a weak level and needs to be paid attention to. This issue is due to the cognitive disabilities and behavioral problems of SENS (learning) that need to be managed and dealt with by teachers in each teaching and learning session (PDP) specifically in Malay reading skills. Therefore, this study was conducted to increase active participation in PDP and improve the reading skills of open syllables, consonants, and vowels (CV) in Malay by applying a multisensory approach in PDP. This study is an action study. The study respondents consisted of eight special educational needs students (SENS) in class P3. The students consisted of one student with global development delay (GDD), one student with autism spectrum disorder (ASD), and six students with intellectual disability (ID) recognized by medical experts. Data were collected through a pre-and post-test checklist conducted over eight four-week PDP sessions. The study's findings show an increase in the development of open quarter reading at various levels during the study period. The implications of this study open up space for teachers to be more creative in applying a multisensory approach in PDP sessions to SENS for specific learning in improving Malay reading skills and also other subjects.

Keywords: Special Education Needs Student (SENS), Multisensory Approach, reading skill

1. INTRODUCTION

Reading and writing are basic skills in mastering various disciplines through the teaching and learning process (Jamian, 2021). This skill is a complex and complicated process depending on the process of recognizing and understanding words that are difficult for some children to master (Akbari et al., 2019). Reading skills involve various other skills in a period of time such as paying attention, recognizing letters or words, organizing words into sentences, spontaneous text transfer activities, and text comprehension (NICHD, 2000). Reading activities require students to pay attention to the variety of letters that make up words or some words that make up sentences, the process of decoding, word recognition, understanding, and articulation is also a sequence of the reading process (NICHD, 2000). Meanwhile, reading problems are the result of confusion about words, the first or last letter of a word, the view of words that appear upside down, difficulty spelling and diagnosing words (Akbari et al., 2019). Students with special educational needs are among the groups that often face problems mastering reading skills.

In the Malaysian context, Special Educational Needs Student (SENS) refers to students who have been certified by a medical practitioner or audiologist, optician or psychologist concerned whether government or private have a visual, hearing, learning, physical, or any combination (Ministry of Education Malaysia, 2015) therefore, this study will focus on SENS who face learning disabilities or children with learning disabilities. Children with learning disabilities are those who face brain intelligence problems that are not in line with physical age, consisting of children with Global Development Delays and Down Syndrome (Ministry of Education Malaysia, 2015). In addition, children who face Intellectual Disability and conditions that affect their ability to learn such as children with autism spectrum disorders, Attention Deficit Hyperactive Disorder (ADHD), and specific learning problems are also in the same category (Ministry of Education Malaysia, 2015).

1.1. Background Research

Constraints in mastering reading skills are linked to factors of cognitive disability and student behavior (Kok, 2021) Disability factors in terms of cognitive reasoning is the main cause of problems mastering reading skills among students with intellectual disabilities (Whitbread et al., 2021). This factor contributes to the decline in the cognitive ability of intellectually disabled students to store information related to the reading process over a longer period of time (Whitbread et al., 2021). Reading is a process that is controlled by various brain functions that are considered complex networks. The reading process starts from the visual area, then the information spreads to the brain, especially in the left hemisphere by following two paths that complement each other in the reading process (Estivill et al., 2021). Children with literacy problems experience changes to the continuity function in the reading network and their attention to the beginning of letter recognition (Estivill et al., 2021).

In addition, behavioral factors were also identified as constraints to the development of SENS reading. Related behavior problems are identified as destructive behavior, which refers to negative behavior shown by special education students in the class (Daisykavani & Rosadah, 2020). Distractive behavior disrupts and hinders the learning process in the classroom (Daisykavani & Rosadah, 2020; Mahmor & Abu Bakar, 2021). This behavior is like making noise, shouting, asking for attention, and physically disturbing friends and teachers. This behavior problem causes PDP for children with autism spectrum disorder (ASD) to be less effective and students face impaired concentration on learning (Shah et al., 2016, Mui Kuin & Norshidah, 2021). The wisdom of teachers in managing the behavior of students with special needs is very important in driving the success and effectiveness of the PDP process (Anis & Suziyani, 2019) specifically in the guidance of reading skills.

Referring to the Linus KPM 2010 Literacy test conducted for MBPK Class P3, it was found that the students had a very difficult time remembering letters and sounding open syllables which are a combination of consonants and vowels. These students also face problems managing their behavior in the classroom and disrupting the teacher's teaching. In fact, in the teaching and learning process, students show boredom and lack of activity. The various categories of student disabilities in one class present a great challenge to teachers to plan learning that is able to attract students' interest, especially in improving the mastery of reading skills. Therefore, this study was conducted

to increase the active participation of all MBPK class P3 in PDP and to improve the reading skills of open syllables, consonants, and vowels in Bahasa Melayu.

2. LITERATURE REVIEW

2.1. Multisensory concept

The multisensory method is a learning strategy that applies two or more senses simultaneously, namely visual, auditory, and kinesthetic-tactile (Proulx et al., 2014, Purinton & Burke, 2019, Schneider & Ming 2019, Muhammad Raihan Sapi'ee & Kim Hua Tan, 2020) in a teaching and learning process. One of the Multisensory methods applied to guide children's reading skills was pioneered by a study by Samuel T. Orton who is also known as the `father of dyslexia' (Colony, 2001). He was assisted by Bessie Stillman and Anna Gillingham. The study produced a method branded the Orton Gillingham-Stillman Approach (Sayeski et al., 2019). A multisensory approach will be able to create a learning network capable of increasing phonological awareness (Ngong, 2019) capable of building students' interest and focus on reading skills.

2.2. Howard Gardner's Multiple Intelligence Theory

The multisensory method is closely related to Howard Gardner's Multiple Intelligence Theory, which states that everyone has differences in terms of strengths and weaknesses that support intelligence. individuals (Lash, 2004 & Ngong, 2019). The theory outlines nine different types of intelligence, namely language intelligence, mathematical logical intelligence, musical intelligence, spatial intelligence, kinesthetic intelligence, naturalistic intelligence, interpersonal intelligence, intrapersonal intelligence, and existential intelligence (Ngong, 2019). This theory integrates multiple intelligences, by emphasizing the importance of the senses in the learning process. Teachers need to plan and then implement a teaching and learning process that can improve the student's learning experience through the integration of all intelligence with various fun learning activities.

2.3. Multisensory Stimulation

Visual applications, such as pictures and videos, help students to understand abstract things, clearly and easily by relating things learned to their own experiences (Gorijan et al., 2019 in Raihan Sapi'ee & Tan, 2020). Auditory applications such as the use of sounds related to the reasoning of verbal stimulation are very easy with the use of multimedia materials (Gorijan et al., 2019 in Sapi'ee & Tan, 2020). Tactile applications also include strategies for improving fine motor skills among students such as tray sand and clay modeling. While the kinesthetic application mainly adjusts the fine and gross movements of motor skills, integrated with language learning (Gorijan et al., 2019 in Sapi'ee & Tan, 2020) The multisensory learning approach has certain goals in teaching and learning. Learning that applies multisensory methods helps teachers ensure the effectiveness of learning objectives, planning, and systematically organizing teaching strategies. It also provides students with elements of self-exploration as well as active involvement in the PDP process (Aja et al., 2017) Kinesthetic-tactile learning, which is an activity involving student movement in space, helps improve math and reading proficiency (McQuagge, 2020).

2.4. Increase Interest and Focus

Previous studies prove that a multisensory approach can improve the observation and concentration of special education students. One of the studies conducted by Thompson (2011) on 50 special education students has proven an increase in interest and concentration in learning based on instruments that are translated through facial expressions, vocal signals, and body language. While the study by Ching and Tahar (2021), found that 96.2% of the respondents consisting of special education teachers gave a positive response to the use of multisensory equipment i.e. Audio Books in increasing the interest of students with learning difficulties in reading. This study lists a total of 80 respondents who are teachers of the Integrated Special Education Program from eight primary schools in Alor Star. In addition, this approach also successfully proved the development of the level of focus and visual perception of children with learning disabilities in the context of Arab students with learning disabilities (Alenizi, 2019). The results of the study support the implementation of multisensory integration in an effort to improve the high focus of students with special needs.

2.5. Improving Skills in Academics

A multisensory approach can improve reading skills in Bahasa Melayu. The findings of a study by (Nor Qadariah & Wan Muna Ruzanna, 2020) prove the effectiveness of VAKT (visual, auditory, kinesthetic & tactile) in improving reading proficiency through a pre-and post-reading test of Malay words diagraphs and consonants combined among four Melanau students from the Special Rehabilitation class in Sarawak. This approach also shows an increase in the reading achievement of Surah Alfatihah of four respondents, students with autism spectrum disorders from the Al-Quran Education Center, Bangi (Rohadi et al., 2021). This study uses colored cards as a multisensory material. The increase in Al Quran reading is also supported by Umashankar (2020) in his article titled The Multisensory Engagement With The Qur'an: Teaching The Qur'an Beyond The Written Word. Although these two studies show the effectiveness of the multisensory approach, the small number of respondents, which is 4 people, may still reduce the reader's confidence in the effectiveness of the multisensory approach based on the overall study.

Compared to a study by Ngong (2019) which had more respondents it was 26 students. This study seems to be more convincing, involving the teaching of reading to typical dyslexic pupils of primary school in Bamenda III Sub Division, North Mezam Division of the Western Region of Cameroon. Along with a study by Sapi'ee and Tan (2020) with 60 respondents in rural areas of Sarawak. Both studies prove a high increase in students' phonological awareness with the application of a multisensory learning approach. While Staden and Purcell (2016) found that the comparison of pre-test and post-test scores in the experimental group showed a significant improvement, which is related to working memory, phonological awareness, and spelling development (i.e. post-test), compared to students in the control group who also showed an increase in marginal rate. The respondents of this study consisted of 22 students with hearing disabilities (APDs).

In addition, the adaptation of the use of multisensory teaching tools allows visually impaired students to solve Organic Chemistry problems independently and on par with their typical peers

(Fernández et al., 2019). The literature shows that the increase in reading ability and other skills is the result of increased student focus and concentration in learning apart from the active involvement of students during teaching and learning in the classroom. The studies conducted clearly prove that the application of the multisensory approach can help the development of MBPK reading skill.

3. RESEARCH METHODOLOGY

3.1. Research design

This study is in the form of an action study which is linked to small-scale and 'hands-on' research that involves practical issues, problems, or any needs that arise in real life while carrying out activities that become commonplace (Denscombe, 2010). This design is used to improve the researcher's practice effectively. According to Denscombe (2010) there are four characteristics of action research, the first being its practical nature which is related to real issues or problems encountered in organizations or jobs. The second characteristic involves change, which is the ability to solve the issues or problems faced. The third feature is a critical research process where the results obtained will be implemented and evaluated. While the fourth characteristic is that participation in the study involves individual actions in the research process that act actively.

The Cyclical Process in Action Research:

i. Professional practice refers to the responsibility of the researcher as a Special Education Teacher who teaches Malay, the researcher always evaluates and reflects on the teaching and learning carried out for MBPK, especially in reading skills. The researcher tries to identify the effectiveness of teaching or student dropout in the learning process.
ii. Critical reflection refers to the process of identifying issues that need to be resolved to help students improve their reading skills.
iii. Systematic and planned research on the cause of problems or issues faced. The researcher carried out the interpretation through the PDP activity. The data was recorded by the checklist provided.
iv. Strategic planning is the process of interpreting research findings into action. The findings from the study need to be translated into planning to solve the problem or active action to manage the issue. The researcher has planned a PDP strategy using a Multisensory approach to guide MBPK class P3 to master the skills of reading syllables.
v. Actions are implemented based on planning and strategy through the PDP process twice a week for four weeks. The implementation of approach is implemented consistently to help improve reading skills in addition to increasing interest in PDP.

3.2. Sample study

This study was conducted on P3 class students. This class consists of eight MBPK students from three categories, namely 6 students with intellectual disabilities, one student with global delay (GDD), and one student with autism spectrum disorder (ASD). Based on the programmatic test conducted using the Year 1, 2010 Reading Literacy instrument, screening 2 (KPM, 2010), it was

found that all students did not master construct 1, which is the ability to name vowels and consonants. Pupils also do not master construct 2, which is the ability to sound open syllables. While the test for constructs 3 to 12 was not conducted due to the low level of student mastery.

3.3. Instrument

This study uses a student achievement checklist to record student progress in each PDP process. This checklist lists 7 syllables that students need to master based on the theme planned by the researcher. Student achievement levels are divided into four, namely Mastering Without Guidance, mastering with partial guidance, mastering with full guidance, and not yet mastered.

3.3.1. Teaching strategies and methods

The multisensory approach in this study is applied to ball games. Game activities involve movements such as symbolic, meaningful, fun, and voluntary and increase intrinsic motivation, regular and episodic (Barnett, 2018). Mastering social skills and early play opens up opportunities for children to learn more skills and improve their health (Charlop et al., 2018). Play provides opportunities to improve social skills across developmental domains, integrated regulation, and opportunities to develop important friendships for young children with disabilities (Barnett, 2018).

3.3.2. Implementation of Multisensory Approach in PDP

The activity of a teaching and learning process (PDP) is carried out on a themed basis. Pupils will be guided to spell and say the first syllable of the word based on the picture. Then repeat the spelling and recitation while writing in the air. Aids such as picture cards and word cards pasted in front of the class are visual stimulation materials. The activity is carried out in a drill. Next, students are asked to stand and are guided to write syllables in the air while spelling and pronouncing the syllables. The second PDP activity is bouncing and catching the ball while spelling and saying syllables.

This third activity continues with the game choose the syllable cards mentioned by the teacher. The card needs to be clipped with a pin based on a certain color. Next, students must match the syllables with the related pictures. The syllable should be attached to the picture on the whiteboard in front of the class. Therefore, students have the opportunity to move. Next, the students spell and say the syllables individually, and guide their friends. All activities are carried out according to the teacher's creativity. Implementation of eight PDP sessions over four weeks.

4. FINDINGS

Study data is recorded through pre-test and post-test. Referring to Table 1, the results of the pre-test found that S1, S2, S3 have not yet mastered the syllables. While S4 has not yet mastered five out of seven syllables and mastered two out of seven syllables with full guidance. Other students namely S5, S6, S7, and S8 mastered seven syllables with full guidance.

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Table 1 Pre-test - Achievement Of Reading The First 7 Consonant-Vowel Syllables With The Theme Of Body Parts

Items	Student 1 (ASD)	Student 2 (GDD)	Student 3 (ID)	Student 4 (ID)	Student 5 (ID)	Student 6 (ID)	Student 7 (ID)	Student 8 (ID)
Mastery Without Guidance								
Mastery with Partial Guidance								
Mastery with Partial Guidance								
Mastery with Full Guidance				4/7	7/7	7/7	7/7	7/7
Not Yet Mastered	7/7	7/7/	7/7	3/7				

In relation to that, the post-test after the PDP activity applying the multisensory approach was carried out showed that there was an increase in recorded skills. Table 2 shows the results of the study after eight PDP for 4 weeks. M1 showed the achievement of pronouncing four out of seven syllables with partial guidance while three out of seven syllables the student could pronounce with full guidance. For M2, M3 and M4 students master all 7 syllables with partial guidance. While M5 and M6 mastered four out of seven syllables independently and three out of seven syllables mastered with partial guidance. Finally, M7 and M8 mastered all 7 syllables independently.

Table 2 Post-test - Achievement Of Reading The First 7 Consonant-Vowel Syllables With The Theme Of Body Parts

Items	Student 1 (ASD)	Student 2 (GDD)	Student 3 (ID)	Student 4 (ID)	Student 5 (ID)	Student 6 (ID)	Student 7 (ID)	Student 8 (ID)
Mastery Without Guidance					4/7	4/7	7/7	7/7
Mastery with Partial Guidance	4/7	7/7	7/7	7/7	3/7	3/7		
Mastery with Full Guidance	3/7							
Not Yet Mastered								

5. DISCUSSION

Reading skills will be able to help the emergence of SENS (learning). PDP strategies implemented in the classroom need to be implemented creatively according to the functional level of the students, various studies have significantly proven the effectiveness of the multisensory approach. Referring to the findings of the action research conducted proves the effectiveness of the multisensory approach applied in PDP. The results of the Post-Test proved that all students showed improved skills in reading syllables. This increase in syllable reading skills is in line with studies conducted by Ngong (2019) and Sapi'ee & Tan, (2020) which prove that a multisensory approach contributes to a high increase in the phonological awareness of students with intellectual disabilities and dyslexia. In addition, this study is also in line with the findings of the Staden & Purcell, 2016 study which proves that there is a significant increase in the achievement of APDs students.

Through this study, it was found that the effectiveness of the multisensory approach is based on stimulation factors that are implemented simultaneously in the PDP process. Learning aids which are word cards and pictures become learning aids that are important as visual stimulation for students. Visual applications help students to understand abstract matters, clearly and easily by associating things learned with their own experiences (Gorijan et al., 2019 in Raihan Sapi'ee & Kim Hua Tan, 2020) Based on this study, the researcher used pictures and colored word cards under controlled conditions was found to be very effective in helping students follow the learning content. While kinesthetic and tactile stimulation is through activities such as playing ball, jumping, moving, and sitting according to the activity. Students do not feel pressured to learn. This is in line with McQuagge's study (2020) which found that learning based on kinesthetic-tactile stimulation, which is an activity that integrates student movement in space, helps improve math and reading proficiency (McQuagge, 2020).

Pupils can still continue with pdp and pay attention without being forced to sit in a chair for a long time. This can help students feel more comfortable and free to learn. The activity of bouncing and catching the ball also helps provide learning comfort to students who find it difficult to sit in a chair for a long time. This activity is carried out while spelling and pronouncing syllables. This activity stimulates students to continue spelling and saying syllables with the correct pronunciation in a focused state. Jesteru, kinesthetic applications are able to adjust fine and rough movements of motor skills, integrated in language learning (Gorijan et al., 2019 in Raihan Sapi'ee & Kim, 2020).

In addition, students can make sounds but with the teacher's control and guidance based on activities through spelling and pronouncing letters, syllables and pictures. This can reduce intentional or uncontrolled pupil noise disturbances. Auditory applications such as the use of sounds related to the reasoning of verbal stimuli are very easy with the use of multimedia materials (Gorijan et al. 2019 in Raihan Sapi'ee & Kim Hua Tan, 2020). Pupils will spell loudly and slowly, fast or slow while doing activities touching the ball such as bouncing and catching the ball. Tactile applications also include strategies for improving fine motor skills among students. This can help students to focus on the correct pronunciation and have the opportunity to make a more meaningful voice. At the same time, students control their own voices based on the teacher's instructions and

can develop students communication skills. A study by Ya Chin Chan et al. (2018), stated that games help the communication skills of ASD children.

Apart from that, the findings of this action research also indirectly show that an improvement in student behavior management can be implemented. Based on the researcher's observation of the pdp process that was carried out, it received attention and active involvement in the class. The destructive behavior shown by ASD and GDD students can be controlled based on the improvement of skills they demonstrate. The findings of this parallel study are significantly proven by Thompson (2011). The results of the study prove that increased interest and focus in learning are obtained based on instruments that are translated through facial expressions, vocal signals, and body language.

In conclusion, the learning process is very necessary to leave an impression of fun on students to increase the interest and active involvement of students in PDP. Therefore, the multisensory method is the teacher's choice to teach reading skills of consonant-vowel consonants vowel (CVCV) to SENS learning in class P 3. PDP activities carried out using multisensory techniques can stimulate MBPK's more active involvement in PDP. In addition, students are more focused and comfortable studying until the end of PDP time. Found that destructive behavior is reduced, and learning can be carried out smoothly.

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