

THE PRACTICE OF MULTISENSORY TECHNIQUE TOWARDS READING SKILLS OF OPEN SYLLABLES BY PRESCHOOLERS

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ABSTRACT

Unable to read has a significant impact on language acquisition that can contribute to children failing at school. Therefore, teachers must utilise methods that are in accordance with the children's ability during their early stages of reading development to prevent them from experiencing difficulties in a formal school environment. The objective of this study was to observe the practice of multisensory technique towards the benefit of children's skills in reading open syllables. By using structured observation, three children were observed using three different multisensory activities such as 'sand letters', 'alphabet jump', and 'tactile alphabet'. 16 open syllables were identified which are 'ma', 'ho', 'su', 'gi', 'pa', 'du', 'me', 'ga', 'do', 'bi', 'te', 'pu', 'so', 'ri', 'ta' and 'la' by using a checklist item from LINUS instrument have been analysed descriptively by looking to the appearance of children's reading skills. The study showed that multisensory technique was able to assist in children's reading skills of open syllables even if they come from different language backgrounds. In addition, this technique helped the children to avoid confusion between Malay and English open syllables with the presence of stimulus during reading activity. This proved that an environment rich with stimulus are important for children's development. It provides important factors for teachers in delivering meaningful experiences during children's learning.

Keywords: multisensory technique, open syllable, reading skills, children, preschool

INTRODUCTION

Every preschool uses the same curriculum known as National Preschool Standard Curriculum (NPSC). NPSC serves as the medium to provide teachers with guidance. It aims to support the nation's sincere desire in providing an international level and top-ranked preschool education for the present and future generations. NPSC was drafted based on principles that are appropriate with children's level of development reinforced by six main strands. Some of the supports/benefits related with the use of multisensory technique in children's reading skills of open syllables are communication, and development of physical and aesthetic strands. Communication support/benefit is closely related with this study as language skills are the core of Communication support/benefit. Language skills involve reading mastery

which serves as an important aspect for children's learning. Physical and Aesthetic support/benefit that involves physical development is also closely related with multisensory aspect as it covers fine and motor skills that are important towards children's mental intelligence. Based on the NPSC (2017 Review), a strategy known as learning based on various intelligences is greatly encouraged and widely used. Learning based on various intelligences is one of the strategies that focuses on different intelligence and ability of children. This learning strategy emphasises on the diversity of intelligence and the way children learn. This is important as approaches that are on par with children's level of development are required in order to create an effective and meaningful learning for children.

According to Malaysia Education Blueprint 2012-2025 (Ministry of Education, 2013), the total number of Malaysian students under the minimum assessment of TIMMS in reading skills is twice the amount compared to *Organisation for Economic Co-operation and Development* (OECD) countries. Based on the Malaysia Education Blueprint 2013-2025, the gap of accomplishment between the education system of Malaysia and other countries are getting bigger and international assessment shows that Malaysian students' performance is getting worse. The result in a study conducted by Education Planning and Research Division (EPRD) shows that many children are still not able to master their reading skills in primary education. Besides that, a few teachers are still concentrating on traditional methods of teaching. The result in a study conducted by Ching et al. (2018) presented that traditional methods of teaching practiced by most teachers fail to attract the interest of the children to learn reading. Hence, reading skills among Malaysian citizens must be supplemented with additional attention.

Multisensory Concept

The Minnesota Literacy (2015) defined multisensory as teaching and learning that involve self-sensory by focusing on the elements of visual, auditory, kinaesthetic, and tactile. This learning technique involves more than one senses that assist in learning process and trigger a few parts of the brain. Multisensory is also known as VAKT which stands for visual, auditory, kinaesthetic, and tactile (Ab. Jalil et al., 2018). Md Maliki and Mohd Yasin (2017) described multisensory as a teaching and learning approach that integrate all human senses. Multisensory stimulus can assist in the learning process of children, increase awareness about their body, express themselves, as well as helping them to socialise. Multisensory activity provides unique opportunity and experience for children to achieve self-development in communication, social, cognitive, and sensory motor ability. Multisensory learning stimulates children's senses simultaneously when they are learning (Cibrian et al. 2016). Fiani (2012) in Setyawati (2017) defined multisensory as one of the systematic methods used to help children in increasing their cognitive ability by focusing on all senses that are being stimulated. Multisensory method emphasises on teaching through the principle of visual, auditory, kinaesthetic, and tactile by involving a few senses. Senses involved in multisensory is sight, hearing, movement, and touch. This method can help children who possess different level of learning and intelligence with each other. Indirectly, this method allows the children to be given a chance in unleashing their self-potential. The Fernald Method that uses multisensory is an approach where children are taught to read words as a whole rather than by the sound of a single letter.

Four similarities can be identified in this concept whereby The Minnesota Literacy (2015), Ab. Jalil et al., (2018), Md Maliki and Mohd Yasin (2017), Cibrian et al. (2016) and

Setyawati (2017) all stated about the integration of more than one senses especially the ones in the multisensory technique such as visual, auditory, kinaesthetic, and tactile. The similarity of concept that exist between Md Maliki and Mohd Yasin (2017) and Setyawati (2017) is regarding the benefits of multisensory technique whereby both authors stated about the positive effect of this technique towards cognitive development or brain activation.

Children's Reading ability

Kalayci and Humiston (2015) defined reading as a cognitive process that requires knowledge in order to be fluent. According to Programme for International Student Assessment (PISA), reading is understanding, utilising, assessing, making reflection towards texts to achieve an objective, and broadening knowledge of an individual. Usually, a five-six years old normal child is already able to read easy syllables (Bakar & Abd Rahman, 2018). Children that are not given encouragement and environment rich with reading materials when they are six years old tend to not gain any interest or motivation in reading in the future (Asha et al., 2017).

The difficulty in reading during early stage of schooling can be overcome if children at the age level of six years old are provided with experience and effective reading environment especially at home. Mwoma (2017) discovered that female children produce more positive responses towards reading activity compared to their male counterpart. Reading is a source of knowledge and the basic of self-formation in the direction of gaining knowledge and easing an individual to live one's life (Elias & Sulaiman, 2016). According to Che Mat et. al (2016), reading means the ability of an individual to identify and understand visual form as well as connecting form with sound through experience. The reading skills are a complex process that involves mind, perception, linguistics, and psychology.

Tarasat and Daud (2014) stated that reading is an important basic skill and must be mastered by children for them to master other subjects as well. A basic reading application that consists of open syllables is utilised and compared with traditional method of teaching towards children. The study showed that the use of basic application for reading is more effective compared to traditional method of teaching reading. Furthermore, reading skills are important for children and must be emphasised from an early stage by using techniques that are proper for their level of ability. This is because the use of effective technique can give joy and positive impact towards children when they are confident and happy with the learning process. Phonics and multimedia method are used for reading activity because it combines visual and auditory aspect. Children who are exposed to two mediums of learning are more capable of increasing their memory. This is because they are given the chance to form the meaning of reading skills through visual images. Thus, a traditional approach of teaching and learning proves to be less effective in attracting children's interest to read.

The Theory of Multiple Intelligences was introduced by Howard Gardner that suggested that there are nine types of intelligence that vary in nature (Gordon & Browne, 2017). This theory contributed a huge impact towards teaching and learning in preschool. The nine types of intelligence include music, kinaesthetic, mathematical logic, linguistics, spatial, interpersonal, intrapersonal, naturalist, and existential. The theory of multiple intelligences is closely related with the use of multisensory technique in terms of children's reading skills of open syllables as every child possesses different level of intelligence. Thus, their way of learning cannot be focused only on one method. The relationship between multisensory

technique in reading open syllables and high level of verbal-linguistic intelligence is proven to be real (Rostan et al., 2020). Hence, reading skills of children who possess high level of verbal linguistic intelligence are more effective and easier compared to children who are not dominant in linguistics intelligence.

Based on Behavioural Theory, Pavlov opined that learning occurred as a result of accepting the respective stimulus. Each of the accepted stimulus will create a response. Based on this theory, the enjoyable learning and teaching atmosphere are able to attract the children's concentration. Watson also encouraged good stimulus in order to create a positive behaviour. Multisensory technique in reading skills of open syllables is closely related to Pavlovian theory as this technique focuses on factors of stimulus given by teachers in order to create experience in children's learning. Based on this theory, stimulus and reaction of children are important input and output. Clearly, a lesson will be more effective if stimulus is present as stated by Pavlov.

Studies on Multisensory Technique

An action research by Bakar (2012) was conducted to find out how VAKT method can help Standard Two special needs students to write their name. This study was carried out in the span of eight weeks. The data were collected through the methods of observation, interview, and documentary analysis. The data were analysed through content analysis and reviewed by using triangulation method and referring to the acquired data source. This method included all the children's senses and has a close connection between the right and left hemisphere of the brain. This study provided a deep implication towards the researcher in terms of strategy and teaching and learning method. The researcher was provided the opportunity to train herself to become a creative and optimist teacher in order to execute the lesson. The suggestion of follow-up studies should include identifying and writing letters A-Z by using the VAKT method.

Nainggolan and Delrefi (2017) conducted a research on the effect of Fernald technique towards reading skills of 14 children of group A1 at PAUD Terpadu Mekar Sari Penarik Mukomuko. The Fernald technique is a learning approach that involves numerous modalities such as visual, kinaesthetic, and tactile that are also known as VAKT. This study utilised experimental design and the data were collected through pre-tests and post-tests. Chi-square was used as part of the data analysis and the study showed that there was a presence of positive influence and significant impact between Fernald technique and children's reading skills.

Gori (2015) stated that different senses develop at a different rate starting with touch, vestibular, chemistry, auditory, and ended with sight. The study showed that children who are under eight years old has a sense that dominated the rest of the different senses depending on the types of activity conducted. However, the integration of senses did not occur. The result revealed that unisensory is more dominant compared to multisensory for six-year old children. However, this changed once the children started to age. Integration of multisensory will exist when unisensory system reaches maturity.

Studies on Reading Skills of Open Syllables

Abu Bakar (2017) conducted a research on the value of strategy involving pre-schoolers reading in Malay English using bilingual story books alongside their parents and peers. The samples of the study consisted of 10 bilingual pre-schoolers. The samples participated in a reading session with their parents and friends at their home and school respectively for the duration of six months. The analysis revealed that the children were aware of the differences between word construction, phonology, and spelling between the two languages. The use of strategy by using different consisted of bilingual practices such as code switch, translation, and construction of bilingual vocabularies (Ismail, 2019).

Tarasat and Daud (2014) conducted a research by using quasi-experiment method which involved 22 pre-schoolers as the sample at a school in Brunei and Muara in order to explore the effect on using software on reading performance for pre-schoolers. The samples were divided into two groups. The first group, experimental group, was taught by using basic reading software (BRS) and the second group, controlled group, was taught by using traditional method of teaching (TT). The result revealed that there were significant differences in the overall achievement of basic reading skills between students from the experimental group and controlled group. The result also showed that the use of basic reading software was effective in helping pre-schoolers to improve their basic reading skills. Besides that, this study provided implications for the teaching methods of teachers and students' learning.

It is, therefore, the objective of the study is to explore the practice of multisensory technique towards reading skills of open syllables among kindergartener specifically for 6 years old children.

METHODOLOGY

Research Design

This study aimed to find in what way the multisensory technique could benefit children's development particularly for their reading skills of open syllables. Hence, it adopted a qualitative methodology by using a structured observation to collect the data from three different activities of reading. Observation was intended to capture life as experienced by the research participants rather than through categories that have been predetermined by the researcher (McKechnie, 2008). Therefore, children were observed by using a checklist in order to indicate either the practice of multisensory technique is beneficial for their improvement.

Sampling and Location

A random sampling was using among 6 years old children from a private kindergarten in Shah Alam, Selangor. Due to the specific criteria of children was absence, the researcher asked the permission the principal as well as the parents of children. As it was applying the random sampling, a group of children that has been given a permission was aware and only three children were selected among them. The three participants then were coded as, Children 1 (C1), Children 2 (C2) and, Children 3 (C3) for easier further analysis (McKechnie, 2008). By using the random sampling, the date gathered could produce an accurate generalization about the larger group in school settings and reduce the element of bias. According to Allard

et al. (2009), in observatory research, the number of child is not relevance as the data was collected authentically from the real setting.

Data Collection

By using structured observation as the research method, three six-year old children from a private kindergarten in Selangor were observed. The observations were conducted three times to gain accurate information. Three different multisensory activities were executed with the children to test their reading skills of open syllables. According to Given et al. (2020), to increase the validity and reliability of the result, the data was collected repeatedly in a different times and settings. Hence, the three multisensory activities were designed in supporting the multisensory technique in reading skills of open syllable. These activities were validated by the experts prior to data collection. The data was collected for seven weeks to complete all the planned activities. The activities are;

i) Sand Letters (Activity A)

Sand Letters was executed by using purple kinaesthetic sands that were placed on a tray. The researcher would show syllables card and instructed the children to write down the syllables on the surface of the sand. Once the children were finished writing down the syllables on the sand, they were asked to read it to the researcher.

ii) Alphabets Jump (Activity B)

Alphabets Jump was executed by preparing roundly shaped syllables papers that were glued on the floor. Next, the researcher would play the audio sound of the syllables to the children using a speaker. The children were instructed to jump on the syllables based on the audio sound that they heard through the speaker.

iii) Tactile Alphabets (Activity C)

Tactile Alphabets was prepared by using a hairy iron wire as its main material. The iron wire was bent to form open syllables and glued on a piece of cardboard. The children were instructed to touch and read those syllables.

Checklist

Checklist is used to record the aspect of children's development. In this study, the checklist items were adapted from content of LINUS instrument (Construct 2). It consisted of 16 open syllables that were appropriate for kindergarten children. The preparation of observation checklist aimed to ensure that the focus of the study was targeted towards the children's reading skills of open syllables. As this checklist has went to expert validation for content and technical. The corrections was made after the validation process. It was also to ensure that the children's reading skills of open syllables were given enough attention and used as a guideline to conduct an useful study.

RESULTS

Table 1 is the result from the checklist observation for open syllables activities.

Table 1
Checklist observation for open syllables activities.

Open Syllables	Observation								
	Observation 1			Observation 2			Observation 3		
	C1	C2	C3	C1	C2	C3	C1	C2	C3
ma							/	/	/
ho	/	/		/	/		/	/	/
su		/			/			/	
gi	/	/	/	/	/	/	/	/	/
pa				/			/	/	
du	/	/		/	/		/	/	/
me						/			/
ga		/			/			/	/

Based on the Table 1, three of the samples were not able to read the syllable “ma” during the first and second observation. However, they successfully read the syllable “ma” during the third observation. C1 and C2 were able to read the syllables “ho” during the first, second, and third observation. On the contrary, C3 were not able to do so. C3 did not manage to read the syllable until the third observation. During the first and second observation, C3 read the syllable “ho” as “fo”.

The syllable “su” was read successfully by C2 during all of the observations. However, C1 and C3 were not able to read the syllable correctly. They pronounced the syllable “su” as “cu”. C1, C2, and C3 managed to read the syllable “gi” correctly whereby all three of them gave the word “gigi” as an example to the researcher. C1 kept quiet and observed the researcher’s lips movement when he was mentioning the syllable. C3 read the syllable as “pey” and C3 read it as “ba”. In this observaton, C3 was still confused between the letter p and b and mistakenly switched the syllable “pa” to “ba”. The second observation showed that C1 already managed to read the syllable “pa” by jumping on to the syllable “pa” while saying “pacat”. C2 was so happy doing the alphabet jump that he wanted to repeat it for several times. In the third observation, C1 and C2 read the syllable “pa” correctly. However, C3 was reading it incorrectly.

For the syllable “du”, C1 and C2 read it correctly during the first and second observation. However, C1 took a long time to do the activity. C3 read “du” as “bu” during the first and second observation but was able to read it correctly during the third observation while doing tactile alphabets. C3 touched the surface of the syllables created from the hairy iron wire that was bent in order to form the syllable “du”.

In the first observation, all of the samples were not able to read the syllable “me” correctly. C1 only observed the researcher and started jumping while shaking his head to as an indication that he did not know how to read the syllable. On the other hand, C2 pronounced the syllable “me” as “mi” while saying “me is I”. C3 also did not manage to read the syllable “me” and only pronounced the letter “m”. However, the second and third observation proved that C3 successfully read the syllable “me”.

The syllable “ga” in the first observation was read correctly by C2 only. On the

contrary, C1 and C3 pronounced it as “ja”. For the second observation, C1 and C3 made a jump into the area of the syllable “ja” when the researcher gave the sound of the syllable to them. In the third observation, C2 and C3 were able to read the syllable “ga” correctly. However, C1 grinned while pronouncing “ja” during the activity of tactile alphabet. C3 only touched the iron wire while watching his friends doing the activity.

C1 and C2 were able to read the syllable “do” correctly during the first, second, and third observation. Both of these samples seemed to be very excited doing the Alphabet Jump compared to Sand Letters and Tactile Alphabets. However, C3 was still not able to read the syllable correctly as he pronounced the syllable “do” as “bo”. This was proven when C3 wrote “bo” on the kinetic sand and pronounced it as “do” because he copied the sound and lips movement of the researcher. C3 also did a jump on to the syllable “bo” after hearing the audio “bo” through the speaker.

The syllable “bi” was read correctly by C1, C2, and C3 during the first, second, and third observation. However, all three samples had different reading techniques. C1 read the syllable “bi” traditionally by letters but C2 and C3 read it phonetically. The three samples participated in the Sand Letters, Alphabets Jump, and Tactile Alphabets excellently. But, C1 and C2 were more inclined to participate in the Alphabets Jump and C3 favoured Sand Letters than the rest of the activities.

During the first, second, and third observation, C2 was the only one able to read the syllable “te”. During the first observation, while doing the Sand Letters, C1 only wrote the letter “t” on the sand and C3 wrote “ti”. However, C3 erased it and changed it to “ta”. During the second observation, C1 and C3 pronounced the syllable “te” according to the audio. However, he jumped on to the wrong open syllable which was “ta”. C1 and C3 did not know the pair for the letter “t” in order to form the syllable “te”. Hence, both of them jumped on to random syllables that contained the letter “t” at the front of the syllable.

The syllable “pu” was read correctly by C2 in all of the observations. On the other hand, C1 and C3 did not read it correctly. C1 and C3 read it as “bu” and was still confused between “pu” and “bu” during the second observation. The reading skills of C1 and C3 changed during the third observation when they managed to read it correctly after touching and feeling the surface of the iron wire that formed the syllable “pu”.

The syllable “so” was read correctly by C2 and C3 in all observations. However, it was not correctly read by C1 in all of the observations. This was identified in the first observation when C1 was writing “so” as “co” during the second observation. However, during the third observation, C3 was already starting to read the syllable “so” correctly and moving his finger on the “so” shaped iron wire while making a “sssss” sound.

For the syllable “ri”, C2 and C2 managed to read it correctly during the course of every observation. C1 did not manage to read the syllable until the third observation. During the first observation (Sand Letters), the researcher held C1’s finger and wrote the syllable “ri”. However, C3 read it as “i” only. For the Alphabets Jump during the second observation, C3 jumped on top of the syllable “vi” and assumed that it was the correct syllable. During the third observation, C3 successfully read the syllable “ri” for the second time. Previously, C3 read the syllable as “vi”. After getting told off by the researcher, C3 started to touch and pronounced “ri” to the researcher.

Based on the checklist for the syllable “ta”, C1 and C3 were able to read that syllable correctly during the first, second, and third observation. C1 only read the syllable correctly during the second observation. During the Sand Letters activity, C2 read the syllable “ta” as “tay” phonetically in English. However, C2 already started to read correctly during the second and third observation.

The syllable “la” in the overall observations was read correctly by C1, C2, and C3. However, it could be seen that C1 spent a long time to read the syllable. This was proven during the Alphabet Jump. C1 was still hesitating whether to jump on the syllable “la” or “ta”. But, all of the samples managed to read the syllable correctly.

DISCUSSION

The use of multisensory technique presented a significant impact towards children’s reading skills of open syllables. This relates with the theory of cognitive development whereby Piaget stated that children’s experiences have a direct impact towards their self-development and knowledge. Piaget stated that the learning and thinking process of children are the interaction between them and their surrounding. He believed that children learn well when they are doing something independently and supported by interaction with the teacher and stimulative learning surrounding (Gordon & Browne, 2017). C1, C3, and C3 read using the multisensory approach whereby they were provided with stimulus and interaction with the researcher. According to Piaget, children need suitable experiences that are fitting with the real world, direct touch, and fun discovery by using various materials. All three children’s reading skills of open syllables improved due to the activities that were conducted. The activities involved playing experience and direct touch towards the materials used in the activity. This is related with Subramaniam et al. (2013) whereby multisensory activities have the ability to assist in lessons that involve words. This study adopted a Pavlovian theory where it emphasised on the *stimulus* given by the teacher in order to create proper experience in children’s learning. Hence, this activities are acted as the stimulus for children to improve their reading skill development.

The children we no longer confused with the shapes of letters after using multisensory technique repetitively in reading activities as this technique integrates numerous senses at a single time (Jun Long & Che Mustafa, 2020). This is similar with the study conducted by Jasmine and Connolly (2015) whereby they conducted a research to analyse the effectiveness of multisensory activities towards spelling knowledge among second grade students at a school in the suburbs. Six different multisensory activities were given to the samples of study for the duration of six weeks. Some of the multisensory activities were *textured writing*, *wiki sticks*, *shape writing*, *whisper phone*, *skywriting*, and *human typewriter*. The collected data from the questionnaires also showed that repetitive multisensory materials helped the students to memorise words spelt by them for a long time. This study is also related with Nainggolan and Delrefi (2017) regarding the affect of Fernald technique towards reading skills of 14 children in group A1 at PAUD Terpadu Mekar Sari Penarik Mukomuko. The Fernald technique is a learning approach that involves various modalities such as visual, auditory, kinaesthetic, and tactile which are also known as VAKT. The results of this study showed that there were positive influence and significant impact between multisensory technique towards children’s reading skills.

Implication

Based on the collected and analysed data, it shows that the use of multisensory technique has a positive effect towards children's reading skills of open syllables. It is clear that this technique is fair to be utilised and executed holistically and in detail. The institutions that provide education programmes must include multisensory technique as a compulsory technique that must be learned by every college student. Programmes or courses related with multisensory must also be devised and certified by Malaysian Qualifications Agency (MQA). The current teachers of Early Childhood Education must also be provided with holistic training and guidance from time to time to insert multisensory technique in their daily teaching and learning.

The current NPSC can also be improved by integrating Montessori, Reggio Emilia, High Scope, and Waldorf approach and taking the Fernald and Orton-Gillingham technique into account. Not only that, this study can also be the turning point for all kindergartens to provide teaching aids and quality facilities in ensuring that multisensory technique is well-supported. Even though the preparation of teaching aids and conducive kindergarten facilities can result in increased costs, kindergarten owners must look for an initiative to tackle this problem. For instance, kindergarten owners can increase the registration fee in par with the quality of education provided in the kindergarten. This supports the National Child Policy as it provides a chance and freedom for children to achieve their holistic development in a conducive environment.

CONCLUSION

In conclusion, multisensory technique has the capacity to provide assistance in children's reading skills of open syllables regardless of the children's different background. The presence of different religions, races, native languages, and personalities among the samples of study did not influence the effectiveness of multisensory technique towards their reading skills. Instead, this technique helped the children to prevent confusion between open syllables written in Malay and English by providing stimulus during reading activity. This proves that a surrounding rich with stimulus are very important for children's development. The presence of stimulus and reaction in children's surrounding are important input and output. It is clear that learning is more effective if stimulus is present in the surrounding.

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