The Effectiveness of Multisensory Technique towards Reading Skills of Open Syllables by Preschoolers

Nurul Nabila Amirah Rostan1, Hazhari Ismail2*, Anis Norma Mohamad Jaafar3

123Department of Early Childhood Education, Faculty of Human Development, Sultan Idris Education University
mairamea@gmail.com1, hazhari@fpm.upsi.edu.my2*, anisnorma@fpm.upsi.edu.my3

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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 effectiveness level of multisensory technique towards children’s skills in reading open syllables. By using structured observation, children were observed using three different multisensory activities such as ‘sand letters’, ‘Alphabet jump’, and ‘tactile alphabet’. 16 open syllables were identified like ‘ma’, ‘bo’, ‘su’, ‘gi’, ‘pa’, ‘du’, ‘me’, ‘ga’, ‘do’, ‘bi’, ‘te’, ‘pu’, ‘so’, ‘ri’, ‘ta’ and ‘la’ by using a checklist item from Linus instrument. 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

1. 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 supports/benefits. 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 support/benefit. 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 National Preschool Standard Curriculum (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 (KPM, 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, MahzanArshaddanAdenanAyob (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 (Nurlelawati Ab. Jalil et al., 2018). Noor SyamilahMd Maliki dan Mohd Hanafi 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, Tentori & Weibel, 2016). Fiani (2012) in Fajar 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), Nurlelawati Ab. Jalil et al., (2018), Noor SyamilahMd Maliki dan Mohd Hanafi Mohd Yasin (2017), Cibrian, Tentori & Weibel, (2016) serta Fitriia Fajar 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 Noor SyamilahMd Maliki dan Mohd Hanafi Mohd Yasin (2017) dan Fitriia Fajar 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**

Kalaycidan 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 (Nurul Farhana Bakar & Mohd Jasmy 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 (Mwoma, 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 (Rashidah Elias & Senana Sulaiman, 2016). According to Azman 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. Naiman et al., (2014) stated that reading skills are a complex process that involves mind, perception, linguistics, and psychology.

Suraya Tarasat dan Aisah 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 (1983). He 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. 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 (Andriyani, 2015). Clearly, a lesson will be more effective if stimulus is present as stated by Pavlov.

**Studies on Multisensory Technique**

An action research titled “Vakt Method and Name Writing” by SharmimiBakar (2012) was conducted to find out how visual, auditory, kinaesthetic, and tactile (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.

DewiNainggolan et al. (2017) conducted a research on the effect of Fernald technique towards reading skills of 14 children of group A1 at PAUD TerpaduMekar Sari PenarikMukomuko. 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**

Mukhlis 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.

SurayaTarasat&AisahDaud (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.
2. Methodology

Sample and Location of Study

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. The three multisensory activities were:

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.

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.

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.

Data Analysis

Checklist 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. 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 effective study.

3. Findings

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

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<tr>
<th>OpenSyllables</th>
<th>Observation</th>
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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. KKA and KKB were able to read the syllables “ho” during the first, second, and third observation. On the contrary, KKC were not able to do so. KKC did not manage to read the syllable until the third observation. During the first and second observation, KKC read the syllable “ho” as “fо”.

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

For the syllable “du”, KKA and KKB read it correctly during the first and second observation. However, KKA took a long time to do the activity. KKC 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. KKC 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. KKA 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, KKB pronounced the syllable “me” as “mi” while saying “me is I”. KKC also did not manage to read the syllable “me” and only pronounced the letter “m”. However, the second and third observation proved that KKC successfully read the syllable “me”.

The syllable “ga” in the first observation was read correctly by KKB only. On the contrary, KKA and KKC pronounced it as “ja”. For the second observation, KKA and KKC 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, KKB and KKC were able to read the syllable “ga” correctly. However, KKA grinned while pronouncing “ja” during the activity of tactile alphabet. KKC only touched the iron wire while watching his friends doing the activity.

KKA dan KKB 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, KKC was still not able to read the syllable correctly as he pronounced the syllable “do” as “bo”. This was proven when KKA wrote “bo” on the kinetic sand and pronounced it as “do” because he copied the sound and lips movement of the researcher. KKC also did a jump on to the syllable “bo” after hearing the audio “bo” through the speaker.

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

During the first, second, and third observation, KKA was the only one able to read the syllable “te”. During the first observation, while doing the Sand Letters, KKA only wrote the letter “t” on the sand and KKC wrote “ti”. However, KKC erased it and changed it to “ta”. During the second observation, KKA and KKC pronounced the syllable “te” according to the audio. However, he jumped on to the wrong open syllable which was “ta”.

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<th>pa</th>
<th>du</th>
<th>me</th>
<th>ga</th>
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KKA and KKC 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 KKB in all of the observations. On the other hand, KKA and KKC did not read it correctly. KKA and KKC read it as “bu” and was still confused between “pu” and “bu” during the second observation. The reading skills of KKA and KKC 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 KKB and KKC in all observations. However, it was not correctly read by KKA in all of the observations. This was identified in the first observation when KKA was writing “so” as “co” during the second observation. However, during the third observation, KKC was already starting to read the syllable “so” correctly and moving his finger on the “so” shaped iron wire while making a “ssssss” sound.

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

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

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

4. 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). KKA, KKC, and KKB 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 (Ensar, 2014). 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, Mallan& Mat (2013) whereby multisensory activities have the ability to assist in lessons that involve words.

The children were 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. This is similar with the study conducted by Jasmine & 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 also related with DewiNainggolan et al. (2017) regarding the affect of Fernald technique towards reading skills of 14 children in group A1 at PAUD TerpaduMekar Sari PenarikMukomuko. 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 National Preschool Standard Curriculum (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.

5. 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. It supports the Pavlovian theory and study conducted by Andriyani (2015) whereby both of them emphasised on the stimulus given by the teacher in order to create proper experience in children’s learning. 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.

References