

Research Article

Prompting-fading with Visual, Auditory, Kinesthetic, Tactile (VAKT) Media for Reading Skills of Dyslexia Children

Susanti Prasetyaningrum* and Nadiah Magfiratunnisa

Faculty of Psychology, University of Muhammadiyah, Malang, Indonesia

Abstract.

Dyslexia children have problems with recognition, data accuracy, poor decoding, and poor spelling skills. Of course they need appropriate learning or implement the advantages they have. There are several intervention methods that can overcome the learning difficulties of children with dyslexia, one of which is using multisensory (VAKT). This VAKT method maximizes the implement of the senses in its intervention. The implementation of VAKT can be collaborated with prompting-fading in dyslexic children. The purpose of this study was to determine whether the prompting-fading technique with VAKT media could improve early reading skills in dyslexic children in elementary school. This study uses a quantitative approach with a single-case experimental design. The instrument used in this study refers to the Early Grade Reading Assessment (EGRA). The results showed an increase in the initial reading ability score in dyslexic children. It can be concluded that the prompting-fading technique with VAKT media is able to improve the early reading ability of dyslexia children.

Keywords: early reading ability, dyslexia, prompting-fading, VAKT mediaCorresponding Author: Susanti
Prasetyaningrum; email:
susanti_p@umm.ac.id**Published** 7 February 2024Publishing services provided by
Knowledge E

© Prasetyaningrum and
Magfiratunnisa. This article is
distributed under the terms of
the [Creative Commons](#)
[Attribution License](#), which
permits unrestricted use and
redistribution provided that the
original author and source are
credited.

Selection and Peer-review under
the responsibility of the ICAP-H
Conference Committee.

1. BACKGROUND

The ability to read is one of the obligations that must be achieved by elementary school students. This is because reading is a provision for progress and success in the future. According to [1] reading is an activity to understand a piece of writing that is useful for getting information or understanding of the meaning in the writing. Suggate et al (2018) define the ability to read beginnings as the decomposition of words (either false or real) into appropriate intonation in a fluent way. Reading has the main purpose of finding and obtaining information in the reading and being able to understand the content of the reading.

At this stage of development, children who are in the middle and late childhood phases (aged 6-7 years) have developmental tasks in mastering basic reading, writing, and counting skills [2]. The stages of reading development according to [3] Stage 0

OPEN ACCESS

(0-6 years) At this stage the child experiences the stages of recognizing letters of the alphabet, recognizing some signs, and writing their own names. Stage 1 (6-7 years) the child begins to learn to spell, combine between words, and be able to read simple texts. Stage 2 (7-8 years) children are in the phase of fluently reading a story independently in order to develop language and vocabulary. Stage 3 (9-13 years) of reading is used to learn new ideas and values as well as knowledge such as in newspapers, books, and magazines. Stage 4 (15-17 years) is a broad reading of a variety of complex [2] material, both expository and narrative, with multiple points of view. Stage 5 (18 and above) the highest stage in reading development is the broad reading stage, being able to analyze vocabulary, and being able to assess reading. But even so, it turns out that there are still many elementary school students who have ages ranging from 6-12 years old do not have the ability to read, this has a bad impact both in terms of mental and academic.

Data shows that the results of PISA 2018 published by the *Organisation for Economic Co-operation and Development* (OECD) show that Indonesian students' ability to read has an average score of 371, far below the OECD average of 487 [4]. In line with the PISA results, research conducted by [5] at MIN 6 Bandar Lampung showed that only 37.5% of students had initial reading skills from 32 students. Then research conducted by [6] on elementary school students showed that of the 3 students who were the subjects of the study, there was 1 student who had the lowest initial reading ability score, which was 44.4%.

The ability to read beginning is considered very important because it is a basic provision in mastering various subjects and provisions for the next reading stage [7]. According to [8] reading has two stages, namely beginning and advanced reading stages. This study focuses on the beginning reading stage because there are still many students in Indonesia who have suboptimal initial reading skills such as the data described above and the data that researchers have obtained through observation and interviews with teachers and students at elementary school "X" Palu. It was found that there were 2 students who were in grade I experiencing symptoms of dyslexia characterized by low initial reading ability compared to their peers.

According to [9] dyslexia is a term to explain symptoms of learning difficulties with characteristics of recognition problems, data accuracy, poor decoding, and poor spelling skills. According to [10] the symptoms of dyslexia are characterized by the ability to read that is below the ability to properly take into account intelligence, age, and education. The characteristics of dyslexic children include incursion when reading, unable to pronounce words with the correct intonation, often reversed in recognizing letters / words, guessing or repeating words, having difficulty in sorting letters / words,

difficulty understanding, difficulty spelling correctly, difficulty in pronouncing phonemes / sound units, tends to be reversed in pronouncing / writing a letter / word, ambiguous in short words, forgetting to put punctuation, and messing up on words that have slight differences such as stone and blind.

In addition, there are also psychological impacts on dyslexic children such as stunted growth and development, disruption of children's interaction with their social, children become inferior, shy, aggressive, impulsive, to withdraw [3]. [11] argues that children who cannot read will have an impact on poor comprehension and have poor *working memory* capacity as well. According to [12], children who are in the final phase of childhood have several tasks, one of which is developing basic reading, writing, and counting skills. Failure in self-development can have an impact on immature behavior patterns that cause children to be difficult to accept by their environment and cannot match developmental tasks that have been completed first by their peers.

Therefore, children with dyslexia need appropriate learning. According to [9] there are several intervention methods that can overcome the learning difficulties of children with dyslexia disorders, namely multisensory (VAKT), methods of decoding groups of letters, systematic and cumulative, and explicit instruction. In addition, according to [2], learning in childhood requires external stimuli in order to distract them. In this phase, children are also in the phase of liking to play or do fun things. Therefore, childhood is strongly influenced by something striking or interesting so that children are able to observe relevant objects in task completion and get educational benefits such as knowing the shape, color, size, and texture of an object [2,13]. Schools that can meet learning needs are considered to be a source of happiness for the child so that they can encourage the improvement of good grades, ease of adjusting to their environment, and love to learn new things. There are several stages in learning to read, starting with letter knowledge, building consonant awareness, understanding word concepts, spelling and using consonants, phoneme segmentation, word recognition, and ending with contextual reading skills [14].

The weak initial reading ability in elementary school "X" Palu students has a negative impact both mentally and on the academic field, namely students cannot read and write independently. Therefore, researchers used behavior modification techniques in this study, according to [15], behavior modification involves the systematic application of learning principles and techniques that aim to assess and improve a behavior so that in this study *prompting* and *fading* behavior modification techniques were used to improve initial reading skills in students of elementary school "X" Palu.

According to [16] *prompt* is a technique to improve a behavior by using the appropriate stimulus so that the child can achieve the expected behavior. Prompt is also defined as an additional stimulus that can evoke the desired response [17]. Prompting is used during the administration of the intervention to help the subject perform the correct behavior of the discriminatory stimulus so that the behavior can be reinforced. The prompt serves to facilitate intervention to be more efficient. The prompting stages that will be given in this study include verbal prompts, *modeling prompts*, *physical prompts*, and *gestural prompts*. Research conducted by [18] also used several stages of prompting, *namely* physical prompting, modeling, verbal prompting *and independent performance* then obtained results in improved skills in reading, writing, pairing, and distinguishing musical notes in dyslexic children.

According to [16], *fading* is a gradual change since the child begins to be given a stimulus that controls the response until the stimulus does not need to be given again. Fading techniques begin with object recognition through images and speech whose level of difficulty is further increased by delaying prompt giving to children [19]. According to [19] there are several ways to apply fading techniques, *namely* prompt fading, *prompt delay*, and *stimulus fading*. In this study researchers used *prompt delay*, which is when the initial stimulus has been shown wait a few seconds, if the correct response is not shown by the subject then the *prompt* is given. The results of previous research conducted by [20] showed that *text fading* is effective in improving reading skills and comprehension for children who have reading difficulties. Text fading-based training also conducted by [20] shows that text fading is considered the right tool to be used in improving sentence reading fluency in children.

Guidelines in prompting-fading are choosing the right strategy, grabbing the attention of learners, showing discriminatory stimulus, asking for the right answer, giving to the right behavior, giving *fading or prompt delay*, and continuing to provide *reinforcement* on natural behavior change [16].

In the learning process, each child has a different way of learning. The difference in learning methods has implications for learning that can stimulate various sensory devices so that later maximum results can be obtained [21]. Agreeing with these opinions and previous opinions about the learning needs of dyslexic children and difficulties that lie in psychological (psychological) brain function, *namely* difficulties in processing information obtained through sensory tools into knowledge so that dyslexic children have limited *short-term memory* [14].

Researchers then use the Orton-Gillingham approach or VAKT media as the right learning media. VAKT media can create external stimuli with various media aids that

utilize all learning paths on the sensory apparatus to improve memory so that this intervention can suit the learning needs of students. This is in line with Komalasari's opinion [21] that learning can be more conducive if you utilize sensory devices. [22] also said that VAKT media is a systematic learning using a multisensory approach to teach students basic reading, spelling and writing. According to [23] the main characteristic of Visual, Auditory, Kinesthetic, Tactile (VAKT) is *multisensory* which involves visual, auditory, and kinesthetic / tactile learning paths or commonly referred to as VAKT

The application of VAKT media as a way to overcome learning disorders in children is supported by several previous studies that have tested the effectiveness of VAKT, namely research conducted [23] also using the Orton-Gillingham approach to improve early reading skills in children with mild intellectual impairment, where the results of the study are that the VAKT method can help improve initial reading skills indicated by improvements and differences Based on chart analysis at the time before the intervention and after the intervention. Other studies have also succeeded in researching that research conducted [1] VAKT can be one solution for hyperactive children who have difficulty learning to read early. In addition, [24] regarding the effectiveness of VAKT to improve initial writing skills for children with learning difficulties showed results that students who initially only reached 1-3 points from 10 items increased after being given intervention using the VAKT method shown by increasing points to 4-8 points score of writing ability instrument items achieved by students

Furthermore, *prompting* and *fading* techniques will be applied using VAKT media because it can be a supporting means to meet the learning needs of dyslexic children. This approach is a learning that has been supported by several previous studies, such as research conducted by [21] on providing interventions using VAKT on the ability to write vowels showing success as evidenced by the percentage before intervention was only 66.6% and increased to 100% after intervention. Another study conducted by [25] also showed that VAKT results can improve the ability to read words of children with mild intellectual impairment

The form of the VAKT approach in this study is a *flashcard* whose manufacture utilizes used cardboard and the letters are made of sandpaper, serves so that students can feel every letter they learn made from sandpaper, which has a function so that students can feel each letter by letter. According to [26] flashcards are visual learning media that are useful for making it easier for children to remember the learning process. Flashcards are considered to help facilitate children's vocabulary because they can process the right brain to remember objects seen.

Based on some of the results of previous studies that have been described above, it shows that the prompting-fading technique with VAKT media is considered the right choice so that researchers are interested in knowing whether the prompting-fading technique with VAKT media can improve early reading skills in dyslexic children at elementary school "X" Palu. The purpose of this study was to determine whether prompting-fading techniques with VAKT media can improve early reading skills in dyslexic children at elementary school "X" Palu. The benefit of this research is that it can be used as an effective learning method, and can be continued by teachers and parents

2. RESEARCH METHODS

2.1. Variables or concepts studied

This study used 2 variables, namely *prompting-fading* with VAKT media as variable X1 (independent) and the ability to read the beginning as variable Y (dependent). Prompting-fading with VAKT media is a type of behavior modification by providing intervention or treatment in the form of verbal prompts, gestural prompts, and modeling prompts to strengthen reading skills in dyslexic children. When reading ability has improved, fading is applied, namely the gradual elimination of the prompt so that reading behavior in dyslexic children occurs under the control of natural stimuli. While the dependent variable (Y) in this study is the ability to read beginning, namely the ability to read in dyslexic children who are mechanical in the form of letter shape recognition and spelling pattern recognition and sound.

2.2. Research subject

The research subjects used were 1 grade I student from SD "X" Palu. Subject collection using *purposive sampling* based on observations and assessments that have been carried out by researchers under the supervisor of a Clinical Psychologist. Assessment for diagnosis by looking at and analyzing the subject's condition and characteristics of Dyslexia is based on the Diagnostic and Statistical Manual of Mental Disorder (DSM-5) [10]. The characteristics of dyslexia and conditions in the subject can be seen in table 1 below

TABLE 1: Dyslexia Diagnostic Criteria.

Criteria of dyslexic disorder (DSM V)	Subject conditions
Inaccuracy or slow or no effort in reading (e.g. inaccuracy when reading letters or too slow or hesitant, frequently guessing words, having difficulty hearing words)	Often backwards in reading letters (p and q, b and d, m and w), guessing words or repeating the pronunciation of letters (even if incorrectly) Difficulty in pronouncing phonemes/sound units
Difficulty in understanding the meaning of what is read (e.g. being able to read text accurately but not understanding sequences, relationships, inferences or the deeper meaning of what is read)	Difficulty reading simple words (1-2 syllables), sometimes being able to read words but not knowing the meaning of the words read
Difficulty with spelling (e.g. may add, omit or substitute vowels or consonants)	Unable to distinguish vowels and consonants, often lagging behind when reading with consonants
Difficulty with written expression (e.g. making grammatical errors or punctuation errors in sentences, ideas in written expression lacking clarity)	Tends to be reversed in writing a letter or word, sometimes writing between words is meaningless / meaningless
Normal category intelligence	Subject intelligence category 102, entry average

2.3. Research Instruments

The ability to read in this study focuses on technical aspects of reading in the form of letter shape recognition and spelling pattern recognition and sounds. This research data was obtained from the results of measurements using an instrument in the form of an Early Grade Reading Assessment (EGRA) scale developed by USAID (United States Agency for International) and the Indonesian government with the aim of improving the quality of basic education facilities in Indonesia. There are several aspects of assessment in the EGRA test, namely (a) recognizing letters, aiming to assess letter knowledge ability, students are asked to say as many letters as possible for 60 seconds (b) reading words, aiming to measure the ability to read words that are separated according to the level of the subject and given 60 seconds (c) reading words that have no meaning, aiming to measure phonemic awareness and orthographic understanding (d) fluency in reading aloud and Reading comprehension, aims to measure students' fluency in reading a text and understanding that has 60 minutes (e) comprehension of the sense of hearing, aims to measure the ability to listen and understand simple cheerfulness.

The validity and reliability of the EGRA test has been confirmed in previous studies, namely in [27] research stated that this test tool has guaranteed reliability both validity and has been proven to help collect initial data in the program to improve reading skills in early grades. The validity test that has been carried out is 1 st grade elementary school

teacher as expert validation. This validation process uses scores and descriptions from validators. The alternative answers used are very feasible, feasible, less feasible and not feasible. The scores given to each aspect moved from 5 to 20, namely 20 (Very Decent), 15 (Decent), 10 (Less Decent) and 5 (Not Feasible).

The results showed that in the aspects of recognizing letters, reading meaningful words, reading meaningless words and listening comprehension had a score of 15 or worth using. Meanwhile, in the aspect of fluency in reading aloud, it gets a score of 5 or is not suitable for use because it is considered too difficult for dyslexic children who do not know letters at all. Then the information results show that the research instrument is feasible to use with revisions, namely in item 4 of the EGRA test.

Furthermore, researchers used the EGRA test in the baseline phase and follow-up in this study, but it was not used as a whole but adjusted to the subject's initial reading ability, namely using aspects of recognizing letters, reading meaningful words, and reading meaningless words.

2.4. Research design

This study used a quantitative approach with a single-case experimental design. According to [28] single-case experimental design is a research design to evaluate the effect of a treatment (intervention) with a single case. A single case can be several subjects in one group or the subject studied is single ($N = 1$).

The category of single-case experimental designs used in this study is the A1-B-A2 pattern which has 3 phases. The A1-B-A2 withdrawal design has a number of design variations, the researcher chose to use the A1-B-A2 design as the research design to be used. A1-B-A2 design consists of three phases, namely, first baseline A1, which is a condition where the measurement of treatment targets is carried out in natural conditions before any treatment / intervention is given. Second, treatment (B) is a condition where intervention is carried out using prompting and fading methods and third, the baseline phase A2 or called post-intervention, which is a condition where measurements are made against the treatment target after no longer being given the intervention. The addition of post-intervention conditions (baseline A2) is intended as a control for the intervention phase so that it is possible to draw conclusions about the existence of a functional relationship between the independent variable and the dependent [28].

2.5. Data Collection Procedures

This research consists of three procedures, namely preparation, data collection, and data analysis. The preparation stage starts from conducting a survey on 1 st grade elementary school students of SD "X" Palu and conducting assessments in the form of observations and interviews with teachers and students, then selecting prospective subjects with low reading skills. After obtaining one subject who has low reading ability, then informed consent is given to the subject's parents. Furthermore, researchers deepen material related to assessment and enforcement of diagnoses with supervisors from psychologists including testing the validity of EGRA tests by teachers, making research designs, preparing research modules that have been tested during the internship and preparing research instruments.

The second stage of data collection begins with providing prompting and fading treatment using VAKT media in the form of flashcards. Interventions were carried out one by one on each subject and each intervention was given 3 sessions consisting of 12x meetings and lasting for approximately 20 minutes. In session 1, researchers measured the subject's initial ability (baseline phase) by giving questions about reading single letters, reading meaningful words, and reading meaningless words. In sessions 1-2, researchers provided prompting-fading treatment by inviting subjects to use VAKT media in the form of flashcards. Then in session 3 take measurements after being given treatment (follow-up phase) using the EGRA test which must be done independently.

The third stage, after carrying out a series of stages and having obtained data until finally the researcher conducted quantitative data analysis by comparing test results in sessions 1 and 3 using comparative descriptive techniques. Researchers then analyze the data using visual inspection methods carried out by direct observation of the data that has been displayed by the graph and then draw research conclusions based on the results of the analysis that has been done.

2.6. Data analysis technique

Analysis in this study which is a study of subjects living using visual analysis or visual inspection [28–30]. In this analysis technique, researchers observe changes in the level of dependent variables from one condition to the next. If the dependent variable is much higher or much lower in one condition than in another, this indicates that the intervention has an effect. There is also a trend that refers to a gradual increase or

decrease in the dependent variable across observations. The last is latency, which is the time it takes for the dependent variable to start changing after changing conditions.

3. RESULT

Based on the research that has been done, the results will be described in the description below. First, a description of the characteristics of the subjects who have contributed to this study will be presented. The subjects of the study were grade 1 elementary school students in Palu, male gender, age 7 years. Before intervening, researchers first conducted an initial or baseline reading ability test on subjects for 3 days to determine their reading ability before being given an intervention using an EGRA test that was adjusted to the subject's initial reading ability, namely using aspects of recognizing letters, reading meaningful words, and reading meaningless words.

After providing a baseline, then the researchers gave the intervention for 7 days and then again gave the same measurements as in the baseline phase for 3 days. The graph is about the ability to read the beginning before treatment and after treatment.

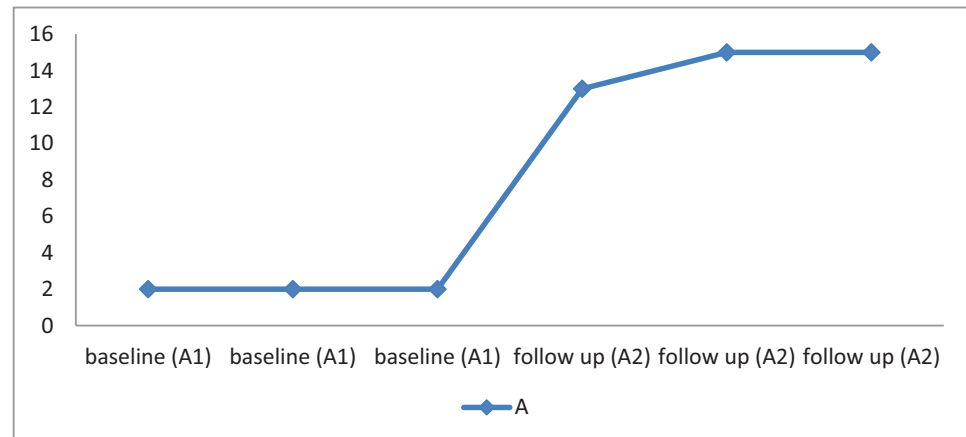


Figure 1: Baseline and Follow up phase graphs.

In the *baseline* phase, subjects were tested to read 15 simple single letters, 3 meaningful words, and 3 meaningless words before being given intervention by *prompting-fading* using VAKT media. When filling in the *baseline and follow-up questions*, the subject seemed to have difficulty reading meaningful words and meaningless words. So that the scores on both aspects are low while the scores on simple single letter aspects tend to be higher. Based on Figure 1, it can be seen that there is a change in the subject's initial reading ability from baseline phase I to *follow up III*, namely at baseline I to III the subject obtained a score of 2 because they could only read letters A and C in the aspect of reading simple single letters and could not read in the aspect of

reading meaningful words and meaningless words. There is an increasing trend in early reading skills from baseline phase I to *follow-up* phase III. Subject A, who previously obtained a stagnant score in the baseline phase, experienced a fairly high increase in the *follow-up* phase, namely in the *follow-up* phase I to III, the subject slowly increased the score to 15. In addition, in the *follow-up phase*, the researcher also conveyed to teachers to be able to continue to use this intervention method in order to help subjects overcome their reading skills problems by providing intervention modules.

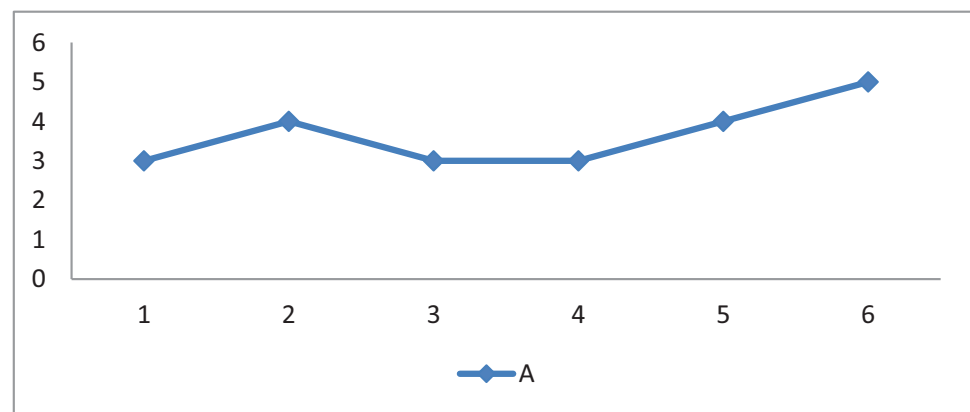


Figure 2: Reading Score Graph at Intervention.

It can be seen in Figure 2, that there has been a trend of increasing reading ability in the treatment phase of the subject. The graph shows that there is an increasing trend in reading ability, namely an increase in high scores in the treatment phase with a score of 5.

During the intervention session, subjects were given treatment in the form of prompting-fading techniques with VAKT media. The researcher gave a verbal prompt first. Then the subjects made a response using modeling prompts, followed by reinforcement by the researcher. Next, the researcher gave physical prompts by asking the subject to feel the letter, then at the end of each intervention the researcher gave a question that was certainly different from the baseline and follow-up phases because it was adjusted to the ability of the subject who had just learned a single letter and to see in detail how the progress of the initial reading ability in the subject. The question was given by the researcher showing two different flashcards; “b” and “d” then ask the subject to point to the letter “b”. Often subjects are fooled by almost the same letters so that subjects several times have low scores such as in meetings 1, 3, and 4 so that the researcher then gives gestural prompts.

This is done repeatedly from the 1st meeting to the 6th meeting. At the 1st meeting, it is known that the subject gets a score of 3 because he can only answer the letters

a, c, and e because there are almost the same letters, namely b, d. During the intervention process at the 1st meeting, the subject seemed less focused by several times interrupting the researcher's conversation by telling the results of the picture.

At meetings 2 to 6, researchers always open the intervention and then repeat the letters that have been learned yesterday to strengthen the subject's memory. In this 2nd meeting, the subject looks easy to learn letters that tend not to be different, namely f, g, h, i, and j so that the subject can have a score of 4 and the researcher does not do much repetition in giving prompts. But the subject still seemed to lack focus and always interrupted the conversation to reveal the image of the megalodon shark he had drawn. This makes researchers take the initiative to give subject assignments by drawing apples, balls, cherries, etc. in order to create a pleasant learning atmosphere and in accordance with the advantages that the subject has.

The 3rd and 4th meeting of the subjects seemed to have decreased their scores to 3 because the subjects had little difficulty understanding almost the same letters, namely the letters l, m, n, at the 3rd meeting and the letters p, q, t, at the 4th meeting. The subject felt that the letter l was almost the same as the letter l and the letter t was almost the same as the letter f. But even so, at the 3rd meeting, the subject can slowly begin to focus because it has created a pleasant learning atmosphere, where the subject can recognize letters while drawing.

Then at the 5th meeting the subject increased the score to 4 due to the lack of almost the same letters making it easier for the subject to learn, namely there were letters v, w, x, y, z. Although the letters v and w are almost the same, the subjects can understand after being given repeated prompts and have much better focus and learning motivation than the previous meeting. Furthermore, at the 6th meeting, researchers gave repetition, namely relearning from the letters a-z and doing repetition in giving prompt delay to the subject. Then the researcher again gave 5 questions, each question had almost the same letters and the subject seemed to be able to answer the 5 questions correctly and the subject obtained a score of 5.

4. DISCUSSION

The results of the study above showed that this study succeeded in improving initial reading skills which can be proven by increasing the initial reading ability scores in both subjects after being treated using prompting-fading techniques with VAKT media, namely there was an increase in higher scores from the baseline phase to the follow-up phase.

When the intervention took place at the 2nd meeting the subjects experienced an increase of 1 score compared to the 1st meeting because at the second meeting the subjects learned letters that tended to be not the same as f, g, h, i, and j. However, there was a decrease again at the 3rd and 4 meeting the subjects experienced a slight difficulty because there were several letters that were almost the same as the letter k, L, M, N, and O at the 3rd meeting and the letters P, Q, R, S, and T. This certainly makes researchers have to give repeated prompts so that they can be understood by the subject which is certainly in line with the opinion of [31] that the most effective way to hone fluency in dyslexic children is with guidance to repeat reading orally.

Prompting-fading with VAKT media in this study was able to improve initial reading skills in both subjects. There was a significant increase in scores in subject A, namely the previous subject obtained a score of 2 in baseline phases I and II then slowly increased scores until in follow-up III the subject could have a score of 15. One of the factors for the increase in score is because during the intervention A has high focus and motivation to learn. Learning motivation is very important in children who have dyslexia because one of the characteristics of dyslexic children is in this area. Although the main goal is initial reading skills, the results can also improve focus and motivation to learn. As stated by Gates [32] that an important factor in reading success comes from students who develop an interest in reading, can solve problems, retain information, and relax during activities. Plus the right learning so that learners know where and how to find material that can meet their needs.

Prompt is one of the behavior modification techniques that is considered to improve a behavior by using the appropriate stimulus so that the child can achieve the expected behavior. While fading is the gradual elimination of the prompt until it stops so that later the behavior occurs under the control of a natural stimulus. Prompting is used during the administration of the intervention to help the subject perform the correct behavior of the discriminatory stimulus so that the behavior can be reinforced. The prompt serves to facilitate interventions to be more efficient [16].

Activities or tasks that are increased in difficulty at each meeting are useful for eliminating the prompt and creating a natural stimulus in subject A so that later the researcher can use prompt delay (fading). This is in line with the provisions suggested by Miltenberger [16] by providing stimulus first, asking for the right response, providing fading or prompt delay, and continuing to provide reinforcement to natural behavior changes. Therefore when students respond correctly and reliably to prompts, experimenters can begin to fade the prompt until students can point to objects when instructed orally to do so as well as in the absence of prompts [17].

Reinforcement provided during the intervention process was in the form of positive reinforcement to both subjects after completing the assigned task. The positive reinforcement that researchers provide is in the form of affirmations such as “waahh, good job”, “today you are great already able to recognize some letters”. This is in accordance with what [16] revealed, namely continuing to provide reinforcement on natural behavior changes.

In the research of [25] on the effectiveness of VAKT to improve initial writing skills for children with learning difficulties, it showed results that students who initially only reached 1-3 points from 10 items increased after being given intervention using the VAKT method which was shown by increasing points to 4-8 points score of writing ability instrument items achieved by students. Intervention in the study can certainly provide experience to the subject so as to cause an increase that can be explained using behavioral approach theory, namely learning can use behavior or everything that is done and can be seen so that later it can be explained through the experience that has been observed [12]. Then [18] also explained that there are several intervention methods that can overcome the learning difficulties of children with dyslexia, namely multisensory (VAKT) methods of breaking the code of letter groups, systematic and cumulative, and explicit instruction. According to [22] the main characteristic of the OG reading approach is multisensory which involves visual, auditory, and kinesthetic / tactile learning paths or commonly referred to as VATT.

Prompting-fading intervention by applying VAKT to subjects, the results are in accordance with research conducted by [31,33] by activating all the senses. Through existing sessions students use kinesthetics (tapping and skywriting), tactile senses (tracing words), visual (looking at existing cards), and hearing (listening to differences in the sounds of letters and words according to the list on the card). In the end, the subject can easily understand and maintain his ability to consistently recognize and distinguish words and spelling. Hearing, seeing, observation combined with kinesthetics make subjects utilize both sides of the brain to process multisensory information rather than one neurological pathway [34,35].

VAKT is related to perception, where during the intervention the letters are presented visually, auditorily, and movements based on instructions. This is because VAKT is believed to facilitate learning in students because it has a direct, systematic nature, has cognitive explanations, uses diagnostic methods, linguistic-based teaching, and multisensory involvement, in the form of instruction which includes visual, auditory, and movement based on instruction [36]. The real VAKT media applied in this study uses flashcards designed using embossed letters and attractive colors [36]. This is based on

the opinion expressed by [2] childhood is also strongly influenced by something striking or interesting so that children are able to observe relevant objects in task completion and get educational benefits such as knowing the shape, color, size, and texture of an object.

The use of prompting-fading techniques with VAKT media during this research intervention was followed by subjects with active attention and fulfilled media as well as flexible room arrangements so that subjects did not have to learn to use a table and could choose their own places so as to make subjects more free to move and create a pleasant learning atmosphere.

Improvement in initial reading ability in subjects after intervention using prompting-fading techniques with VAKT showed that repeated external stimulus administration showed an influence on reading ability. This is according to [2], namely learning in childhood requires external stimuli in order to distract them. just.

This research is certainly far from perfect. The shortcomings and limitations of this study lie in the small population, the absence of children's intelligence (IQ) tests, short research time, and not carried out by a certified trainer but by the researchers themselves so that it still allows bias. However, the results of this study can be the foundation for future research with better methods.

5. CONCLUSION

Based on the results of research and data analysis, it can be concluded that there was a significant increase in initial reading skills in subjects after treatment in the form of prompting-fading techniques with VAKT media. This study also proves that prompting-fading with VAKT media can improve the early reading ability of dyslexic children.

The implication of the results of this study is that educators are expected to be able to apply prompting-fading and VAKT media as learning tools to improve early reading skills in children. Then it is also very important for parents who have dyslexic children are expected to be able to apply this method with a longer period of time so that it can provide results in increasing maximum initial reading skills. For future researchers who will conduct the same research is expected to develop using a longer time so that the results of the research will be more developed.

Acknowledgments

Thank you to the parties involved in the implementation of this research, especially the subject and family, principal, class teacher and grade 2 teacher of SDN SD Alam Al-Fatih Palu, supervisor Susanti Prasetyaningrum, M.Psi as a Clinical Psychologist who assisted in establishing the diagnosis of subjects.

Funding

Research funds are obtained independently.

Ethics Policy

This study has applied research ethics by providing informed consent to subjects represented by the subject's mother. The subjects' mothers had consented that subjects were given interventions to improve early reading skills. Furthermore, the implementation of the intervention also involves teachers and parents of subjects to know the intervention process.

References

- [1] Susanto E, Nugraheni AS. Metode VAKTS solusi untuk kesulitan belajar membaca permulaan pada anak hiperaktif. *Muallimuna J Madrasah Ibtidaiyah*. 2020;6:9–16. <https://doi.org/http://dx.doi.org/10.31602/muallimuna.v6i1.2506>
- [2] Santrock JW. *Educational psychology*. New York: Publishing, McGraw-Hill Medical; 2007.
- [3] Chall JS, Jacobs V, Baldwin L. *The reading crisis: Why poor children fall behind*. Cambridge: Harvard University Press; 1990.
- [4] PISA. *Student performance 2018*. [https://www.oecd.org/pisa/PISA 2018 Insights and Interpretations FINAL PDF.pdf](https://www.oecd.org/pisa/PISA%2018%20Insights%20and%20Interpretations%20FINAL%20PDF.pdf)
- [5] Hidayah N, Novita. Peningkatkan kemampuan membaca permulaan dengan menggunakan metode struktur analitik sintetik (SAS) mata pelajaran bahasa indonesia pada peserta didik kelas II C semester II di MIN 6 Bandar Lampung T.A. 2015/2016. *Jurnal Pendidikan dan Pembelajaran Dasar*. 2016;3:85–102.

- [6] Dewi SUS. Pengaruh metode multisensori dalam meningkatkan kemampuan membaca permulaan pada anak taman kanak - kanak. *J Progr Stud PGMI*. 2015;2:1–13.
- [7] Muammar. *Beginning reading in elementary school*. Sanabil; 2002.
- [8] Pratiwi HR. Penerapan permainan kabar (kata dan gambar) untuk meningkatkan keterampilan membaca pemahaman teks dongeng di kelas III SDN Mandalaherang III Kecamatan Cimalaka Kabupaten Sumedang. Universitas Pendidikan Indonesia, 2015.
- [9] E W, J. M. *Dyslexia: detection, diagnosis, treatment at school and home*. Yogyakarta: Prenada Media; 2017.
- [10] American Pyschiatric Association. *Diagnostic and statistical manual of mental disorders*. 2013. <https://doi.org/10.1016/B0-12-657410-3/00457-8>.
- [11] Santrock JW. *Child development*. Jakarta: Erlangga; 2011.
- [12] Hurlock BE. *Psikologi perkembangan*. Jakarta: Erlangga; 2019.
- [13] Rose TE, Zirkel P. Orton-Gillingham methodology for students with reading disabilities 30 years of case law. *Journal of Special Education*. 2007;41:171–185. <https://doi.org/10.1177/00224669070410030301>
- [14] Martin G, Pear J. *Behavior modification: What it is and how to do it*. 11th ed. 2019.
- [15] Morris D, Bloodgood JW, Lomax RG, Perney J. Developmental steps in learning to read: A longitudinal study in kindergarten and first grade. *Reading Research Quarterly*. 2003;38:302–328. <https://doi.org/10.1598/rrq.38.3.1>
- [16] Miltenberger RG. *Behavior modification: Principles and procedures*. 6th ed. Cengage Learn; 2016. p. 690.
- [17] Cengher M, Budd A, Farrell N, Fienup DM. A review of prompt-fading procedures: Implications for effective and efficient skill acquisition. *Journal of Developmental and Physical Disabilities*. 2018;30:155–173. <https://doi.org/10.1007/s10882-017-9575-8>
- [18] Eren B. Music and dyslexia: The therapeutic use of instrument (piano) training with a child with dyslexia (A case study). *Journal of Education and Practice*. 2017;8:97–108.
- [19] Parmawati SB, Prasetyawati W, Prianto RMA. Efektivitas pendekatan modifikasi perilaku dengan teknik fading dan token economy dalam meningkatkan kosakata siswa tuna rungu prelingual profound. *Psibernetika*. 2015;8:1–10.
- [20] Nagler T, Korinth SP, Linkersdörfer J, Lonnemann J, Rump B, Hasselhorn M, et al. Text-fading based training leads to transfer effects on children's sentence reading fluency. *Frontiers in Psychology*. 2015;6:1–8. <https://doi.org/10.3389/fpsyg.2015.00119>

- [21] Komalasari MD. Metode multisensori untuk meningkatkan kemampuan membaca pada peserta didik disleksia di sekolah dasar. *J. Proseding Semin. Nas. PGSD UPY*. 2015, 97–110 p.
- [22] Ritchey KD, Goeke JL. Orton-Gillingham and Orton-Gillingham-based reading instruction: A review of the literature. *Journal of Special Education*. 2006;40:171–183. <https://doi.org/10.1177/00224669060400030501>
- [23] Prasetyaningrum S, Faradila A. Application of VAKT methods (visual, auditory, kinesthetic, and tactile) to improve the ability reading for mild mental retardation. *Proceedings of the 4th ASEAN Conference on Psychology, Counselling, and Humanities (ACPCH 2018)*. 2019;304:379–85. <https://doi.org/10.2991/acpch-18.2019.91>
- [24] Maulana S, Sumekar G, Iswari M. Efektivitas metode VAKT untuk meningkatkan kemampuan menulis permulaan bagi anak kesulitan belajar. *J Ilm Pendidik Khusus*. 2013;2:222–233.
- [25] Purnamasari P, Soendari T. Metode VAKT untuk pembelajaran membaca permulaan anak tunagrahita ringan. *J Asesmen Dan Interv Anak Berkebutuhan Khusus*. 2018;19:25–31.
- [26] Sari RP, Suryani NA, Imran RF. Peningkatan kemampuan membaca permulaan dengan menggunakan metode bermain flash card subaca. *Al-Athfaal J Ilm Pendidik Anak Usia Dini*. 2018;1:36–55. <https://doi.org/10.24042/ajipaud.v1i2.3741>
- [27] Rizkiana. Analisis kesulitan membaca permulaan siswa kelas 1 SDN Bangunrejo 2 Yogyakarta. *J Pendidik Guru Sekol Dasar*. 2016:346.
- [28] TR. K. *Single subject research: Strategies for evaluating change*. Cambridge: Academic Press; 2015.
- [29] Bobrovitz CD, Ottenbacher KJ. Comparison of visual inspection and statistical analysis of single-subject data in rehabilitation research. *American Journal of Physical Medicine & Rehabilitation*. 1998;77:94–102. <https://doi.org/10.1097/00002060-199803000-00002>
- [30] Anggara B. *Kunci mendidik dan mengasuh anak disleksia*. Yogyakarta: Relasi Inti Media Group; 2015.
- [31] Robinson HM. Factors which affect success in reading. *Elementary School Journal*. 1955;55:263–269. <https://doi.org/10.1086/458682>
- [32] Gohar R. The effect of multisensory structured EFL program on developing primary pupil's phonological awareness and spelling. *Education Sciences*, 2019;27:1–35.
- [33] Jeyasekaran J. Effectiveness of visual auditory kinesthetic tactile technique on reading level among children with dyslexia at Helikx Open School and Learning

- Centre, Salem. *International Journal of Medical Science and Public Health*. 2015;4:315. <https://doi.org/10.5455/ijmsph.2015.0511201467>
- [34] Mathias B, Klingebiel A, Hartwigsen G, Sureth L, Macedonia M, Mayer K, et al. Sensorimotor cortices casually contribute to auditory foreign language vocabulary translation following multisensory learning. *Brain Stimulation*. 2019;12:401–402. <https://doi.org/10.1016/j.brs.2018.12.295>
- [35] Sayeski KL, Earle GA, Davis R, Calamari J. Orton Gillingham: Who, what, and how. *Teaching Exceptional Children*. 2019;51:240–249. <https://doi.org/10.1177/0040059918816996>
- [36] Suggate S, Pufke E, Stoeger H. Do fine motor skills contribute to early reading development? *Journal of Research in Reading*. 2018;41:1–19. <https://doi.org/10.1111/1467-9817.12081>