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Teaching Reading According to Selective Word Clusters among Children with Dyslexia

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Abstract

The problem of not acquiring reading skills is often debated in the education world. The purpose of this study was to develop framework with selective word clusters among children with dyslexia. This study employed survey as its research method. The findings showed that there was no significant difference by gender with t-value = -1.26, p = .211 (p> .05) on teaching reading using selective word clusters for children with dyslexia by gender. The findings also showed there is no significant difference on teaching reading using interactive learning materials for children with dyslexia based on gender with a value of t = 1.24, p = .222 (p> .05). The result of the Pearson correlation test on teaching reading using selective word clusters and interactive learning materials shows a significant r value = .403 ** (p <.005). By drawing on evidence from the data, we proposed framework for children with dyslexia which included three major word clusters. We also argue that to overcome the problems associated with reading difficulties, we need to take into account the selection of appropriate words as one of the foremost factors. We conclude that this research outcomes will allow for a richer understanding of learning to read among children with dyslexia. This lays a solid foundation for pedagogic developmental efforts by using mobile application in reading activities.

Keywords: Children with Dyslexia, Reading, Interactive Multimedia, Survey, Reading Difficulties

Introduction

Spelling and reading development should be carefully followed until they are in third grade (Saine et al., 2011). Learning to read will be more enjoyable if they can connect words they are trying to read with their own real life experiences. This can be accomplished with interactive kit media (Aini & Khoo, 2020). Interactive multimedia as an educational tool helps children with specific learning disabilities learn independently in a more enjoyable environment (Aini, 2020).

Interventions were broadly classified as supporting reading at the word level such as decoding and phonological or vocabulary learning (Ostiz-Blanco et al., 2021). Interventions using interactive learning materials are needed and useful for children with dsycalculi. This study

tries to develop an appropriate framework for learning words using android mobile application which would benefit reading intervention.

Literature Review

Dyslexia

Dyslexia is a specific learning disability that impacts word reading accuracy and/or reading fluency (Phillips & Odegard, 2017). Dyslexia is often considered a language disorder in both phonologic abnormalities and single word decoding (Manilla & Braga, 2017). Dyslexia is a common learning disability. It is usually not diagnosed until a child fails to learn to read repeatedly in primary school. Delayed diagnosis leads to depression, anxiety, and academic disadvantage among these children (Sanfilippo et al., 2020). They struggle to learn and to read (Bahr et al., 2019). Supportive family members are very much needed to support children with dyslexia (Carawan et al., 2016).

Students with specific learning disabilities typically do not perform at the expected levels of academic achievement. Mobile applications are effective and students with specific learning disabilities are ready to use this app, enjoy process, and use applications and objects easily/correctly (Polat et al., 2019). Dyslexia is a neurological learning disorder characterized by difficulties in various aspects of writing skills. Individuals with dyslexia fail to develop age and ability appropriate functional skills. Mobile application plays a role in representing, evaluating and optimizing writings skills for writers with dyslexia (Tariq & Latif, 2016). Thus, they need to learn to read according to their ability and one of the ways is by introducing selective word clusters one a time. Rushing will not help them as they need more time with appropriate teaching materials.

Interactive Multimedia

Interactive provides effective education and makes the education easier, whereas multimedia provides the educational facilities. Students are able to learn new knowledge especially language skills by using interactive multimedia (Praheto et al., 2020). Interactive multimedia combines data in different media forms, such as text, images, audio, video, animation, and virtual reality (Ahmad & Savugathali, 2016; Gunawan et al., 2020). Most of the interactive multimedia was developed to improve students' cognitive skills. They were created for subjects of languages, mathematics, and so on (Septiani et al., 2020).

The computer-assisted intervention was effective in teaching reading skills. This medium can be used for reading interventions and to support struggling readers, and their effects can go beyond targeted abilities (Messer & Nash, 2017). School should consider creating learning activities which require using ICT as an essential trend for teaching and learning (Wu et al., 2018). Thus, the proposed framework will emphasize the importance of selection of word clusters and also teaching materials using interactive multimedia among children with dyslexia.

Methodology

This quantitative study aimed to develop framework with selective word clusters for learning new words. 46 Special Education teachers were selected randomly as participants to answer online questionnaire via Google forms. All participants teach reading skills to children with dyslexia. The questionnaire has three parts and it uses Likert five rating scales. Content and face validity of the questionnaire showed a strong value and high in quality. Data were

analyzed using mean value and correlation. Four phases in Rapid Application Development Model were used, namely, the planning and analysis phase, the design phase, the development phase and the transition phase. A questionnaire to review the feasibility of the android mobile application was distributed to randomly selected participants. Seven experts were selected using purposive sampling to ensure the validity of the application content within the framework. The process of data collection involves four phases namely (1) designing templates, (2) creating templates, (3) validating content and (4) testing the applications content.

Results

To develop appropriate framework for teaching reading according to words clusters among children with dyslexia

Table 1 shows the need analysis result on teaching reading using selective word clusters for children with dyslexia by gender. The findings showed that there was no significant difference by gender with t-value = -1.26, p = .211 (p> .05). Thus, data shows equivalent needs based on gender among respondents on teaching reading using selective word clusters for children with dyslexia. This means that male and female teachers have the same opinion that teaching reading using selective word clusters is necessary for children with dyslexia because it can help them to read in a better way and with better understanding.

Table 1
Needs analysis result on teaching reading using selective word clusters for children with dyslexia by gender

Gender	n	mean	SD	t-value	p
Male	6	3.97	.301	-1.26	.211
Female	40	4.23	.483		

p<.05

Table 2 shows the need analysis result on teaching reading using interactive learning materials among children with dyslexia based on gender. The findings show, there is no significant difference on teaching reading using interactive learning materials for children with dyslexia based on gender with a value of t = 1.24, p = .222 (p> .05). This indicates that, male and female respondents are equivalent in terms of the need to teach reading using interactive learning materials among children with dyslexia.

Table 2
Need analysis result on teaching reading using interactive teaching materials among children with dyslexia based on gender

Gender	n	mean	SD	t-value	p
Male	6	4.44	.485	1.24	.222
Female	40	4.11	.624		

p<.05

Table 3 shows the result of the Pearson correlation test on teaching reading using selective word clusters and interactive learning materials. It shows a significant r-value = .403 ** (p <.005), this finding shows there is a significant relationship between teaching reading based

on word clusters and using interactive learning kits for children with dyslexia. However, referring to Cohen et al (2011), a correlation value of .403 ** indicates a moderate strength of relationship between both variables. Therefore, teaching reading according to selective word clusters and using interactive learning materials are interrelated as these two aspects can increase the interest, skills and knowledge of children with dyslexia in reading activities.

Table 3
Correlation test result between teaching reading based on selective word clusters and using interactive learning materials for children with dyslexia

		Interactive learning materials
Teaching reading based on word clusters	r	.403**
	Sig. (2-tailed)	.005
	N	46

**Significant correlation level 0.05 (2-tailed)

Discussion

The findings of this study were consistent with the literature review. Children with dyslexia should be given more reading experience and more opportunities to use interactive multimedia materials in the classrooms (Ahmad, 2018). The development of modern technology-based materials met a need to support learning and provide flexibility to enhance language learning in a classroom setting. In addition, framework was developed as guidelines for teachers to employ. This framework proposed the inclusion of augmented reality and interactive teaching kits embedded in the language learning environment. It also helps engage students in the learning process according to their needs and abilities.

Diagram 1 shows the framework for teaching reading according to selective word clusters among children with dyslexia. This study suggests three levels of difficulty within the Bahasa Malaysia words, namely (1) basic, (2) intermediate and (3) advance. The basic level includes CVCV, CVCVC and CVC words. The intermediate level includes CVCVC, CVCVCVC, CVCCV, CVCCVC and CVCCVCVC words. The advance stage includes words containing /ng/, joint vowels, digraphs and consonant blends.

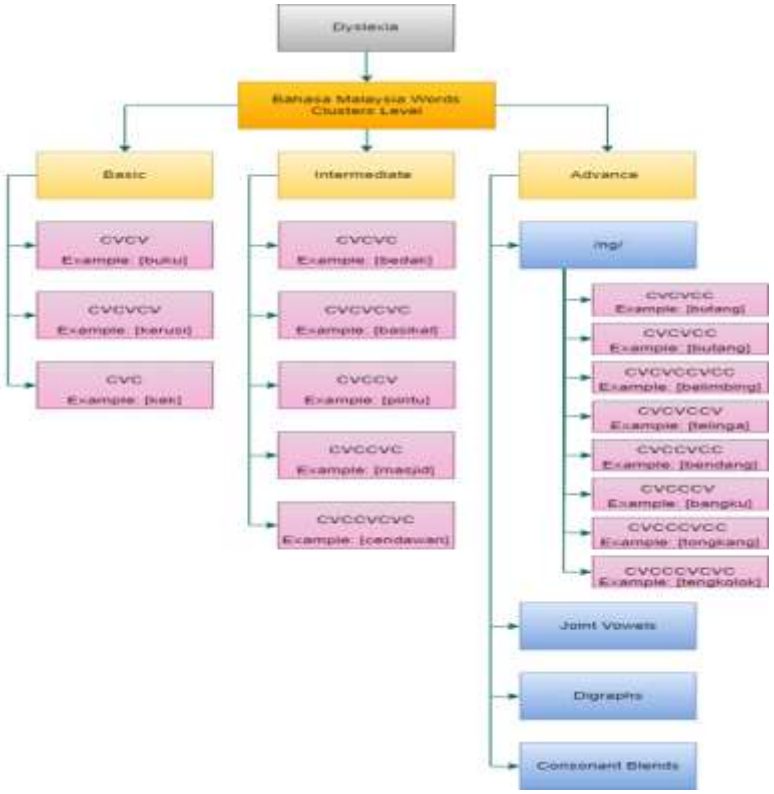

Diagram 1: The framework on teaching reading skills according to selective Bahasa Malaysia words clusters among children with dyslexia

Recommendation

The findings of this study include the framework with list of selective word clusters. By using list of selective word clusters, more interactive learning materials need to be developed so that each student will have the opportunity to learn more easily because the activities are developed according to their level of ability. The tailored made activities in the application will help children with dyslexia to learn to read. The research findings may provide a fresh start that helps children with dyslexia to enjoy learning Bahasa Malaysia. It is suggested that reading activities within the selective Bahasa Malaysia word clusters should be divided into three levels. Starting with basic words and move on to intermediate level. Once the students familiar with these words, more advance words can be introduced one at a time.

Conclusion

We concluded that it is important to design framework with appropriate word content in Bahasa Malaysia for children with dyslexia to enhance their reading ability. In this study, we proposed a framework specifically for children with dyslexia. This framework with selected word lists will help teachers in their daily teaching and learning activities. Three major word clusters were included in this framework. Reading skills should be promoted by the teachers according to their students' abilities. Selection of appropriate words is one of the notable factors when planning the lessons.

We also concluded that this research outcomes will allow for a richer understanding of learning to read among children with dyslexia. Interactive multimedia is an effective medium for children with dyslexia in learning words in Bahasa Malaysia. The proposed framework

emphasized the teaching materials using interactive multimedia for children with dyslexia. Hence, this lays a solid foundation for pedagogic developmental efforts by using mobile application in reading activities.

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