

A Systematic Review: Reading Comprehension Intervention for Students with Learning Disability

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Abstract--- *Many interventions has been done on improving learning disability (LD) students' reading comprehension but systematic review study are still less explored. Hence, the researcher decided to conduct a systematic review to identify type of instruction used by the past researcher. Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) were used as a methodology in conducting this systematic review. 60 articles from year 2009 until 2019 were retrieved from five databases. After screening process, total 9 articles were chosen to include in this systematic review. The results from this study showed that most studies using experimental design in conducting intervention. This study also revealed that read aloud, read naturally program and multisyllabic program were frequently used types of intervention. Implications for this study is it will give an insight for future researcher in conducting effective intervention studies for students with learning disability by choosing the reliable intervention technique.*

Keywords--- *Reading Comprehension, Learning Disability, Intervention.*

I. INTRODUCTION

According to Caldwell et. al. (2010), reading comprehension is referring to the students' ability in understanding the reading outcome. When students have difficulty in reading comprehension, it can be difficult for students to demonstrate their understanding (Conway, 2017). In addition, reading comprehension also important for students to understand the questions and instructions stated before responding or obeying the instructions given (Caldwell, 2010).

LD students also referred as a student with 76 to 89 levels of intellectual ability and they are relatively slow in learning compared to typical students (Chauhan, 2010). As such, some students with LD have phonological and metacognitive problems that affect their ability to understand information based on reading outcomes (Nicolielo-Carrilho, 2018). Furthermore, although students with LD are fluent in reading, they tend to read without understanding the content (Payne, 2017; Seacrist, 2012). This is because, they have a poor understanding of processing the combination of phrases and words to become something that is meaningful and understandable (Yogurtcu, 2013).

Previous researcher have done synthesis for reading among student but the study was focusing on reading in a broad idea by combining all components of reading such as fluency and comprehension (Paul and Clarke, 2016).

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Previous researcher also has conducted systematic review on reading comprehension among student with LD but the year of articles reviewed were far from recent years ((Solis et al., 2012; El Zein et al., 2014; Scammacca et al., 2015; Richards-Tutor et al., 2016). Therefore, the researcher decided to conduct this systematic review to fill the gap for this study.

Objective

To conduct a systematic review on reading comprehension intervention among learning disability students.

II. METHODOLOGY

The methodology for this systematic review were based on PRISMA which were consists of four steps: 1) resources used to run the systematic review, 2) eligibility and exclusion criteria, 3) steps of the review process (identification, screening, eligibility) and 4) data abstraction and analysis (Moher et. al, 2009). All of these steps will be discussed below.

Resources

The resources for this study were from five different databases which were Scopus, Science Direct, SpringerLink, Taylor and Francis Online and Wiley Online Library.

Eligibility and Exclusion

For eligibility and exclusion, the researcher has determined the criteria of article journal to be included and excluded. Based on table 1 below, there were details of four criteria for eligibility and exclusion which were literature type, timeline, sample characteristics and language.

Table 1: The Eligibility and Exclusion Criterion

Criterion	Eligibility	Exclusion
Literature type	Research article	-Systematic review article journals -Book chapter
Timeline	Between 2009-2019	Before 2009
Sample characteristics	- Learning disability students - Primary school students - Secondary school students	- Typical students without learning disability - Non-schoolers
Language	English	Non-English

Systematic Review Process

Based on figure 1, PRISMA had four stages which were identification, screening, eligibility and review. First stage was identification where the researcher used reading comprehension, intervention, strategies, instruction, learning disability and students as keywords and managed to gather 60 articles. Second stage was screening where six duplicates articles were removed when the researcher found that the articles were same but published in different database. The remaining 54 articles were screened and total 29 articles were excluded because it did not meet the criteria. In eligibility stage, 25 full articles were assessed and read and the researcher found out that 16 articles were not focusing on reading comprehension intervention. Other than that, the excluded articles were not an empirical study. On last stage (included), they were remaining nine articles that met all the criteria and included in qualitative

synthesis to come out with the results that will be discussed later.

Data Abstraction and Analysis

In data abstraction and analysis, all of the eligibility articles were analysed by the researcher to attain the results. Data on the reading comprehension intervention used to the students with LD were presented in table 2 according to the characteristics found based on the analysis.

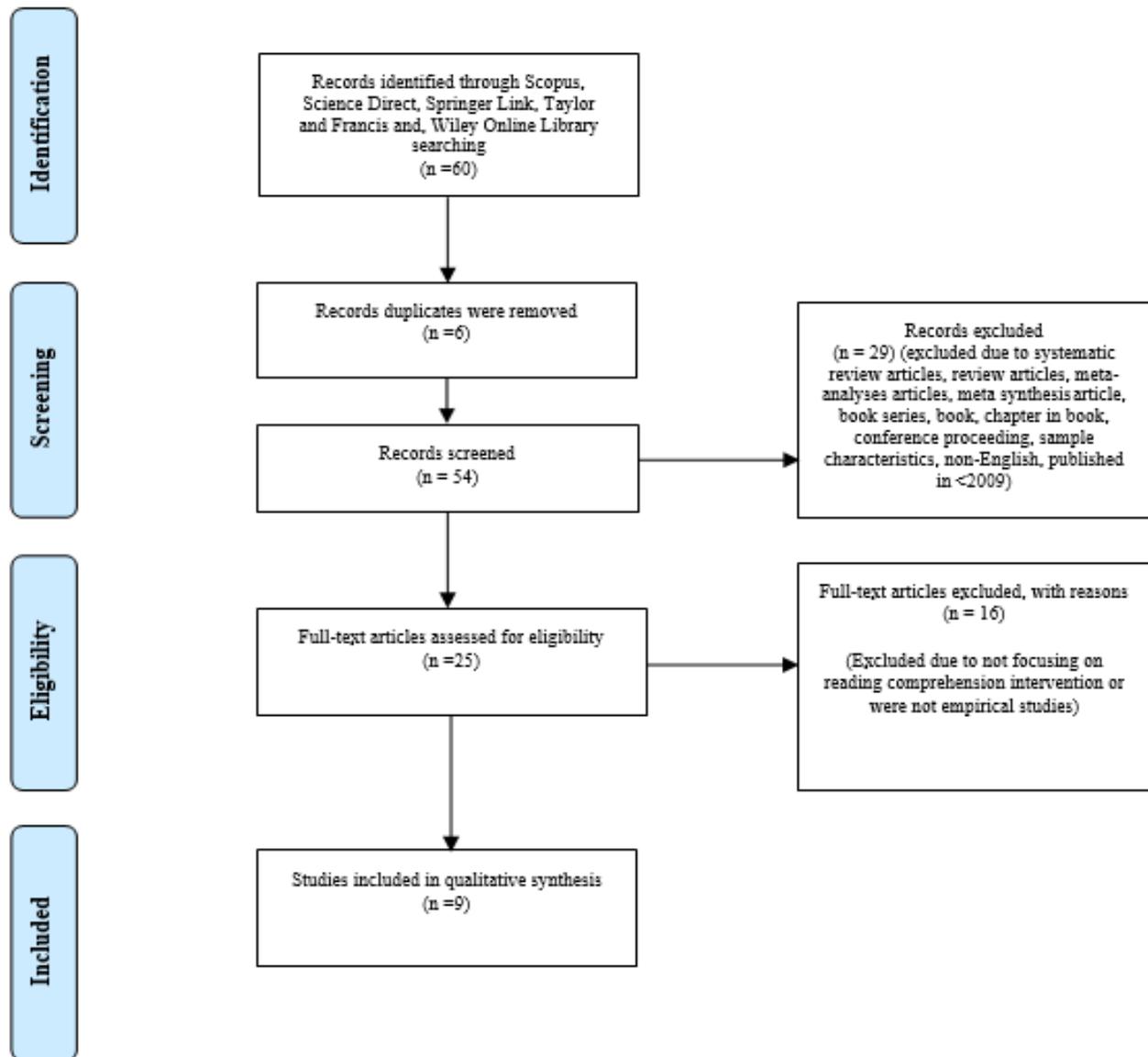


Figure 1: PRISMA Systematic Review Process (Adapted from Moher et al., 2009)

III. RESULTS

The findings were organized according to the research design and sample characteristic type of interventions, scaffolding used and technology used.

Research Design and Sample Characteristic

Based on table 2, eight out of nine studies used pre-post experimental design and other types of research design were used together with experimental research design as another alternative in collecting the data. The sample characteristic used in this systematic review were students age from seven years old until 17 years old divided into two categories which were primary schoolers and elementary schoolers.

Types of Intervention

The overall of studies reviewed showed that variations on six intervention types were implemented to improve reading comprehension among students with LD.

1. Read Aloud Systematic Prompt

Based on study by Courtade et. al (2017), read aloud systematic prompt used prompt according to the response from the students. If the student made a correct response, the student will be praised and the prompt level (P1) was recorded on the data sheet. The prompt level were up to three level with different types of prompt given.

2. Read Naturally Program

This program will used high-interest narrative and expository passages ranging from 200 to 300 words to determine the correct number of words students could read in 1 minute (Berkeley et al., 2011; Reutebuch et al., 2015). Multiple choice, short answers question and graphing sheets also used to record their fluency progress.

3. Multisyllabic Words Program (REWARDS)

REWARDS needs students to read longer words by first breaking them up into chunks, and then efficiently testing the vowel sounds in each of the chunks (Archer et. al., 2005). This program will be one of the alternatives for the teachers to teach learning disability students reading more complex words.

4. Collaborative Strategic Reading (CSR)

CSR is one of a well-known and widely use reading comprehension intervention among learning disability students and consists of four steps namely preview the text (activate prior knowledge), click and clunk (identify understanding of the words, phrase or sentence), get the gist (learn key points) and wrap-up (generating ideas) (Vaughn et al., 2015; Williams and Vaughn, 2019).

5. Expert Reading Coaching

They were three types of teachers coaching by expert which were 1) face-to-face coaching which is the teacher will be coach face-to-face with the expert, 2) technology-based coaching is teacher having online access to their coach and other resources and 3) on-demand coaching is teacher will be coached per requested (Weiser et al., 2019). After the teachers became the experts, they will coach their students on reading as well as reading comprehension.

6. Multicomponent Reading Intervention

Multicomponent reading intervention is an intervention that combined several components to be one intervention or instruction. Based on the study by (Jozwik et al., 2017), they combined four components which were explicit strategy instruction, a mnemonic, web-based tools, and peer collaboration to be one instruction. Study by

(Reutebuch et al., 2015) also combined reading intervention with cooperative learning to be one intervention to enhance reading comprehension among learning disability students.

Scaffolding

Based on analysis, the researcher found out that almost all of the studies had used scaffolding during the intervention session. Scaffolding is a component from Vygotsky social constructivism theory (1978) that emphasis the role of someone who are more knowledgeable to give guidance and support to the one that have least knowledge on certain topic which are commonly teachers or peers.

Technology-Used

Based on the analysis on selected articles after screening, the researcher found that there were technology used in certain studies ((Berkeley et al., 2011; Reutebuch et al., 2015; Courtade et al., 2017; Weiser et al., 2019). Past researcher used software in computers and augmented reality to enhance reading comprehension among students with learning disability.

Table 2: Results of Systematic Review on Reading Comprehension Intervention among Student with LD

	(Weiser et al., 2019)	(Williams and Vaughn, 2019)	(Jozwik et al., 2019)	(Denton et al., 2019)	(Courtade et al., 2017)	(Vaughn et al., 2015)	(Reutebuch et al., 2015)	(Menachem, 2015)	(Berkeley et al., 2011)
Research design									
Pre-post experimental design	/	/	/	/	/	/		/	/
Multiple baseline design	/						/		
Multiple probe design			/						
Single case research design					/				
Sample									
Primary school	/		/	/	/			/	
Secondary school	/	/				/	/	/	/
Intervention									
Read aloud systematic prompt					/				
Read naturally program							/		/
Multisyllabic words program (REWARDS)		/		/		/			
Collaborative strategic reading (CSR)		/				/			
Expert reading coaching	/								
Multicomponent phase reading intervention			/				/	/	
Scaffolding									
Teacher	/	/	/	/	/	/			
Peer		/					/		
Technology									
Software	/				/		/	/	/
Augmented reality									/

IV. DISCUSSIONS

The purpose of this systematic review was to determine the intervention used in enhancing reading comprehension among students with learning disability. School students with learning disability were the focus of this study because students who lack reading comprehension skills will have an effect in the future to understand information or instruction such as in postsecondary education and the workplace.

Based on the systematic review done by the researcher, there were several types of intervention used by the past researcher. The researcher used various types of intervention to make the learning process more interesting and easily to understand by the students. This is because, learning disability students are different from typical students. The teachers need to attract their interest in order for them to pay attention to the learning process. A study by (Syamilah et al., 2017) proved that using interesting way of teaching can help learning disability students in improving their skills.

Besides, their intellectual ability are more lower than typical students and their tendency to forget and slow to understand is known. Therefore, types of intervention used and the way it delivered in special education are very important. Besides, students will rely fully to the teachers throughout the learning process and this showed the important of scaffolding in learning process. This is supported by a study from (Ciullo and Dimino, 2017) that showed the importance of scaffolding in helping learning disability students on their learning process.

In addition, on modernization era, there is in need to use technology in learning process. There are many types of technology that can be used as teaching aids in the class such as video, software and even augmented reality. Technology used in special education class is one of effective teaching strategies to cater students with learning disability so that teachers can provide comprehensive class to them. This is supported by (Shamir and Baruch, 2012) on their study that using e-book as an aid to enhance vocabulary on learning disability children. They found that by using e-book, the children showed significant increasing in their vocabulary count. A study by (Jozwik et al., 2017) also showed that by using technology aid, student with learning disability gained positive improvement on their reading comprehension in English subject.

V. CONCLUSIONS

Based on this study, the researcher successfully came out with a table of results on types of interventions used to enhance reading comprehension among students with learning disability. So, there were several implications that can be taken from this study which were, this study will give insight for future research in conducting their studies regarding this topic by referring this study. This study also gave implication to the researcher who was interested to conduct an intervention on reading comprehension among students with learning disability.

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