Early Reading for Students with Intellectual Disability Based on Linguistic and Visual Perception Awareness

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Abstract: The purpose of this study was to find out the effect of early reading teaching model based on linguistic and visual perception awareness on children with intellectual disability's reading skill. The method of this study was quasi-experiment with a matching pretest-posttest control group involving a control group with IQs of 55-70 and mental ages of 7-10. The subjects were 66 students and 45 teachers across West Java province. The results of the experiment showed that this model was proven to be significantly effective in improving reading skills and managed to change intellectually disabled children's study habits. The influential factors of linguistic awareness in improving reading skill were phonemic and syntactic awareness (path coefficient value=0.72), while the ones in visual perception awareness were discrimination and visual memory (path coefficient value=0.25). Linguistic and visual perception awareness influenced the whole reading process of children with intellectual disability. This indicates that the maturity in linguistic and visual perception awareness becomes an integral part of the whole reading learning process which the teachers should pay attention to. The implication of this study is that linguistic awareness and visual perception awareness are the prerequisites for early reading learning in children with intellectual disability.

1 INTRODUCTION

Reading is a crucial and fundamental skill to achieve success in various fields (Sperlich et al., 2015; Crowley et al., 2013; Moore, 2014). The low reading skill of a child with intellectual disability is often associated with his low intelligence. Studies have proven that there is a strong correlation, i.e. coefficient correlation of 0.36 to 0.84, between reading skill and one's intelligence, or called as mental age (MA) (Barret, 1965). This strong correlation happens at the mental age of 6. However, when the MA of child is at 6.5, this correlation is not as strong. This indicates that intelligence is not the sole factor contributing to the failure to read of children with intellectual disability (Glass and Cohen, 1986). Previous studies reported that visual and auditory perception could also contribute to the reading failure (Ducrot and Grainger, 2007; Stahl and Murray, 1994; Bradley and Bryant, 1983; Kudoet et al., 2015).

One of prerequisites for obtaining a reading skill in a child is linguistic awareness (Harris and Sipay, 1990; Van Wingerden et al., 2017). Previous study showed that a positive correlation between visual perception ability and reading skill has contributed to success in reading (Vismaia, 2003). A unique linguistic predictor of reading for children in the lower grades of primary schools is the capability of understanding the text (Fuchs et al., 2012; Hood and Conlon, 2004; Plazaand, 2007; Lord and Bishop, 2015). Phonological awareness training may also improve skills in reading words (Channel et al., 2013; Soltani and Roslan 2013, Ellis et al., 1989; Joseph and Seery, 2004). Previous research with this type of training has reported a good development of students' reading skill during reading class (Cunningham 1990; Chaves-Sousa et al., 2016). Those previous studies suggested that reading requires some mastery of the basic rules of phonology, morphology, syntax, and semantics (Santrock, 2007), or if not - it requires of all those aspects (Wagner et al., 1994). However, these influenced aspects in linguistic awareness and visual perception for children with intellectual disabilities have unequivocally studied. Therefore, this study was conducted to examine the most influential aspects in linguistic awareness and visual perception. The examined aspects in linguistic

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awareness were the awareness of phonemes, morphemes, syntax, and semantics, while the ones in visual perception awareness were the discrimination of shapes, spatial and visual memory, background, and objects.

2 RESEARCH METHODS

This study used a matching pretest-posttest control group quasi-experimental research design, with the research variables: (1) The independent variables include linguistic awareness (phonemes, morphemes, syntax, and semantics) and visual perceptions (the discrimination of shapes, figures, grounds, spatial and visual memory). (2) The dependent variable in this study is early reading mechanical skills that include letter identification, sound blending, word attack, and syntax. (3) Control variables are ones expected to influence the ability to read, linguistic awareness, and visual perception awareness. The control variables in question are the IQs of 55-70 and the mental ages of 7-10. These variables are the intervening variables.

The quantitative data were analyzed using the Pearson Correlation Test to find out the correlation between linguistic and visual perception awareness and reading skill, and then analyzed using path analysis. The subjects of this research were 36 students who were chosen purposively as the numbers of children with intellectual disability in Priangan Timur (West Java) were relatively small, as small as illustrated in Table 1.

Table 1: Research Subject.

Numb	Research Sites	Number of Subjects	
		Students	Teachers
PRELIMINARY STUDY (CORRELATIONAL TEST)			
1	SLB-C Sumbersari	6 students	3 teachers
2	SLB-C/B Buah Batu	5 students	3 teachers
3	SLB-C/B YPLB KOPO	5 students	3 teachers
4	SLB-YPLB C/B Cicalengka	9 students	6 teachers
5	SLB-A/B/C Nurani Cimahi	7 students	4 teachers
	TOTAL	32 students	19 teachers
READING VALIDATION TEST (EXPERIMENT)			
1	SLB Bagian C Purnamasih Kota Bandung	4 students	2 teachers
2	SLB Bagian C Tasikmalaya	8 students	4 teachers
3	SLB Bagian C Tanjung Sari Sumedang	8 students	4 teachers
4	SLB Negeri ABC Kabupaten Ciamis	8 students	4 teachers
5	SLB Negeri ABC Kabupaten Garut	8 students	4 teachers
	TOTAL	36 students	26 teachers

3 RESEARCH FINDINGS

The result of the study shows that the influential factors of linguistic awareness in improving reading skill were phonemic and syntactic awareness (path coefficient value=0.72), and of the visual perception awareness were discrimination and visual memory (path coefficient value=0.25). The findings are illustrated in Figure 1.

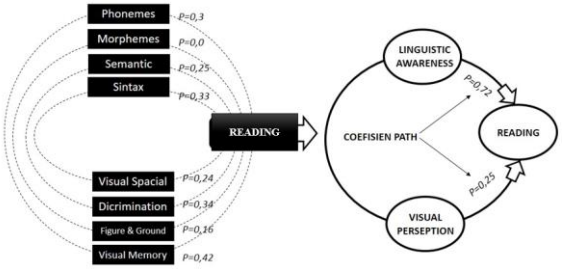

Figure 1: The Influence of Linguistic and Visual Perception Awareness on Reading Skill.

The reading skill comparison between experimental and control groups is illustrated in Figure 2. It shows that the increase in reading skill scores of experimental group were higher than the control group, the increase in reading skill scores of experimental and the control groups were significantly different. There was a strong correlation between linguistic and visual perception awareness and the reading skill of children with intellectual disabilities.

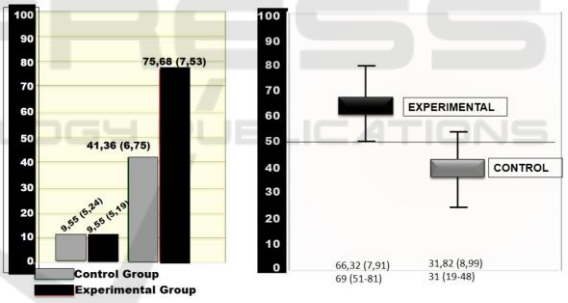

Figure 2: Reading Skills of the Experimental and Control Groups.

The different reading scores indicate the influence of the mastery of prerequisites in reading. This studies was very effective in improving children with intellectual disability in three perspectives. First, in time perspectives, the reading skill acquisition was faster. Second, there was occurrence of learning transfer, as indicated by changes in the knowledge from the actual conditions to potential mastery of the ability to read words and sentences they have never learned. Third, there was changes in the attitudes and beliefs of teachers to change the process of reading teaching approach based on the mastery of prerequisites that must be met before children were taught how to read.

4 DISCUSSION

The finding showed that the influential factors of linguistic awareness in improving reading skill were phonemic and syntactic awareness, while the ones of the visual perception awareness were discrimination and visual memory (Bradley and Bryant, 1980). This finding is different from the previous study that reported that there was a positive correlation between all aspects of both linguistic and visual perception awareness and reading skill (Wagner et al., 1994).

These differences may occur because of the different exposure to language use, where the subjects' mental ages ranged from 7 to 10 and chronological ages ranged from 10 to 14. Chronological ages can indicate the language exposure, and mental ages indicate reasoning issues and the weakness of children with intellectual disability in reasoning. This requires further examination.

However, there is no doubt that linguistic and visual perception awareness influenced the whole reading process of children with intellectual disability. This indicates that the maturity in linguistic and visual perception awareness becomes an integral part of the whole reading learning process the teachers should pay attention to. In this study, discrimination and visual memory are proved to improve the reading skill of children with intellectual disabilities.

The implications of the findings are as follows: the process of learning how to read is about get the children's linguistic and visual perception awareness ready. Teaching how to read by implementing structure analysis-synthesis process that ends with sound reposition, by implementing mediated learning; i.e., learning how to read is carried out using a scaffolding technique, the learning process should be in the children's zone of proximal development (Eren, 2009).

5 CONCLUSIONS

Early reading teaching based on linguistic and visual perception awareness was significantly effective in improving the reading skill of children with intellectual disabilities. This is evident in the increase in their reading ability to read sentences that they had never been taught before.

The positive effect was that the reading skill acquisition was faster, the changes in the attitudes and beliefs of teachers to change the process of reading teaching approach. This approach can be an alternative to overcome learning difficulties of the children with intellectual disability.

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