

The Effect of Colour Overlays on Reading Achievement among The Children with Irlen Syndrome

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This study aims to determine the effectiveness of blue colour overlays among children with learning disabilities with Irlen Syndrome symptoms. 20 subjects aged between 7 to 12 years old from Special Need's Class at Sekolah Kebangsaan Dato Haji Musa, Kota Samarahan, Sarawak, Malaysia involved in this study. A quasi-experimental design of pre and post-test was conducted to compare the findings between the application of blue colour overlays and without colour overlays in terms of reading score and reading time. The findings through the paired samples t-test analysis found the significant differences for reading score, $t(19) = 3.923$, $p = 0.001$ and reading time $t(19) = 4.081$, $p = 0.001$. The findings indicated a significant improvement in reading score and reading time as shown in children with learning disabilities with the symptoms of Irlen Syndrome while using blue colour overlays. This study disclosed that blue colour overlays could help increase reading comfort in children with learning disabilities who experienced Irlen Syndrome symptoms.

Keywords: Learning Disabilities; Colour Overlays; Irlen Syndrome; Reading Achievement

I. INTRODUCTION

Irlen Syndrome was identified as one of the keys that can cause reading difficulties (Harries *et al.*, 2015). The individuals who experience this syndrome might have symptoms like eyestrain, headaches, tiredness, fatigue, and visual perceptual distortions that occur when reading. For instance, a text or word will appear blurring, shaky, poor comprehension, slow reading, and sometimes they are skipping lines or words, loss of text, and rereading lines (Albon *et al.*, 2008; Brien *et al.*, 2013; Wilkins *et al.*, 2004).

Most of the previous research found that colour overlays can improve reading achievement for people with learning disabilities and experience the symptoms of Irlen Syndrome. Referring to Harries *et al.* (2015), they found that 35 % of the participants involved in this research had reported that their symptoms were resolved entirely, while 72 % of the 68 children gained improvements in three or more symptoms of Irlen Syndrome when they were reading by using the

colour overlays. In similar research conducted by Faraci (2009), he also identified that reading achievement yielded significantly higher average reading fluency scores for the participants using the colour overlays. Reading Assessment-Oral Text Reading Fluency results showed a positive increase ($p < 0.01$). Alencar *et al.* (2014) later found that using colour overlays when reading results from Visagraph System showed significant improvements in reading performance among subjects with visual stress symptoms. Research done by Salyers (2018) found that participants with reading deficits increased 12.5% of improvements in their reading scores after using colour overlays. Veszeli and Shepherd (2019) identified that with the use of overlays, children reduce their reading time and can read faster.

Cerrato (2012) states that the blue colour is strongly related to calmness and tranquillity; therefore, this colour can have a positive effect on the human body and mind. Previous research by Rim and Yoon (2015) found that students enhance their memorisation skills in English when

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