

**LEXIS: A PRELIMINARY SCREENING AND
INTERVENTION TOOL FOR CHILDREN WITH
DYSLEXIA**

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Abstract

Dyslexia is a lifelong neurobiological specific learning disability which adversely affects an individual's ability to read and write despite adequate intelligence, conventional teaching methods and socio-cultural opportunities. Children with dyslexia often struggle at school as their reading and writing skills which are key elements in learning are hindered. They fall behind their peers despite the extra effort put in which makes them frustrated. It has been identified that a child with dyslexia is three times more likely to drop out of school and not progress onto higher education.

The aim of the project is to analyse and identify why children with dyslexia go undiagnosed and unaddressed and how this can lead to a higher school dropout rate, and to design, develop and evaluate a system that provides accurate preliminary screening and support to manage the condition. The project focuses on overcoming the reasons identified which leads to these children being undiagnosed, unaddressed and unsupported.

Existing literature, pilot study and survey results have been utilized to identify the difficulties faced by these children, formulate an accurate screening criterion and create effective intervention learning modules and activities. The results showcased that the assessment should consider multiple criteria to draw up a more accurate evaluation and the intervention should incorporate multisensory elements that stimulate multiple senses to be effective. To address these findings, a web application, LEXIS was designed and developed following dyslexia-friendly design guidelines to screen young children based on a well-rounded criterion. LEXIS screens children for dyslexia by considering the student's educational exposure, family and health background, behaviour, memory capacity and ability to read, write, spell, rapidly name objects and do arithmetic calculations. An immediate evaluation is provided along with effective intervention in the form interactive learning modules and activities. The solution was evaluated by experts and non-experts to determine the success of the project in terms of addressing the problems identified and was accepted. Future implementations were identified and will be incorporated in future versions of the solution.

Keywords: Dyslexia, Specific Learning Difficulty, Preliminary screening tool, Intervention activities, Cloud based web application.