Prolexia: Learning Application for Dyslexia Using Voice Recognition Technology

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ABSTRACT

Dyslexia is a type of learning disability that affects reading ability among children where they usually have trouble to recognize and to pronounce letters and words. This difficulty stems from confusion to recognize some alphabets that have similar shape such as b and d, m and w, n and u, and p and q. Therefore, in this study, a web-based learning application called Prolexia was developed by integrating it with Voice Recognition Technology. Prolexia aims to reduce confusion of alphabets. The principles used to design it is a combination of both Multisensory and Structured Literacy approach. In multisensory approach, it combines multiple senses such as visual, auditory, motion and tactile while Structured Literacy defines stages of learning from phonics to alphabets, and to words. Voice Recognition Technology was embedded in Prolexia to detect and determine the pronunciation of words by learners. The learners will repeat the word sound provided by the learning module and use the Voice Recognition Technology to learn its pronunciation until they can say it correctly. This implementation would help the dyslexic learners to improve their word recognition and pronunciation ability, hence their reading ability. Heuristics Evaluation was conducted with three specially trained teachers from Persatuan Disleksia Malaysia and three Computer Science lecturers from Universiti Teknologi Mara Perlis Branch. Findings showed the experts agreed that Prolexia is useful in helping dyslexic children to overcome their reading difficulty.

Keywords: Dyslexia, Learning difficulty, Multisensory, Structured literacy, Voice recognition