The Design and Development of an Arabic Multimedia Dictionary Tool for Individuals with Learning Difficulties

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ABSTRACT

In this poster, we describe a novel system for improving web accessibility and supporting individuals with reading impairments in their use of the web. This project involves developing a web-based multimedia dictionary designed to support individuals with learning difficulties such as Dyslexia. Dyslexia is a learning disability which leads to problems in the ability to read and spell independent of socio-economic factors and despite having normal or above average intellectual abilities. According to recent research, dyslexia is one of the most common learning difficulties that affect approximately 10% of the population and it is a persistent condition, as it stays with individuals their whole life. Evidence suggests that people who have dyslexia experience problems with reading due to the fact that their brain cannot translate information properly. It is thus an information processing disability, and technology solutions have the potential to support individuals in this user population in order to overcome their difficulties.

Dyslexia can either be visual or auditory, visual dyslexia is usually seen in people who were unable to know understand the meaning of the picture or the meaning of the written word. People who have auditory dyslexia may have trouble remembering and understanding what they hear. In our system, we utilize multimodal presentations to stimulate an individual's cognitive abilities to overcome these two kinds of dyslexia and to learn to read properly. The aim of this multimedia dictionary project was to design and implement a web-based picture dictionary tool for language assistance for people with reading disabilities, embedded within web browsers, to assist them in accessing web content and to make written words more comprehensible to them. The system offers users four different representations for Arabic word descriptions including audio, image, animations, and video. Clicking on an unfamiliar Arabic word enables users to obtain interpretation of the word into the chosen multimedia representation according to the system configuration. This project demonstrates a novel web-based approach and an effective technology tool for supporting learners with disabilities.

1. Install the Tool

2. Mark unfamiliar Arabic Word

3. Choose Representation