

A Model of Dyslexia-Friendly Language-Learning Computer Game Development

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Abstract

Dyslexia is a difficulty in the acquisition of fluent and accurate reading and writing abilities, that is neurological in origin. The cognitive processes that cause difficulties in the first language for the dyslexic individual are most likely to impact also on language second language learning. These include phonological difficulties and orthographic difficulties. Grammar rules may also be problematic in the additional language.

While these difficulties may be the cause of lack of motivation to learn a second language, computer-based learning games have the potential to engage the dyslexic learner to overcome what are often psychological rather than cognitive barriers to learning. These games are seen as non-judgemental, as the teacher and peers do not see their failures. However, the level of engagement of the dyslexic user/player will depend on the software being developed in such a manner to being able to adapt the diverse, and changing, needs of the user through adaptive (artificial intelligence) methods.

In the present paper we are going to use Caldys2, an EU funded multinational project to develop language learning computers games for dyslexic individuals, as a case study for testing recommendations that should be included in any guidelines: multidisciplinary teamwork including educationalists, programmers, researchers and end user; evaluation of the product with respect to learner preferences, pedagogy, sustainability and technical considerations; adaptability to diverse contexts; inclusion of a consolidation process to ensure skill transfer. Since no appropriate evaluation method existed, the authors developed the Learning Games Education Evaluation Rubric, which involves 19 questions based around the areas of Learner Interface, Pedagogy, Sustainability and Technical Aspects. This process will be reviewed with respect to its potential to offer a model of development of effective language learning software for all learners, irrespective of their learning needs.