Enhancement of English Language Speech and Comprehension Through Means of Virtual Reality for Sri Lankan Context

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Speaking is one of the essential skills needed to be developed by any English learner. But the English curriculum taught by Sri Lankan schools often focuses on providing English vocabulary, grammar, and comprehension but pay less attention to enhance oral communication skills. This leads to a lack of practice in spoken English. Therefore, that affects a wide spectrum of applications such as business communication, presentation of creative work, etc. Other problems are anxiety, fear, lack of confidence, and nervousness of speaking English. This research focuses on designing a Virtual Reality (VR) based application for the above-mentioned problems and it facilitates a more convenient and yet natural experience through the use of techniques such as VR, Natural Language Processing (NLP), etc. to expand the English oral and understanding ability. This VR based solution will enhance the oral practice of the language and reduce the lack of confidence while improving the speech and comprehensive skills of Sri Lankan school students. Users can practice the application anywhere with common real-world scenarios such as conversing during a doctor's appointment, buying dresses from a shop, etc. This game-based learning tool helps to evaluate the users and they can get scores according to their performance. At the same time, it facilitates to expand their English speech and comprehension ability. To measure the effectiveness of this application, user evaluation was done as a pre-experimental method with a one-shot case study with the use of pre-test and post-test design. A total of 30 local students following the local English language curriculum between grades eight and ten were selected as a sample for this purpose. The t-test analysis showed a value of 2.34 alongside a table value of 2.131 which depicts a clear correlation between the usage of the application. Significant enhancement of oral and comprehensive skills of the users was observed through the evaluation.

Keywords: Virtual reality, Natural language processing, Voice recognition, Speech synthesis, Artificial intelligence