

Feedback Timing Control and Reflection for VR Public Speaking Training to Reduce Anxiety and Improve Nonverbal Communication

Skills

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Abstract

Using a virtual reality (VR) system for public speaking training can provide extra visual information which is attractive and easily-understood based on a controlled simulation scene. Reducing public speaking anxiety and improving skills are two challenging but important parts for public speaking training. This study proposes a reflection method using a VR avatar and a timing control method for real-time feedback, to understand influencing factors and training results in both anxiety reduction and skill improvement.

The VR reflection method is a simple alternative of video recording, which is one of the most commonly used techniques for reflection but problematic because some people easily fall into negative emotions and worry about their performance. The VR reflection method uses a head-mounted display (HMD) to allow presenters to watch their own presentations from the audience's perspective, and uses an avatar, which hides personal appearance that has low relevance to the quality of the presentation, to help reduce self-awareness during reflection. An experimental study was made to explore the possibility of this method and considered four personal characteristics: gender, personal anxiety, personal confidence and self-bias. The goal of this study is to discuss how individuals can benefit from this system and to assess the impact of the avatar and HMD-based VR. According to the results, the individuals with low self-confidence in public speaking could benefit more in self-evaluation from VR reflection with HMD, while individuals with negative self-bias could reduce more anxiety by using an avatar. However, among all conditions there is no difference in skill improvement.

On the other hand, real-time feedback focuses more on improving public speaking skills, especially nonverbal behaviors which are related to delivery. Such improvement of performance is based on the trainee's acceptance of the presented feedback, and further depends on the state of the ongoing task as well as the trainee's internal state. The timing control method is required to recognize the trainee's state and present feedback at an appropriate time during presentation training. Through a Wizard of Oz experiment, the self-reported scores of perceived behavioral change and disturbance level for each feedback were considered to be suitable factors for the appropriate timing. Result shows these two factors were independent from each other and both related to the observed performance change. Finally, an appropriate time detecting method was proposed, and a data analysis revealed that although the accuracy of the 5-level score estimation combining multi-modal information is not sufficient, it seems possible to avoid timing that would obviously interfere with the presentation.