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Graduate School of Science and Engineering, Aoyama Gakuin University

Title: Effect verification of teaching animation for improving the quality of reading in Storytelling

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Abstract

Storytelling is an important educational activity in kindergarten and elementary schools. The effectiveness of storytelling depends, not only on reading the actual text, but also, and most importantly, on the reader's shift in his tone of voice that can convey emotions and emphasis to certain parts of the text. The recent development of wearable augmented reality smart glasses allows giving and receiving feedback information from the user. Thus, it would be possible to improve storytelling using smart glasses.

In this research, we define the quality of storytelling as in terms of vocal volume, intonation, and the facial expression. Utilizing the information received from smart glasses, we aim to improve the quality of the reading of inexperienced people. We propose a reading support system that displays didactic animations of the voice gauge and emotional expression (happiness, surprise, anger, disgust, sadness, fear). Also, after judging the sentence read by speech recognition, the systems immediately switch to a new pedagogical animation of the next sentence. In order to evaluate the suggested reading and listening support system, we conducted storytelling with the presence or absence of a support system. We recorded storytelling video and asked people not familiar with the speaker to watch a silent-video, and evaluated with a questionnaire method for each support system.

The results of this study suggest that, based on the comparison between the pitch width of the storytelling voices, the interaction between the sentences were significant. It was found that the pitch width was significantly larger in story plots that express happiness, surprise, and anger. This can be said to be intonated when the voice volume instruction is set high. Also, novice storytelling did not show a significant difference in pitch width when the support system was not used. We thought that this is because it has not been attracted intonation for each scene. From the results of the questionnaire, the effect was shown on the expression of anger, disgust, and surprise.

From these results, we concluded that the support system influenced the storyteller’s voice intonation in expressing joy, surprise, disgust and anger and that it improved the quality in storytelling.