Needs Analysis of Serious Games for Vocal Training in Speech Therapy

Xiaopeng Yang[1], Younggeun Choi[1], Hayoung Jung[1], Min-Jung Yu[2], Myoung-Hwan Ko[2,3], Jong-Kwan Park[2,4], and Heecheon You[1]

[1]Department of Industrial and Management Engineering, Pohang University of Science and Technology, Korea

[2]Research Institute of Clinical Medicine of Chonbuk National University-Biomedical Research Institute of Chonbuk National University Hospital, Korea

[3]Department of Physcial Medicine & Rehabilitation, Chonbuk National University Medical School, Korea

[4]Department of Urology, Chonbuk National University Medical School, Korea

ABSTRACT

Communication disorders including speech, language, and hearing disorders are high-incidence impairments, occurring in 10% of people. Among the 10% of people, 1.4% were children and 7.6% were adults, resulting in significant needs for speech therapy. Serious games have become supporting tools for speech therapy, because they provide fun while assisting patients for learning and skill development. Unlike conventional speech therapy, serious games can help to maintain patients' motivation and commitment during therapy. This study was intended to identify needs and game development strategies for vocal training games to support speech therapy by literature review, stakeholders' needs survey, and benchmarking. Thirteen scales were identified for serious games development, including usability, narratives, play engrossment, enjoyment, creative freedom, audio aesthetics, personal gratification, social connectivity, visual aesthetics, accuracy, customization, game analytics, and therapy continuity. Based on questionnaire survey (7-point Likert scale, '1' for very dissatisfied and '7' for very satisfied) results, existing serious games showed low satisfaction levels in social connectivity (3.6 ± 1.4), creative freedom (3.5 ± 1.4), therapy continuity (3.6 ± 1.7), and customization (3.9 ± 1.5). These scales need to be additionally considered for development of serious games for better speech therapy.