User acceptance of a touchless sterile system to control virtual orthodontic study models

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Abstract

Introduction: In this article, we present an evaluation of user acceptance of our innovative hand-gesture-based touchless sterile system for interaction with and control of a set of 3-dimensional digitized orthodontic study models using the Kinect motion-capture sensor (Microsoft, Redmond, Wash). Methods: The system was tested on a cohort of 201 participants. Using our validated questionnaire, the participants evaluated 7 hand-gesture-based commands that allowed the user to adjust the model in size, position, and aspect and to switch the image on the screen to view the maxillary arch, the mandibular arch, or models in occlusion. Participants' responses were assessed using Rasch analysis so that their perceptions of the usefulness of the hand gestures for the commands could be directly referenced against their acceptance of the gestures. Their perceptions of the potential value of this system for cross-infection control were also evaluated. Results: Most participants endorsed these commands as accurate. Our designated hand gestures for these commands were generally accepted. We also found a positive and significant correlation between our participants' level of awareness of cross infection and their endorsement to use this system in clinical practice. Conclusions: This study supports the adoption of this promising development for a sterile touch-free patient record-management system.

Keywords

KeyWords Plus: INTRAOPERATIVE IMAGE CONTROL; INFECTION-CONTROL; INTERFACE; KINECT; TOOL

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