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

By: Hassan, WNW (hassan, Wan Nurazreena Wan)
Abu Kassim, NL (Abu Kassim, Noor Lide)
Jhawar, A (Jhawar, Abhishek)
Shurkri, NM (Shurkri, Norsyafiqah Mohd)
Bahrin, NAK (Bahrin, Nur Azreen Kamarul)
Chan, CS (Chan, Chee Seng)

AMERICAN JOURNAL OF ORTHODONTICS AND DENTOFACIAL ORTHOPOEDICS
Volume: 149 Issue: 4 Pages: 567-578
DOI: 10.1016/j.ajodo.2015.10.018
Published: APR 2016

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

Author Information
Reprint Address: Hassan, WNW (reprint author)

Addresses:
[1] Univ Malaya, Fac Dent, Dept Paediat Dent & Orthodont, Kuala Lumpur, Malaysia
[3] Umm Al Qura Univ, Dept Community Hlth & Hlth Care Mass Gathering, Mecca, Saudi Arabia
[4] Int Islamic Univ Malaysia, Kulliyah Dent, Kuantan Campus, Pahang Darul Makmur, Malaysia

E-mail Addresses: wannurazreena@um.edu.my

Funding

<table>
<thead>
<tr>
<th>Funding Agency</th>
<th>Grant Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>University of Malaya</td>
<td>RG401/12HTM</td>
</tr>
</tbody>
</table>

Publisher
MOSBY-ELSEVIER, 360 PARK AVENUE SOUTH, NEW YORK, NY 10010-1710 USA

Citation Network

All Times Cited Counts
0 in All Databases
0 in Web of Science Core Collection
0 in BIOSIS Citation Index
0 in Chinese Science Citation Database
0 in Data Citation Index
0 in Russian Science Citation Index
0 in SciELO Citation Index

Usage Count
Last 180 Days: 4
Since 2013: 6
Learn more

This record is from:
Web of Science™ Core Collection

Suggest a correction
If you would like to improve the quality of the data in this record, please suggest a correction.