

TITLE :	An Elicitation Study on Gesture Preferences and Memorability Toward a Practical Hand-Gesture Vocabulary for Smart Televisions	YEAR
		2015
KEY CONTRIBUTION		THEORY
Building a vocabulary inferred by the users' preferences, which could give an indication of the complexity level of the selected gestures		To develop the next generation of interfaces for smart televisions, a universal interactive hand gesture vocabulary must be derived and implemented.
DEPENDENT VARIABLES		
We used dynamic time warping to analyze the captured data [7], which included upper body joint positions, angle of elbow, palm area and dimension ratio, for a preliminary implementation of gesture recognition. Furthermore, for this evaluation experiment, we decided to use the Microsoft Kinect sensor due to its easy-to-use software development kit (SDK) and acceptable accuracy on extracting skeleton and depth data.		
INDEPENDENT (AND HYPOTHESES)		
. A two-phase user survey was conducted in order to investigate the preferences and attitudes towards all possible control commands for navigating television menus using hand gestures recognized by depth-sensing technologies		
METHODS		ANALYSIS
a two-phase user survey: a preliminary survey and the design of a gesture vocabulary The questions in these two phases are similar, but the way the participants respond to them differs. An open-ended questionnaire is used in the first phase, and a multiple-choice questionnaire is used in the second. The resulting gesture vocabulary was applied when the second phase was completed, and additional assessment and memorability tests were undertaken to support our design.		<ul style="list-style-type: none"><li>• From the open-ended survey, it is shown that the total number of suggestions for each command was always greater than the total number of participants as they used different body parts (such as hands, ears, and mouths) in two and three dimensional spaces.</li><li>• Second phase is a multichoice survey based on the first phase with a different group of participants that has no influence towards existing gaming gestures. The result was discussed and the gestures were chosen.</li><li>• Evaluation test involving 20 participants to undergo the technical test to find out the accuracy of the software develop and to decide which gesture is to be used for the certain same command.</li></ul>

	<ul style="list-style-type: none"><li>● <b>Memorability test-</b> to find out how fast the participant can remember the gesture, to find out the performance accuracy and eliciting the connection between participants’ preferences and memories towards the close-score between two gestures in a single command.</li></ul>	
<b>FINDINGS</b>		
<ul style="list-style-type: none"><li>● <b>Preliminary study - i.</b> They chose a small, frequently used set of commands for “override”, “volume control”, “menu navigation” and “channel surfing”. <b>ii.</b> They determined that the direction of movement should be adjustable by the users as it is influenced by the direction in which their native language is written and some of the gestures could potentially have different meanings in different cultures.</li><li>● <b>Gestures vocabulary design-</b> they can infer that one-handed gestures are generally preferred over two-handed gestures. Next, the participants identified that they chose answers that felt more intuitive when given options of gestures.</li><li>● <b>Evaluation and memorability-</b> In the technical evaluation, training and replicating a gesture may aid participants in determining which gesture is more intuitive without being influenced by ease of performance. Next, gestures that are intuitive are chosen over an easier to perform and better answer to certain commands.</li><li>● They considered it to be a positive feedback for both the right size of the vocabulary set and intuitiveness of proposed referents.</li><li>● Implementation of the gesture is important although to suit the participation suggestion, but the characteristic.</li><li>● A future development of Microsoft Kinect may help to reduce the errors in the developed gesture recognition engines and design an acceptable engagement mechanism.</li></ul>		
<b>FUTURE RECOMMENDATION/GAP</b>	<b>R E M A R K S</b>	<b>Helpful for deciding gestures needed</b>
They are planning to build a gesture-enabled system based on the proposed gesture vocabulary and further study the impacts from culture difference towards gesture preference.		