MULTI-TAP MOBILE PHONE TEXT ENTRY: KEY-PRESS OPERATORS FOR KEYSTROKE LEVEL MODEL

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ABSTRACT

The Keystroke Level Model (KLM) has been utilized to predict the user behaviors and activities with desktop system. Recently, the mobile device application designers could use updated KLM model to predict the consumed time while users use mobile devices, but when designers use this method to evaluate the text entry they still face some difficulties with the calculation of long equations, due to multi-tap technology. This study proposes new KLM operators to facilitate the time calculation process for text entry using traditional mobile keypad. Updated KLM operators are used to predict the user behavior in interacting with mobile devices in general and text entry in specific. The expected results contribute in estimating the consumed time accurately.

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Finally, I would like to dedicate this work to the memory of my father.

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LIST OF ABBREVIATIONS

CCT	Cognitive Complexity Theory
CLDC	Connected Limited Device Configuration
CMN-GOMS	Card, Moran and Newell GOMS
CPM-GOMS	Cognitive Perceptual Model - GOMS
F	Finger Movement Operator
GOMS	Goals Operators Methods Selection
HCI	Human Computer Interaction
J2ME	Java Two Micro Edition
K	Keystroke Operator
K_i	Multi-tap Keystroke Operators
KLM	Keystroke Level Model
M	Mental Act Operator
MIDP	Mobile Information Device Profile
NGOMSL	Natural GOMS Language
OP	Operator
PC	Personal Computer
PDA	Personal Digital Assistants
UML	Unified Modelling Language
USB	Universal Serial Bus
UUM	University Utara Malaysia
V_i	Values of K_i
X	Distraction Operator

CHAPTER 1

INTRODUCTION

1.1. INTRODUCTION

The revolution of mobile technology recently has become out of our expectation, with great new designs and new model, but actually these new generations pose some difficulties. Users have to learn how to use the new version of mobile services. In fact, it is important to take in mind user learn ability and the usability of the new mobile product.

Human-computer interaction (HCI) is a discipline that is concerned with the design, evaluation and implementation of interactive computing systems for human use and the phenomena surrounding them according to (Cooper *et al.*, 2007). The Keystroke-Level Model (KLM) one of HCI topics is a simplified version of Goals Operators Methods Selection (GOMS) used as a method for predicting user performance (Hochstein, 2002).

Interaction with mobile phone device is totally different from interacting with traditional desktop computer. The evaluation method that depends on the original KLM-GOMS (which is used with desktop computer) is not efficient to measure the time needed for completing any task with mobile phone device. So, this model needs suitable customization, this helps the designers in estimating the

The contents of the thesis is for internal user only

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