

The Influence of Perceived Usefulness, Perceived Ease of Use, Interactivity, and Ease of Navigation on Satisfaction in Mobile Application

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Abstract. This study is to explore the effects of perceived usefulness, perceived ease of use, ease of navigation, and interactivity, on the satisfaction in mobile application. To accomplish this research, we expanded upon the Technology Acceptance Model and proposed research hypotheses. Total of 275 people were surveyed as sample and for analysis, structural equation model was used. The major findings and their implications are summarized as below. First, perceived usefulness, interactivity and perceived ease of use influenced consumer satisfaction positively. Second, consumer satisfaction influenced continuous usage intention of mobile app positively. The findings of this study could help to understand consumer behavior for improving mobile application services in the mobile age.

Keywords: perceived usefulness, perceived ease of use, interactivity, ease of navigation, mobile application

1 Introduction

As the numbers of smartphone users are rapidly increased and various new services are presented by the mobile, consumer's demand for mobile service usability increased. Consumers who are familiar with using mobile are interested in selecting the mobile application for seeking information. Specially, government has to provide convenient service to consumer who using their mobile applications. Davis has showed affecting factors which are the perceived ease of use and perceived usefulness for encouraging usage of new technical service in his technology acceptance model [1]. Interactivity between consumers and mobile service provider is important for communicating using mobile application, and ease of navigation need for interaction between consumer and space of mobile application.

The objective of this study is to explore the effects of perceived usefulness, perceived ease of use, interactivity, and ease of navigation on the satisfaction in mobile application

2 Literature Review and Research Hypotheses

Because the purpose of technology acceptance model is to figure out how the psychology of consumer affect evaluation of consumer using new technology like mobile application, the core variables considered of the model are the perceived usefulness and ease of use [1]. The term perceived usefulness is interpreted as the belief to high performance by using system, and the term perceived ease of use is interpreted the level of freedom in using new technology. Consumers obtain more usefulness in forms easy to use or in environments convenient for functioning of mobile application [2][3]. Also, perceived usefulness and ease of use affects the evaluation of them. Thus, hypotheses as below are created.

- H1: The greater perceived usefulness, the greater satisfaction.
- H2: The greater perceived ease of use, the greater satisfaction.

Interactivity is another important variables for evaluating satisfaction of mobile application. High level of interactivity indicates that consumer want communicate more with the mobile application. Navigation is the most common interaction between consumer and space of mobile application. If ease of navigation by artificial method provide for the consumer, they show high satisfaction [4]. Thus, hypotheses as below are created.

- H3: The greater interactivity, the greater satisfaction.
- H4: The greater ease of navigation, the greater satisfaction

Also, there are numbers of researches that found that there is positive relationship between satisfaction and continuous usage intention after evaluating decision making [5]. Consumer satisfaction precedes consumer's continuous usage intention. Thus, hypothesis as below is created.

- H5: The greater satisfaction, the greater continuous usage intention.

3 Sampling and Measures

Since the purpose of this study, we surveyed in consumer who have been used mobile application. We also selected 32 Korean government's applications in mobile.

The research sample has a total of 275 observations. By gender, the share of male is 58.5% and female is 41.5%. By age, the shares of 30 to 39, 40 to 49 and 50 to 59 are 34.5%, 25.5% and 35.6%, respectively (see Table 1).

The variables used in this study are perceived usefulness, perceived ease of use, ease of navigation, and interactivity. The definitions of the variables follow those in the literature. In detail, perceived usefulness and perceived ease of use were adopted from [6][7], interactivity from [8], and ease of navigation from [9]. This research measured with 5 point Likert scale for all variables.

Table 1. Sample characteristics

Age	Under 30	30-39 (%)	40-49 (%)	50-59 (%)	Total
Male	9	52	45	55	161
(%)	(3.3)	(18.9)	(16.4)	(20.0)	(58.5)
Female	3	43	25	43	114
(%)	(1.1)	(15.6)	(9.1)	(15.6)	(41.5)
Total	12	95	70	98	275
	(4.4)	(34.5)	(25.5)	(35.6)	(100)

4 Results

The result of factor analysis is presented in Table 2. Most of variables were classified by reasonably. But unlike previous studies, satisfaction and continuance intention were same factor in this analysis. So we conducted a second step of factor analysis on these variables.

Table 2. Results of factor analysis

Variables	PU	IN	EU	EN	SA
perceived usefulness(PU1)	76	-10	18	13	33
perceived usefulness(PU2)	77	29	23	14	7
Interactivity(IN1)	14	77	7	5	34
Interactivity(IN2)	2	85	17	16	12
perceived ease of use(EU1)	15	2	76	13	31
perceived ease of use(EU2)	17	13	79	20	24
perceived ease of use(EU3)	17	18	78	21	19
ease of navigation(EN1)	10	11	15	82	24
ease of navigation(EN2)	15	11	26	81	16
satisfaction(SA1)	24	27	38	4	63

satisfaction(SA2)	14	27	40	15	67
continuous usage intention(CU1)	7	16	16	33	72
continuous usage intention(CU2)	23	16	24	21	79
variables	SA		CU		
satisfaction(SA1)	92		19		
satisfaction(SA2)	78		42		
continuous usage intention(CU1)	21		94		
continuous usage intention(CU2)	57		68		

In the analysis, the model fit indexes GFI(.953), AGFI(.913), NFI(.941) and CFI(.971) are above 0.9. At the same time, RMR is below 0.05. Overall, the fitness of the model is relatively high. The hypothesis test results are described in Table 3.

In the results of analyzing app behavior, perceived usefulness, interactivity and perceived ease of use influenced consumer satisfaction positively (H1, H2, H3 supported). Also consumer satisfaction influenced continuous usage intention of mobile app positively (H5 supported).

Table 3. Results

Hypotheses	Path coefficients	t-value
H1 perceived usefulness → satisfaction	0.362	3.1**
H2 perceived ease of use → satisfaction	0.329	4.7**
H3 interactivity → satisfaction	0.337	4.2***
H4 ease of navigation → satisfaction	0.139	1.8
H5 satisfaction → continuous usage intention	0.822	9.8***

*p<.05, **p<.01, ***p<.001

We examined the effects of consumer's perceived attitudes on the satisfaction in mobile application. The findings of this study could help to understand consumer behavior for improving mobile application services in the age of mobile.

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