ISSN (Print): 0974-6846 ISSN (Online): 0974-5645

A Study on the Effect of Mobile Shopping Applications Features Following by Applications Preference - Mediating Effect of Price Sensitivity

Yim Ki-heung*

Department of Silver Care, Kwangju Women's University, Gwangju City, Republic of Korea; Khyim15@hanmail.net

Abstract

Recently, in order to promote their marketing strategy, the entrepreneur attaches great importance to many shopping applications services and makes use of them. The major components of shopping applications are interactivity, information offering and convenience of use. This study verified the effects of interactivity, information supply, convenience of use, the application characteristics, preferences for applications preferences and repurchases intentions, the moderating effects of price sensitivity and usage frequency. The result shows that the shopping applications characteristics affect preference for the shopping applications. In terms of price sensitivity, the group with higher price sensitivity showed more significant results in terms of interactivity and usage convenience and in terms of the information supplying effects on the application preference, the group with higher price sensitivity showed more significant results than the group with lower price sensitivity.

Keywords: Application Preference, Convenience of Use, Information Offering, Interactivity, Price Sensitivity

1. Introduction

Rapid growth and spread of the internet brought a huge change in everyday using internet. The results for the major characteristics of E-commerce which forms the basis of current M-commerce are mainly the safety of trading, site design, quality of information, reputation, trust, convenience, interaction, profits from the usage of customer's database, good product and service, ease of access to the site, cost saving. Also, In E-commerce, revealing the fact that costumer's preference is important and obtaining the user preference can have positive effect on purchase intent. Obtaining information from online have advantages of collecting them quickly and easily regardless of time and place and can reduce the cost occurred from search process.

In fact, identifying the factors associated with preference of applications from user's experience is

theoretically meaningful and can also help find the strategy that can be induced in a positive direction in the development of real marketing strategies. In a previous study, it is shown that the characteristic of shopping applications affects the preference and this preference can have positive impact on the intent of purchase. In this paper, we conducted a study focusing on the effect of the adjustment identified as the most important cause of price sensitivity in online shopping. When customer purchases a product, they evaluate by price, quality, brand, service, shops. This is a significant influence factor for the purchase price of the product and shows that the consumer awareness is an important influence factor to the store and brand choice. Price is regarded as important factor in online. Also, studying important factors of using applications from consumer will provide strategy that will activate domestic applications and information that company related to applications can use.

^{*} Author for correspondence

2. Purpose of Research

Base on the development of E-commerce, many companies use a mobile shopping applications to advertise and sell their product but still there are insufficient empirical studies on purchase through applications. Actually, identifying factor related with applications preference arose from users of mobile applications is theoretically meaningful and can find the strategy that will positively affect consumer on the development of M-commerce marketing. Also, considering the main factor in the usage of applications from users, we provide information that can be used in mobile applications related to corporate strategy and strategic plan for the domestic applications market activation.

In this study, based on previous studies, results of the major factors that can be controlled by enterprises are largely the safety of trading, site design, quality of information, reputation, trust, convenience, interaction. Based on the ground of previous studies, we like to set the main variable as interaction, providing information and convenience of usage and know the effect of applications preference. By setting a control variable that affects the buying behavior of the consumer price sensitivity in the online environment, we also like to know the effect that applications characteristics can have on the preference.

3. Theoretical Background

3.1 Characteristics of Social Networking Sites (SNS)

3.1.1 Interactivity

In this studies, related to interactivity and the preference of applications, Kim, So Young, Joo, Young Hyuck¹, researched the relationship between perceived interactivity and the royalty of website, they found out that perceived interactivity affect duration time and frequency of visit. In Jacoby, Jacob², interactivity can increase consumer involvement and is related with free information search. When involvement is high, there is a decrease in free information search compared to paid search. Interactivity increases the joy of internet shopping, thus leading to decrease the importance of price relatively. Website message's interactivity shows the result a decrease of consumer's price satisfaction. According to a research from Urban, Glen L., Bruce D.³, when a message from shopping mall is interactive, the cost

of searching information about price and non-price can become cheaper and interactivity can promote consumer on testing non-price proprieties than price proprieties. In this study, therefore, we like to review the implications empirically of how mobile application's interactivity can have on the preference of applications and how frequency of usage and sensitivity of price can affect the preference and interactivity of applications.

3.1.2 Information Offering

Smith and Swinyard⁴ asserted that when there is an increase in consumption experience, consumer gather more information about service. Based on this accumulated information, they evaluate the service. According to a study from Dover and Olson⁵, due to the repetition of consumption experience, consumer can gather more information so that they can evaluate their satisfaction easily. If company provides high quality information, consumer can evaluate products more clearly which will increase the efficiency of trade and trust of the company. Also, Evans & Wurster⁶ argued that brand community provides exploration of information you want and various important information thus making consumer to gather actively information and leading online companies to reduce the cost and provide customized information. Based on the previous study, providing information can have an effect on preference in online shopping. Therefore, we like to study adjustment effect of the price sensitivity when mobile application characteristics affect the preference of shopping applications.

3.1.3 Convenience of Use

Convenience of use is described as a major factor that increases the convenience experienced by consumerand makes it more efficient to use the product, thereby contributing to the formation of brand loyalty. It's been said that convenience or ease of usage is defined as the degree to which it is easy to use the product or application and find quickly the information needed. Since various services are provided online, the more services are offered, the more consumers need to be able to navigate easily and use them. It is argued that this is why convenience of use has taken on even more importance than before. If convenience of use is applied to e-commerce, the convenience of use when the web is used for information acquisition affects the acceptance of the given website. When websites are used for purchases, the convenience

of use does not affect the acceptance, according to this study8. Such as, based on preceding studies, this study concluded that the use of convenience among the various characteristics of mobile applications would affect the preference for certain shopping applications and sought to conduct research on the effects of price sensitivity in this context.

3.2 Preference

Preference within the context of online shopping malls refers to revisit intention to the site, increasing visits, intention to recommend the site to others and brand preference9. When such habitual purchasing by the consumer leads to continuous purchases during a certain period of time, then it can be said that a preference for the site has been formed¹⁰. Therefore, consumer with a high preference for online shopping malls repurchase through the same site8, spreads positive messages about the site to other consumer¹¹. Consumer with a high preference for online shopping malls aren't simply looking for products at a low price, but tend to purchase products even if the price is high and also tend to recommend their favorite sites to other consumer who can later become a new source of revenue for the shopping site. Therefore, those who repeat-purchase tends to purchase more than new consumer, and from the site's point of view, they are able to maintain and manage consumer with a strong preference for their site at a low cost. Therefore, this study sought to investigate the controlling influence of price sensitivity when the features of mobile applications affect the preference for the application.

3.3 Price Sensitivity

According to a research by Alba, Joseph, John Lynch, Bart Weitz, Chris Janiszewski¹² on price, if important information on the product quality is offered to the consumer who valuessuch information, then their price sensitivity is decreased. That is, by providing the information that consumer wanted, price sensitivity could be lowered. Online media can lower price sensitivity by helping consumer products that fit best their needs. Lynch & Ariely¹³ discovered that price and quality were offered together, price sensitivity went down further than being presenting only price. Such results show that price sensitivity is not high because of an online environment but because of information that helps consumer evaluation quality is often insufficient. Moreover, in an

online environment, the cost for information search is low but it was argued that price sensitivity changed as depending on the situation¹³. Based on these results, we can conclude that price sensitivity is not high just because of an online shopping environment. In order to investigate the controlling effects of price sensitivity when the application features affect the preference for the shopping applications, and how such features affect the preference for a given shopping mall, this study was structured using two groups - one with high price sensitivity and one with low price sensitivity. By doing so, the study intended to investigate empirically the relation between price sensitivity and preference in online shopping mall.

4. Research Model and **Hypothesis**

4.1 Research Model

This study intends to identify the effect that features of a company's shopping applications has on the preference for the application and also identify the controlling effects in accordance with price sensitivity. Based on preceding studies, the model was set as seen in Figure 1.

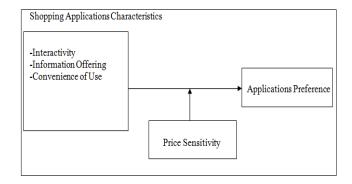


Figure 1. Research model.

4.2 Setting the Hypothesis

4.2.1 Hypothesis on Features of Shopping Applications and the Preference for Shopping **Applications**

One of the studies on interaction and applications preference was done by Kim, So Young, Joo, Young Hyuck¹ which addressed the relation between perceived interaction and loyalty to a given website. Perceived interaction showed to have significant effect on the loyalty for a website such as the frequency of the visit. If there are frequent interactions among members and

if they can mutually benefit through such interaction, then the customers' preference and loyalty for the site will also increase. Lewis¹⁴ in his study presented that when corporations present valuable information of high quality and not simply just any information, then confidence on the information and services is formed. Moreover, he pointed out that if tailored information is presented then consumers are more likely to form a stronger preference. In general, the more experience consumer have the more knowledge they accumulate and based on this information can make a judgment about services¹⁵.

Hypothesis 1-1: Of the features of shopping applications, interactivity will have a positive effect on the preference for a given shopping applications.

Hypothesis 1-2: Of the features of shopping applications, the information available will have a positive effect on the preference for a given shopping applications.

Hypothesis 1-3: Of the features of shopping applications, the use of convenience will have a positive effect on the preference for a given shopping applications.

4.2.2 Hypothesis on the Controlling Effects of Price Sensitivity

It has been shown that interactivity can increase the joy that one derives from internet shopping and thus reduce the importance of price16, and the interactivity of website messages can reduce price sensitivity¹⁷. Marmorstein, Howard, Dhruv Grewal and Raymond P. H. Fishe¹⁶ argued that interactivity offers the purchaser more control as he seeks to increase the joy of shopping ,and the benefit of information search which, in turn, that this reduces the importance of price. It was also discovered that providing both price and quality together reduced price sensitivity further than when only price was presented. Product information, compared to price information reduced the cost of non-price information and thus lowered price sensitivity¹⁷, and the easier it was to access price information, the more motivation there was for price searches. This indicates that information that allows the evaluation of quality is limited, and therefore there is increased quality risk. As a result, consumers show a similar tendency to valuing price that is valuing information that can be easily found in order to reduce such uncertainty.

Hypothesis 2-1: When price sensitivity is high, interactivity will have a more positive effect on the preference for shopping applications.

Hypothesis 2-2: When price sensitivity is low, information provided will have a more positive effect on the preference for shopping applications.

Hypothesis 2-3: When price sensitivity is high, the convenience and ease of usage will have a more positive influence on the preference for shopping applications.

5. Study Method and Empirical Analysis

5.1 Data Collection and Sampling

For the study, 400 copies of a questionnaire that had been distributed to consumer who had experience in mobile shopping were collected. Of those, 18 copies with insufficient responses were excluded and the remaining 382 copies were used for the study. The demographics of the respondents were as follows: Out of the total of 364 respondents, there were 150 males (39.27%) and 232 females (60.73%). Those in their 20s counted 124 people (32.46%), followed by those in their 30s at 162 people (42.41%), those in their 40s at 89 people (23.30%) and those in their 50s at 7 people(1.83%). In terms of educational background, 45 of them were high school graduates (11.78%), 98 were in university (25.65%), 190 were university graduates (49.74%), and 49 of them had a degree of graduate school or higher (12.83%). In terms of occupation, 132 were salaried employees (34.55%) which accounted for the largest share, followed by students in undergraduate or graduate courses at 122 people (31.94%), professionals/technical jobs at 75 people(19.63%), housewives at 37 people(9.69%), and others at 16 people (4.19%).

5.2 The Legitimacy of the Composed Concept and Verification of Reliability

The confirmation factor analysis for the entire model used in this study was as shown in Table 1, with most of the legitimacy criteria being met (chi-square/df=624.156/420, GFI=.923, AGFI=.978, NFI=.832, TLI=.945, CFI=.905, RMSEA=.061). Therefore, the overall model was judged to be fit for a sample data set. In order to verify the concentrated legitimacy of the composed concept, the Average Variance Extracted (AVE) was calculated. The variance extraction coefficient was 0.5 or higher indicating concentrated legitimacy and therefore the suggested model was deemed appropriate for the sample data set.

Table 1. Confirmatory factor analysis

| Division | Item | C.R | Community | Cronbach's a | AVE |
|----------------------|---------|-------|-----------|--------------|-------|
| interactivity | inter1 | 1.000 | .804 | 0.747 | 0.502 |
| | inter2 | .928 | .558 | | |
| | inter3 | .995 | .703 | | |
| | inter4 | .857 | .489 | | |
| | inter5 | .841 | .534 | | |
| information offering | infor1 | 1.000 | .425 | 0.812 | 0.521 |
| | infor2 | .954 | .545 | | |
| | infor3 | .914 | .680 | | |
| | infor4 | .906 | .659 | | |
| | infor5 | .859 | .670 | | |
| convenience of use | conven1 | 1.000 | .730 | 0.716 | 0.508 |
| | conven2 | 1.033 | .760 | | |
| | conven3 | .803 | .803 | | |
| | conven4 | 1.120 | .669 | | |
| preference | prefer1 | 1.000 | .524 | 0.914 | 0.614 |
| | prefer2 | 1.124 | .787 | | |
| | prefer3 | 1.355 | .582 | | |
| | prefer4 | 1.198 | .638 | | |
| | prefer5 | 1.186 | .657 | | |
| price sensitivity | price1 | 1.000 | .644 | 0.853 | 0.598 |
| | price2 | .975 | .758 | | |
| | price3 | .968 | .819 | | |
| | price4 | .975 | .713 | | |

chi-square/df=624.156/420, GFI=.923, AGFI=.978, NFI=.832, TLI=.945, CFI=.905, RMSEA=.061

5.3 Verification of the Hypotheses

In order to verify the hypotheses of this paper, a structural equation modeling was used and a path analysis was conducted on the relation between components (Figure 2). The suitability index for the research model was chisquare/df = 624.156/420, GFI = .952, AGFI = .935, NFI = .854, TLI=.854, CFI = .951 and RMSEA = .062, indicating that the study model is appropriate for the standard data set. The application features were designed into a structural equation model in three dimensions, after which it was verified (chi-square/df = 624.156/420, GFI = .952, AGFI = .935, NFI = .854, TLI = .854, CFI = .951, RMSEA = .062). Application features appeared to have a significant effect on the preference for the application and customers' intention to repeat purchase, but the effect of each variable on the preference and intention to repeat purchase was further investigated. Of interactivity, provision of information and convenience of use which

are features of applications, interactivity (p = .000, S.E = .496 C.R = 4.658), provision of information (p = .000, S.E = .551 C.R = 5.080), and convenience of use (p = .000, S.E = .474 C.R = 4.069) all appeared to have a significant influence on the choice of the application.

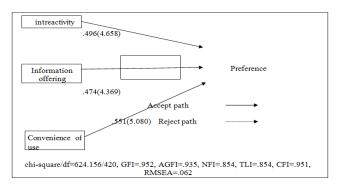


Figure 2. AMOS results.

5.3.1 Verification of the Controlling Effect of Price Sensitivity using χ^2 Difference Verification

In order to analyze the controlling effects of interactivity and preference for applications, a χ^2 difference verification $(\Delta \chi^2 = 3.84 \text{ or more})$ was conducted. First, the path coefficient that shows a causal correlation was set as free(free model), and the changes in χ^2 where the path coefficient value of the two composition concepts are the same in the control model were observed. The relation between interactivity and applications preference showed $\Delta \chi^2$ value to be 5.248, indicating a significant difference between the two models. Next, the difference in how much χ^2 had changed for the provision of information and applications preference verified that $\Delta \chi^2$ value was 5.935, indicating a significant difference in the path coefficient value in Table 2. Lastly, the difference in the changes of χ^2 between convenience of use and applications preference verified that the $\Delta \chi^2$ value was 4.249, indicating a significant difference.

Table 2. Confirmatory factor analysis

| model | χ² | df | CFI | RMSEA | $\Delta \chi^2$ | p-value |
|--|---------|---------|------|-------|-----------------|---------|
| Free model | 624.156 | 624.156 | 420 | .061 | - | .000 |
| constraint model in- | 629.404 | 421 | .837 | .050 | 5.248 | .000 |
| teractivity → preference constraint model | 630.091 | 421 | .814 | .057 | 5.935 | .000 |
| information → preference) constraint model convenience | 628.405 | 421 | .876 | .052 | 4.249 | .000 |
| → preference) | | | | | | |

5.3.2 Metric Invariance between Groups for Price Sensitivity

In order to verify the controlling effects of price sensitivity, the mean value for observed variables in consumer (3.57) was used to distinguish a group that was higher than the mean (high price sensitivity) and a group that was lower than the mean (low price sensitivity). There were 195 people in the high group and 187 in the low group that were used to verify the hypothesis. Between the two groups of price sensitivity, the difference in x^2 was not

statistically significant (x^2/d (8) =11.756, p>.193), and it was supported that the two groups are not the same and the Full Metric Invariance model holds. Therefore, through the verification of Metric Invariance, the difference in x^2 between the two groups appeared not to be significant and therefore a comparison of the path coefficient is possible.

Table 3. Metric invariance between groups for price sensitivity

| Model | χ^2 | df | CFI | NFI | RMSEA |
|-------------------------|----------|-----|-------|-------|-------|
| Non-Restricted Model | 656.653 | 245 | 0.847 | 0.918 | 0.058 |
| Full-MetricInvariance | 668.409 | 246 | 0.945 | 0.926 | 0.063 |

5.3.3 Path Analysis in Accordance with the Level of Price Sensitivity

In order to categorize consumer according to their price sensitivity, the mean of the observed variables (3.57) was used as a reference point to divide the subjects into a group showing high price sensitivity and a group showing low price sensitivity. The model suitability verification shows that the high group (chi-square/df= 624.156/420, GFI= .912, AGFI= .875, NFI= .853, CFI= .846, RMSEA= .067) and low group (chi-square/df= 624.156/420, GFI= .835, AGFI= .817, NFI= .842, CFI= .816, RMSEA= .062) were appropriate for the model. When the path coefficient of the two groups are compared, the group with high price sensitivity saw that interactivity (p=.000, S.E=.324 C.R=2.981), provision of information (p=.000, S.E=.405 C.R=3.458), and convenience of use (p=.000, S.E=.312 C.R=2.842) had an effect on the preference for the application. However, in the group with low price sensitivity, interactivity (p=.000, S.E=.354 C.R=3.245) and convenience of use (p=.000, S.E=.375 C.R=4.309) had an effect on preference while the provision of information (p=.000, S.E=.053 C.R=0.047) did not. The results are shown in Figure 3 and Figure 4.

Based on these findings, price sensitivity suggests the following. Consumers that are highly price-sensitive make efforts to find lower prices and values communication between consumers during this research. Consumers that are not as price sensitive do not care much about price, nor are they affected by information. For them, use of convenience is a more important factor to be considered.

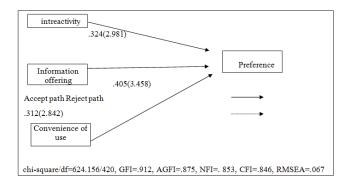


Figure 3. Price sensitivity high AMOS results.

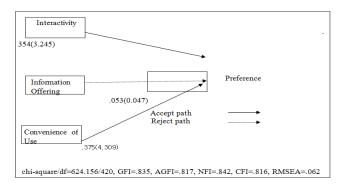


Figure 4. Price sensitivity low AMOS results.

6. Conclusion

6.1 Summary of the Study Findings and Implications

This paper verified the effects that a mobile shopping application's feature has on the preference for the site and price sensitivity. The findings are as follows.

First, interactivity, provision of information and convenience of use affects preference. Since these features of applications form a preference for the application, corporations need to promote more interactivity, provision of information and convenience of use in their mobile applications to bring more preference by consumer. Based on such preference, these consumers can then be turned into loyal customers. In order to promote interactivity, features that allow communication or comments between users should be promoted; product information should be specific and based on facts. To make it easier to use the application, product layout should be optimized and errors on the application should be minimized.

Second, consumers with high price sensitivity make an effort to look for lower prices and therefore value communication with other consumer during this process. In particular, highly price-sensitive consumer spare no effort in their hunt for a bargain and therefore value services that offer more convenient searches or better screen layouts. Corporations need to improve the layout and search functions, while making a virtual space for consumer to share their opinions or comment in order to increase interactivity and in turn, promote website preference.

Lastly, consumers with low price sensitivity do not care much about price and tend to purchase products or brands that they like. These consumers value their own taste and opinion and therefore corporations need to place more emphasis on the curating of products rather than emphasize their prices. Since not all of the products on shopping applications would be drawing such consumer' attention, if a handful of products are offered through the application exclusively, then consumers with low price sensitivity are likely to take interest, too.

6.2 Limits to the Study and Follow-up

The study is limited in the following ways and therefore a follow-up is suggested follows

First, in identifying the preference for shopping applications, this study looked at the three dimensions of interactivity, provision of information and convenience of use. However, there are many other variables that may affect preference for applications. Since products are purchased in a virtual environment, various aspects and factors that may affect preference for certain applications will have to be taken into account in the future.

Second, in this study, in order to verify the controlling effects of shopping applications' features and preference for applications, frequency of use and price sensitivity were used as control variables. However, besides price sensitivity, reliability, reputation, consumer's involvement and loyalty are some examples of factors that may also affect preference. Verification on such variables will offer a helpful guidance on identifying the preference for shopping applications.

Lastly, there is a need for preceding variables that can activate interactivity, provision of information and convenience of use. There exist such preceding variables, and as such if studies were to be conducted on such preceding variables, factors that can promote shopping applications can be identified to offer more beneficial strategy and implications for those in the business world.

7. References

- 1. Kim S-Y, Joo Y-H. Perceived interactivity and web site loyalty; On the role of flow as a mediating variable. Journal of Consumer Studies. 2001; 12(4):185–208.
- 2. Jacoby J. A model of multi-brand loyalty. Journal of Advertising Research. 1971; 11(3):25–31.
- 3. Urban GL, Weinberg BD, Hauser JR. Premarket forecasting of really new products. Journal of Marketing. 1996; 60(1):47–60.
- 4. Smith RE, Swinyard WR. Attitude-behavior consistency: The impact of product trial versus advertising. Journal of Marketing Research. 1993; 20(8):257–67.
- Dover PA, Olson JC. Disconfirmation of consumer expectations through trial. Journal of Applied Psychology. 1997; 64(2):179–89.
- Evans P, Wurster TS. Blown to bits: How the new economics of information transforms strategy. Harvard Business School Press; 1999.
- 7. Griffin J. The internet's expanding role in building customer loyalty. Direct Marketing Garden City. 1996; 59(7):50–3.
- 8. Alba J, Lynch J, Weitz B, Janiszewski C, Lutz R, Sawyer A, Wood S. Interactive home shopping: consumer, retailer and manufacturer incentives to participate in electronic marketplace. Journal of Marketing. 1997; 61(3):38–53.
- Hoffman DL, Novak TP. Marketing in hypermedia computer-mediated environments: Conceptual foundations. Journal of Marketing. 1996; 60:50–68.

- 10. Kim J-H, Shin Y-S. The effects of flow and typicality on consumer stickiness and loyalty in the internet shopping mall. Asia Marketing Journal. 2004; 6(1):17–42.
- 11. Soo KM, Hyeon AJ, Seop LY. Determinants of customer loyalty on the portal sites. Asia Pacific Journal of Information Systems. 2003;13(1):171–95.
- 12. Alba J, Lynch J, Weitz B, Janiszewski C, Lutz R, Sawyer A, Wood S. Interactive home shopping: Consumer, retailer and manufacturer incentives to participate in electronic market place. Journal of Marketing. 1997; 61(3):38–53.
- 13. Lynch JG, Ariely D. Wine online: Search cost and competition on price, quality and distribution. Marketing Science. Forthcoming 2000.
- 14. Lewis LK. Disseminating information and soliciting input during planned organizational change: Implementers' targets, sources and channels for communicating. Management Communication Quarterly. 1999; 13:43–75.
- 15. Smith RE, Swinyard WR. Attitude-behavior consistency: The impact of product trial versus advertising. Journal of Marketing Research. 1993; 20(8):257–67.
- 16. Marmorstein H, Grewal D, Fishe RPH. The value if time spent in price-comparison shopping: Survey and experimental evidence. Journal of Consumer Research. 1992; 52–61.
- 17. Shankar V, Rangaswamy A, Pusateri M. Customer price sensitivity and the online medium, Working Paper; 1999.