An Empirical Study on the Smartphone Consumer Choice Factors - Comparison of Korea and Chinese Consumers

I. L. Choi Seung¹ and I. L. Kim Dong²*

¹Department of International Trade, Changwon National University, Changwon - 641-773, South Korea; csi0305@naver.com
²Department of Business Administration, Pusan National University, Pusan - 609-735, South Korea; kdi50@pusan.ac.kr

Abstract

Recently, Korea and China smartphone users are going to increase dramatically. According to the Korea Telecommunications Industry of smart phone subscribers are 10 million people in March 2011, followed by breakthrough the 30 million people in August 2012, 10 months. Especially, Consumption patterns of Chinese and Korean progressing rapidly using a smartphone but also is being offered a good opportunity in the enterprise. In this study, the foundation focus on the choice factors by comparing attributes of the difference the consumer smart phone recognition between South Korea and China. Finally, analyze the global management strategies of smartphone manufacturers, as well as further smartphone user environments. The results of this study can be summarized as follows. First, according to the Korea Consumer choice and smartphone of Chinese consumers are showing a difference. In Korea, the consumer design, size, ease of display, epidemic, for consumer applications, while China appears to affect performance factors, sizes, key-operated convenience, price, after-sales service, brand awareness, application factors were affected.

Keywords: Brand Awareness, Consumer, Convenience, Critical Factor, Smartphone

1. Introduction

Recently in Korea, smartphone users have increased rapidly. According to the telecommunication industry, the number of users that signed up for smartphones has surpassed 40.8 million on January 2015. Broad Wi-Fi coverages, diverse consumer contents, attractive smartphone units, and the competitive nature of Korean users are possible reasons for the rapid increase¹⁰. On the other hand, the development of the related technologies also is accelerating the increase of smartphone users. Hence, it is predicted that this increase would continue for the time being. As people adapt to the current information age, roles and values of smartphones would be extended. Our daily lives would be more and more affected by smartphones. Smartphones are not only for calling someone; smartphones are like handheld personal computers. Thus smartphones are now valued as devices to obtain information.

Hyeyang Jo⁵ stated that smartphone users, through quality information they obtain using devices, become more satisfied with their smartphone experiences. The changes brought by smartphone usages are affected by the world's largest market, China. The consumption patterns in China are quickly progressing and currently Chinese consumers' smartphone usages are providing opportunities to companies. This paper would analyze differences in Chinese and Korean consumers by comparing the factors that affect their smartphone purchases; thus providing smartphone companies basic for making global strategies in selling smartphones.
2. Study Background

Many smartphone related papers have conducted researches in Technology Acceptance Model (TAM Model) perspective. TAM Model is based on the Theory of Reasoned Actions (TRA). TAM Model analyzes functions, perceptive responses, emotional responses, and behavioral responses and how factors affect each other in a computer based system; ultimately explaining technology usages and acceptance levels. TAM Model specially defines perceived usefulness and perceived ease of use, both of which are belief factors, as the core factors that influence usage behaviors of technologies\textsuperscript{1,4}. Chen et al.\textsuperscript{2}, carried out an analysis on the shipping industry to research how smartphones are becoming widespread and accepted. Chen's research pointed out that smartphones' usefulness and ease of use have positive influences on attitudes. Attitudes and usefulness, in turn, have positive influences on inducting behaviors\textsuperscript{2}. Nam Ho Jung, Gun Chang Lee conducted a research on reasons for continued smartphone usages targeting truck drivers of the shipping industry.

Jung and Lee first considered the characteristics of truck drivers' works as pre-determining factors of usefulness and ease of use. Defining the connectivity and the situation perceiving functions came afterwards. According to the research, both the connectivity and the situation perceiving functions turned out to have influences on the belief factors\textsuperscript{2}. Jun Gu Jung, Ji Jin Jang\textsuperscript{5} examined how belief factors, such as usefulness and ease of use, and outside factors, such as social perceptions and distinguished contents, affect each other. In addition, usefulness and ease of use have been considered as important factors in some researches\textsuperscript{8,9}. As mentioned, now researches concerning smartphones are conducted continuously. However most of researches cover consumers' attitudes and selection factors in a specific country. Thus this paper, as mentioned in the introduction, compares and researches selection factors of Chinese consumers and Korean consumers with the hypothesis below.

The hypothesis: In terms of selection factors, Chinese consumers and Korean consumers will differ.

3. Research Analysis and Results

3.1 The Survey Set Up

For the comparisons, smartphone users were targets; Korean consumers and Chinese consumers residing in Korea. The survey was conducted from 2014/11/10 to 2014/12/20. First, in the case of Korean consumers, total 120 questionnaires were distributed and 114 questionnaires were returned. 5 of 114 returned questionnaires were deemed to be unsuitable for this research and the remaining 109 questionnaires were used. In the case of Chinese consumers, the survey was conducted targeting Chinese consumers residing in Korea. Total 80 questionnaires were distributed and 75 questionnaires were returned. Excluding 7 questionnaires that were unsuitable, total 68 questionnaires were used for this research. This paper for the hypothesis testing has used a number of analysis methods.

Firstly, for the basic specialty of the samples, a basic statistical analysis was performed. Secondly, Cronbach's a constant was used to keep the internal consistencies between the samples examining the confidence levels. In the third place, for the validity of the research, explanatory factor analysis was performed. Finally, to keep the relationships and statistical significances between the independent and dependent variables clear and straight, multiple regression analysis was used. For the analysis mentioned above, SPSS 18.0 was used.

3.2 The Basis Analysis

The basic analysis of the responders is as Table 1. As can be seen in Table 1 in the case of the Korean consumers, the male percentage is 53.2% and the female percentage is 46.2%. In terms of age, teens take up 3.7%, 20s take up the highest 79.2%, 30s take up 9.2%, and 40s or above take up 7.3%. In terms of education levels, enrolled in college is the highest 79.2%, 30s take up 9.2%, and 40s or above take up 7.3%. In terms of education levels, enrolled in college is the highest 79.2%, 30s take up 9.2%, and 40s or above take up 7.3%. In terms of jobs, student is the highest 46.2%. In terms of age, teens take up 3.7%, 20s take up 76.5%, 30s take up 11.8%, and 40s or above take up 8.8%. In terms of education levels, enrolled in college is the highest 44.1%. In terms of jobs, student is the highest with 58.8%.

3.3 The Hypothesis Testing

3.3.1 The Confidence and Validity Analysis

This research, in the confidence analysis used Cronbach's alpha constant to conduct the confidence analysis; figuring out the internal consistency. The results of the confidence analyses on the independent variables are listed in Table 2. The alpha constants for all the variables are above 0.70 showing high confidence levels. On the other hand, the factor analyses were used to verify the decision validities of the
whole factors. In this paper, the main components analysis, which is used to group the most amount of information in the least number of factor groups. Varimax method, among orthogonal rotations, was used for the factor rotation. For determining the factor number the eigen value standard was used and factors having one or more eigen values were selected. Communalties are obtained by squaring factor loadings of specific factors. These communalties show mutual influences of factors and usually a communality value of ±0.3 or more shows that there is a similarity. Sometimes with the conservative standard, a communality value of ±0.5 is used as the border line. In this paper units with factor loadings of less than ±0.6 were excluded from the final analysis. As the result of the factor analysis, the factors determining smart phone usages satisfactions were grouped into twelve different factors, one more than eleven that was initially planned. Also the smart phone satisfaction rate showed to be one factor showing the decision validity.

3.4 Verifying the Hypothesis
To test the hypothesis, the dependent variable, smartphone usage satisfactions, and the twelve independent variables were used for the multiple regression analysis. The verification was carried out by analyzing the factors that affect Korean and Chinese customers' satisfaction rates. The result of Korean consumers' analysis can be found in Table 3.

The multiple regression analysis on the Korean consumers showed the regression equation (F = 35.169, p<0.001), a statistically significant result. And the reliability (R2) was 81.6%. The multiple regression analysis on the Chinese consumers showed the regression equation (F = 23.169, p<0.001), also statistically significant. And the reliability (R2) was 83.6%. Among the Korean consumers' smart hone selection factors, designs, sizes, usages conveniences of screens, popularities, and applications turned out to be important factors. In summary, it could be interpreted that the Korean consumers were sensitive to smart hones' designs,

| Division | number of responders | Percentage (%) |
|----------|---------------------|----------------|
| Gender Korea | Male | 58 | 53.2 |
| | Female | 51 | 46.8 |
| | Female | 20 | 29.4 |
| | Female | 48 | 70.6 |
| Age Korea | 20s~30s | 97 | 89 |
| | 40s or above | 12 | 11 |
| | 40s or above | 60 | 88.3 |
| Education levels Korea | High School Diploma or below | 11 | 10.1 |
| | College graduate | 89 | 81.6 |
| | Graduate school or above | 9 | 8.3 |
| | High School Diploma or below | 20 | 88.3 |
| | College graduates | 28 | 55.9 |
| | College graduates | 28 | 41.2 |
| Average monthly income Korea | Equal to or below 1,000,000 won | 43 | 39.4 |
| | 1,010,000 ~ 3,000,000 won | 30 | 27.5 |
| | 3,010,000 won or above | 35 | 32.1 |
| | Equal to or below 1,000,000 won | 42 | 61.8 |
| | 1,010,000 ~ 3,000,000 won | 22 | 32.4 |
| | 3,010,000 won or above | 4 | 5.9 |
| Job Korea | Professional jobs | 13 | 11.9 |
| | Employee | 12 | 11.9 |
| | Student | 79 | 72.5 |
| | House wife | 4 | 3.7 |
| | Professional jobs | 8 | 11.8 |
| | Employee | 8 | 11.8 |
| | Student | 40 | 58.8 |
| | House wife | 12 | 17.6 |
sizes, usage conveniences of screens taking how smart phones look into account. On the other hand, the Chinese consumers reacted more to smartphones’ capacities, sizes, prices, brand awareness, and applications. The results above showed that the Chinese consumers chose smart phones focusing more on functional factors such as smart phones’ capacities, keyboard conveniences, and prices. The Chinese consumers also considered brand awareness important. Both the Korean and Chinese consumers considered smart phones’ sizes and applications important. This result shows that both the Korean and Chinese consumers take practical factors importantly.

Table 2. Validity and confidence analysis results

| Items                      | F1  | F2  | F3  | F4  | F5  | F6  | F7  | F8  | F9  | F10 | F11 | F12 | Dependent factor | Cronbach’s α |
|----------------------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|------------------|-------------|
| Capacity 1                 | .638|     |     |     |     |     |     |     |     |     |     |     |                  | .789         |
| Capacity 2                 | .643|     |     |     |     |     |     |     |     |     |     |     |                  |             |
| Design 2                   |     | .635|     |     |     |     |     |     |     |     |     |     |                  |             |
| Design 3                   |     | .699|     |     |     |     |     |     |     |     |     |     |                  |             |
| Design 4                   |     | .633|     |     |     |     |     |     |     |     |     |     |                  |             |
| Color 1                    |     |     | .713|     |     |     |     |     |     |     |     |     |                  |             |
| Color 2                    |     |     |     | .820|     |     |     |     |     |     |     |     |                  |             |
| Color 3                    |     |     |     |     | .777|     |     |     |     |     |     |     |                  |             |
| Size 1                     |     |     |     |     |     | .778|     |     |     |     |     |     |                  |             |
| Size 2                     |     |     |     |     |     | .760|     |     |     |     |     |     |                  |             |
| Size 3                     |     |     |     |     |     | .678|     |     |     |     |     |     |                  |             |
| Usage conveniences keypad1 |     |     |     |     |     |     | .690|     |     |     |     |     |                  | .822         |
| UCK2                       |     |     |     |     |     |     | .751|     |     |     |     |     |                  |             |
| UCK3                       |     |     |     |     |     |     | .718|     |     |     |     |     |                  |             |
| UCK4                       |     |     |     |     |     |     | .790|     |     |     |     |     |                  |             |
| Usage conveniences Screen1 |     |     |     |     |     |     |     | .714|     |     |     |     |                  | .908         |
| UCS2                       |     |     |     |     |     |     | .641|     |     |     |     |     |                  |             |
| UCS3                       |     |     |     |     |     |     | .797|     |     |     |     |     |                  |             |
| UCS4                       |     |     |     |     |     |     | .829|     |     |     |     |     |                  |             |
| Price 1                    |     |     |     |     |     |     |     |     | .880|     |     |     |                  | .913         |
| Price 2                    |     |     |     |     |     |     |     |     |     | .912|     |     |                  |             |
| Price 3                    |     |     |     |     |     |     |     |     |     | .828|     |     |                  |             |
| Price 4                    |     |     |     |     |     |     |     |     |     | .834|     |     |                  |             |
| After-sales services1      |     |     |     |     |     |     |     |     |     |     | .827|     |                  | .952         |
| AS2                        |     |     |     |     |     |     |     |     |     |     | .805|     |                  |             |
| AS3                        |     |     |     |     |     |     |     |     |     |     | .873|     |                  |             |
| AS4                        |     |     |     |     |     |     |     |     |     |     | .869|     |                  |             |
| Durability1                |     |     |     |     |     |     |     |     |     |     |     | .902|                  | .962         |
| Durability2                |     |     |     |     |     |     |     |     |     |     |     | .900|                  |             |
| Durability3                |     |     |     |     |     |     |     |     |     |     |     | .895|                  |             |
| Popularity1                |     |     |     |     |     |     |     |     |     |     |     | .820|                  | .927         |
| Popularity2                |     |     |     |     |     |     |     |     |     |     |     | .771|                  |             |
| Popularity3                |     |     |     |     |     |     |     |     |     |     |     | .783|                  |             |
| Brand awareness1           |     |     |     |     |     |     |     |     |     |     |     | .853|                  | .860         |
| BR2                        |     |     |     |     |     |     |     |     |     |     |     | .793|                  |             |
| Application1               |     |     |     |     |     |     |     |     |     |     |     |     | .740|                  | .924         |
| AP2                        |     |     |     |     |     |     |     |     |     |     |     |     | .795|                  |             |
| AP3                        |     |     |     |     |     |     |     |     |     |     |     |     | .847|                  |             |
| AP4                        |     |     |     |     |     |     |     |     |     |     |     |     | .857|                  |             |
| Usage satisfactions1       |     |     |     |     |     |     |     |     |     |     |     |     |     |                  | .912         |
| US2                        |     |     |     |     |     |     |     |     |     |     |     |     |     |                  | .911         |
| US3                        |     |     |     |     |     |     |     |     |     |     |     |     |     |                  | .850         |
| US4                        |     |     |     |     |     |     |     |     |     |     |     |     |     |                  | .831         |
Table 3. The factors that influence Korean consumers smartphone satisfaction rates

| Dependent variable | Independent variable | Customer satisfactions |
|--------------------|----------------------|------------------------|
|                    |                      | Beta | t      | Sig.  |
| Capacity           |                      | -.072| -1.098| .275  |
| Design             |                      | .166 | 2.312 | .023* |
| Color              |                      | -.025| -.0457| .649  |
| Size               |                      | .228 | 3.746 | .000**|
| Usage Conveniences-Keyboard |       | -.018| -.322 | .749  |
| Usage Conveniences-Screen    |       | .156 | 2.197 | .030* |
| Price              |                      | -.013| -.252 | .802  |
| After sales services |                    | .055 | .855  | .395  |
| Durability         |                      | -.051| -.865 | .389  |
| Popularity         |                      | .270 | 4.278 | .000**|
| Brand awareness    |                      | .054 | 1.002 | .319  |
| Applications       |                      | .403 | 6.135 | .000**|
| R2                 |                      | .816 |        |       |
| F(Sig.)            |                      | 35.169| (0.000**)|

Table 4. The factors that influence Chinese consumers smartphone satisfaction rates

| Dependent variable | Independent variable | Customer satisfactions |
|--------------------|----------------------|------------------------|
|                    |                      | Beta | t      | Sig.  |
| Capacity           |                      | -.187| -2.116| .039* |
| Design             |                      | .152 | 1.890 | .064  |
| Color              |                      | .033 | .482  | .632  |
| Size               |                      | .247 | 2.994 | .004**|
| Usage conveniences-Keyboard |       | .205 | 2.362 | .022* |
| Usage conveniences-Size   |       | -.043| -.395 | .694  |
| Price              |                      | -.162| -2.528| .015* |
| After-sales services |                    | .055 | .855  | .395  |
| Durability         |                      | .086 | 1.030 | .308  |
| Popularity         |                      | .173 | .438  | .663  |
| Brand awareness    |                      | .218 | 3.364 | .001***|
| Applications       |                      | .505 | 6.284 | .000***|
| R2                 |                      | .816 |        |       |
| F(Sig.)            |                      | 23.385| (0.000**)|

4. Discussion

This research can be summarized as below. Firstly, the Korean consumers and Chinese consumers are influenced by different factors when choosing smartphones. Designs, sizes, usage conveniences of screens, popularities, and applications were the factors that influenced the Korean consumers when choosing smartphones. On the other hand capacities, sizes, usage conveniences of keyboards, prices, after-sales services, brand awareness, and applications were the factors that affected the Chinese consumers when choosing smartphones. The differences above can be interpreted as: the Korean consumers take visual factors more into considerations while the Chinese consumers take functional factors more into considerations when choosing smartphones. In other words, the Korean consumers consider how they look (visual factors) when choosing smartphones and the Chinese consumers consider their actual smartphone experiences (functional factors).

This kind of result may have originated from the differences in the Korean and Chinese consumption patterns, values, and cultures. In conclusion, international companies should consider diverse consumption patterns of different countries. Analyzing the county specific consumption patterns and making the right marketing strategy would yield a promising result.

5. References

1. Challagila GN, Shervani TA. Dimensions and types of supervisory control: Effects on salesperson performance and satisfaction. Journal of Marketing. 1996 Jan; 60(1):89–105.
2. Chen JV, Yen DC, Chen K. The acceptance and diffusion of the innovative smart phone use. A Case Study of a Delivery Service Company in Logistics, Information & Management. 2009; 46(4):241–8.
3. Davis FD, Bagozzi RP, Warshaw PR. Extrinsic and intrinsic motivation use computers in workspace. Journal of Applied. 1992; 10:120–1.
4. Davis FD. The technology acceptance model for empirically testing new end-user information systems: Theory and results [Doctorial dissertation]. Sloan School of Management, MIT; 1985.
5. Cho H. Study on influence of perceived quality factor of smartphone on satisfaction and continued use intention -from the standpoint of updated delone & mclean’s information system success model. Journal of Information Technology. 2012; 11(2):167–80.
6. Jung J, Jang G. A study on the factors of smart-phone selection centered on actual users. The e-Business Studies. 2010; 10:361–79.
7. Lee KC, Chung NH. Understanding the continuous intention of the smart phone use. The Case of a Delivery Services Company in Logistics, Knowledge Management Research. 2011; 12(2):56–68.
8. Sohn S, Choi YJ, Hwang HS. Understanding acceptance of smartphone among early adopters using extended technology acceptance model. Korean Journal of Journalism & Communication Studies. 2011; 55(2):227–51.
9. Kim S. Effects of perceived attributes on the purchase intention of smart-phone. Journal of the Korea Contents Association. 2010; 10(9):318–26.
10. Kwon K. The world is going to open up Smart phones. CEO information. 714; 2010. Available from: www.seri.org