

AN EXPLORATORY STUDY ON THE DETERMINANTS OF SMARTPHONE APP PURCHASE

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ABSTRACT

Along with the growth of the smartphone market, the furnishing of diverse and plentiful mobile Apps is surfacing as the key competitiveness of smartphones. The mobile App market has been appraised as a competitive new market carrying huge potential. Although many users download and use paid and free Apps from App Store and App Market, relevant research regarding consumer app buying is virtually non-existent. This study aims to examine the key determinants in deciding the purchase of Smartphone Apps. Because customers may have different consideration factors in deciding the purchase depending on the App type, we first classified Apps into 4 types: Productivity, Entertainment, Information, and Networking. With interviews with 30 App buyers, we identified the antecedents in the purchase of App in each type and compared them across the four types. This study has several implications for research and practice. Especially, the findings provide guidance to App developers and marketers in promoting the sales of App.

Keywords: App Store; App Market; mobile App; mobile business; purpose of buying.

INTRODUCTION

With the growth of the Smartphone market and along with it, the mobile app market, the overall market has been appraised as a competitive one. According to Figure1, The worldwide smartphone app market is forecasted to grow from 6.8 billion US Dollars in 2010 to 92.5 billion US Dollars in 2013, roughly a four times increase [14].

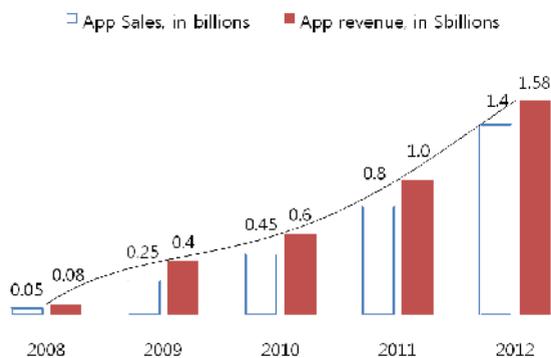


Figure 1. Sequence of Worldwide App Store Market sales

the mobile games and books categories; in the future, categories like Social Network Service (SNS) and mobile shopping are expected to grow significantly [4]. The term "app economy" has emerged, signifying the new economic landscape created by mobile apps. On the back of the rise of the smartphone, current momentum behind the app will continue, and apps for mobile shopping, social media, and contents tools are forecasted to further propel capital increase [3].

Smartphone platform competition hinges on how active and invigorated the application market is made to be. Scalability through applications can be said to be the differentiating feature from the standard feature phone, and the smartphone's functions can be expanded to no end [13].

According to Figure 2, as of March 2010 Apple's App Store secured 170,000 applications, and Google's Android market acquired 30,000 applications, making them 1st and 2nd respectively [8].

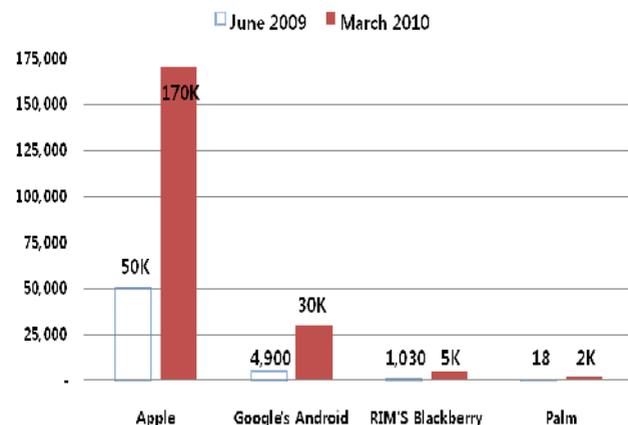


Figure 2. Number of Apps Available at Smartphones' App Store

In the midst of fierce competition taking place between App Store and the Android market, the 'killer app' has emerged. For the application market to grow, it is important to construct a mechanism of circulation that will allow the spontaneous and continued emergence of killer apps. According to Figure 3 [13], on average, iPhone and Android users downloaded around 8 free applications a month, and used applications for about 80 minutes in a day. 50% of iPhone users download at least 1 paid application a month, and 19% of Android users download at least 1 paid application a month, according to the studies. On average, users download 5 paid applications a month and spend a total of 9 Dollars. This amounts to 1.8 Dollars an app.

Currently, apps registered at App Store are mostly of

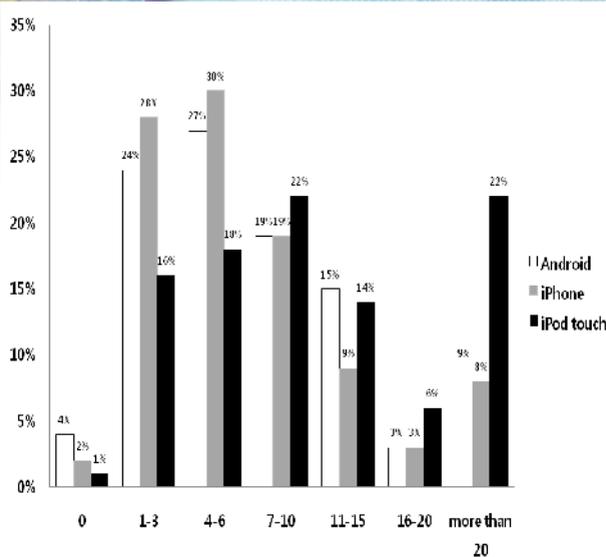


Figure 3. Comparing Free App Downloads of iPhone and Android Users

Following predictions that the App Store will grow into a service rivaling the web in terms of influence, there has been a gradual rise in the number of firms looking to adopt it effectively for use in their businesses. Content industries are striving to develop mobile apps, and companies are increasingly seeking to improve corporate results in various aspects - business expansion, offering differentiated services, marketing, etc. - with plans incorporating the App Store [8].

Apple's App Store has, in various categories, some 150,000 registered apps, and download numbers reach up to 4.5 billion, but research on what factors compel smartphone users to choose and buy apps has been scarce. The mobile app selling business is expanding rapidly, but the fact is that systematic academic research concerning this field has been inadequate. There has been a dearth of research in analyses of the business aspect of App Store, as compared to research concerning the Apps Store platform or the process of app development.

This study thus aims to analyze through qualitative research the factors that influence smartphone app buying. The implications we can grasp through this research are as follows. First, through the findings on mobile app purpose of buying, work can be done towards development of a new theory. Second, practitioners developing efficient and effective business models for mobile apps may benefit from the findings.

This study will illuminate the factors behind smartphone app buying through the platform of interview. Based on the responses of 30 people, 7 main

motives/purposes will be explained. In addition, there will be an analysis of the research results and an illustration of their implications.

LITERATURE REVIEW

Although at present there is no research on app purpose of buying, there has been plenty of research on the technical aspect of apps like smartphone operating systems, platforms, etc., and many studies on the application of TAM model can be found. Park J.S. [12] is a study on acceptance plans for the open mobile app market, using standard Technology Acceptance Model (TAM) as base for evaluating the effects of amusement, usefulness, flexibility, compatibility, and price on mobile application buying. Kim Y.S. [10] studied factors influencing acceptance of smartphone services by individual smartphone users. Based on TAM and Diffusion of Innovations theory, he researched on whether personal innovativeness, social influence, perceived ease of use, perceived enjoyment, and perceived usefulness, exercised any influence on purpose of smartphone service acceptance. J. Huang and 2 others [5] researched factors influencing smartphone network application performance as users perceived them. They developed a systematic methodology to understand the performance of smartphone application, from the perspectives of the user, developers, network operator, and smartphone retailer. From the results of the analysis, they recommended ways to improve and better application design. Z. Ahmet and L. E. Holmquist [4] presented on mobile service sharing methods between users. They argued that users' downloading habits, new application testing, level of understanding of services under use, etc. exerted influence on service sharing means. Kim H.J. and two others [6] discussed factors that influenced developers' developing intent in the platform business. In the course of in-depth interviews with 7 application developers, 7 types of elements were identified, and a research model based on these findings was used as the platform for the polling. It has been stated that the results of this study can serve as practical guidelines to firms that seek to enter the platform business.

Kim S.H. [9] studied the effects of two added factors, TAM model-controlled variables professional association and experience, on purpose of smartphone acceptance. He proved in his research findings produced with polling methods that professional association and experience were positively affected by mobile wireless technology.

Z, Ahmet and L.E, Holmquist [16] studied tools for mobile service sharing between users, and Dohmen A. et al. [2] studied the effective delivery of banking services through smartphone applications.

Table 1. Previous Research

Study	Research Output
Kim Y.S. (2009)	Technology Acceptance Model (TAM) and Diffusion of Innovations theory as platform for research on factors influencing purpose of smartphone service acceptance
J. Huang et al. (2010)	Study of users' awareness of factors affecting smartphone network application

Z. Ahmet and L. E. Holmquist (2010)	Study on mobile service sharing between users
HyungJin Kim et al. (2010)	Understanding of factors influencing developing intent of developers in platform business
Dohmen A. et al. (2009)	Study on use of smartphone applications in providing effective banking service
Kim S. H. (2008)	Research on two added factors as TAM model controlled variables, professional association and experience, and their effects on purpose of smartphone acceptance

RESEARCH METHOD

The worldwide market for Apps Store is expected to grow at an yearly rate of 55~74% from 2011 to 2013. For the same period, applications will grow at a minimum of 54~80%. It is understood that 80% of applications that go on App Store are paid applications [14].

According to Table2, UK market research firm Ovum [11] claims that the yearly average (2010~2015) growth rate of downloads for paid mobile applications, 48%, will yield approximately 2,500,000 USD downloads in 2015, representing a decrease of 15.4% in its proportion of all mobile application downloads. But the proportion of paid smartphone applications in the entire paid mobile application market is forecasted to grow up to 96% in 2015, up from 78% in 2009. On the back of increasing download revenue as well as paid smartphone applications, all mobile application download revenues are forecasted to show a sustained and stable growth rate.

Table 2. Worldwide Paid Application Download Numbers at Present and Future Prospects

(Unit: Million)

	'09	'10	'11	'12	'13	'14	'15	CAGR
smart phone	182	324	831	1,314	1,777	2,258	2,712	52.9%
non	52	75	90	111	119	126	127	10.9%
Total	234	400	920	1,424	1,896	2,384	2,839	48.0%

In view of the growth and importance of paid apps, this study has conducted exploratory research revolving around users who have had experience paying for apps.

Data Collection

In this study, 30 smartphone users who had experience subscribing to apps were surveyed in an interview format, and data was compiled through their responses. The majority of those who agreed to be interviewed were Apple iPhone users, and the rest were users of Galaxy, Omnia, etc. Interviewees were on average 27.3 years of age, comprising 10 undergraduate students, 9 graduate students, and 11 employed, 18 of them males and 12 females. The average period of smartphone use was 8.39 months. The interview was of a one-on-one format, conducted in an informal environment, ranging from about 10 to 20 minutes. First, the interviewees were asked

about the duration of their use of smartphones, the number of apps they bought, and the reasons why they bought them. Then, they were asked whether they had used those apps on a free trial basis at the beginning, and if so, why they later upgraded to a subscribed version. In addition, for those apps that shared the same function, they were asked why they ultimately chose the one they did. Before they proceeded interviewees were sufficiently compensated to ensure they responded truthfully, and their interview responses were recorded instantly.

Table 3. Respondent Characteristics

Factor	Class	Sample size
Sex	Male	18
	Female	12
Age (Average: 27.3yrs)	20s	29
	30s	7
Education	Undergraduate student	10
	Graduate student	9
	Employed	11
Average period of smartphone use		3.89 months

Data Analysis

This study employed Strauss and Corbin's [15] grounded theory method to analyze information from the interviews. Grounded theory method is a qualitative research method, whereby a series of systematic processes extract a single theory out of a phenomenon through inductive method and build on it. Meaning, the main event or problem that the subject regards as meaningful is preserved in their expression and approached from the subject's point of view. The researcher unearths concepts that are able to explain and interpret the diversity of actions taking place in the domain they wish to study, and form a relationship between these concepts.

In grounded theory method data compilation is mostly accomplished through in-depth interviews, and in this process, the initial discussion begins with everyday conversation, and when trust is established the conversation goes into depth and is continued until all material is exhausted. This method of data assembly has been applied to this study, and its results evaluated through a process called 'coding'. There are 3 kinds of coding: open, axial, and selective. Open coding is the analysis work that finds, names, and categorizes a phenomenon through review of resources review. This study used open coding to draw concepts explaining purpose of buying for applications. Adopting line-by-line analysis, unusual terms or phrases were looked up and their meanings marked on close reading of the materials; and concepts and

concepts within the words used by respondents were cited in their original form and named accordingly. Work included giving exact definitions to abstract meanings or concepts, and integrating and rounding up similar concepts into the wider and more generally explainable category mentioned above. The point to this was decreasing the number of the many concepts involved to allow a more focused, macroscopic view on why consumers buy applications. Also, how often the respondents responded to concepts about each purpose of buying application was tallied to make the process of analyzing the relationship between concept and purpose of buying a little easier [15].

DATA ANALYSIS AND RESULTS

Before proceeding to the interview, the authors classified apps into four categories, which were Productivity, Entertainment, Information, and Networking. Then, the authors found out that frequently bought apps were similar according to the classification. The authors classified the related apps according to the standard for the category of classification; the apps were classified as shown in Appendix 1. The first category, Productivity, includes business utility apps (e.g., MS file viewer and schedule manager). The second category, Entertainment, includes game, sports, music, and photography apps. The third category, Information, includes finance, news, travel, medical, weather, and other information providing apps. The last category, Networking, includes those apps for the social networking such as Facebook and Twitter.

Based on the interviews, the seven variables that influenced the purchase of smart phone apps were word of mouth, ranking, usefulness, ease of use, trial performance, price, and pleasure. The authors counted the frequency of the seven variables in the four classifications of Productivity, Entertainment, Information, and Networking. Then the authors determined the ranking of the frequency in each classification.

In the type of Productivity, there were several factors affecting the purchase decision in the order of usefulness, word of mouth, trial performance, monetary value, ranking, and ease in use (See Appendix 2). In the type of Entertainment, there were several factors affecting the purchase decision in the order of word of mouth, pleasure, ranking, trial performance, monetary value, usefulness, and ease in use (see Appendix 3). In the type of Information, there were several factors affecting the purchase decision in the order of usefulness, word of mouth, monetary value, trial performance, ranking, ease in use, and pleasure (See Appendix 4). In the type of Networking, there were several factors affecting the purchase decision in the order of word of mouth, usefulness, monetary value, ranking, trial performance, pleasure, and ease in use (See Appendix 5).

Figure 4 compares the motivation factors across the four categories. The highest cumulative value was Entertainment, which was 125 times higher, and the Productivity, Information, and Networking followed in descending order. We found out that there were differences among the four classifications for the ranking of purchase intention (see Figure 4).

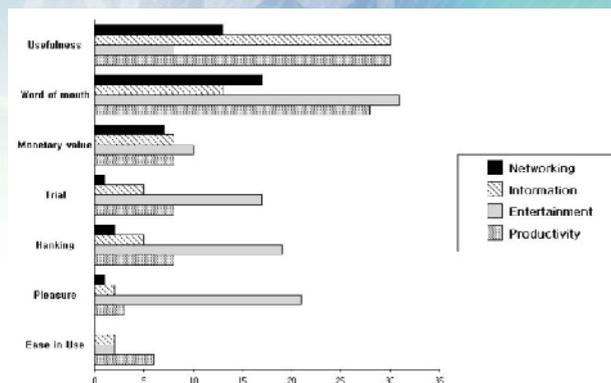


Figure 4. Data analysis on purchase determinants

The following Figure 5 shows the ranking of the variables for purchase intention in all four categories.

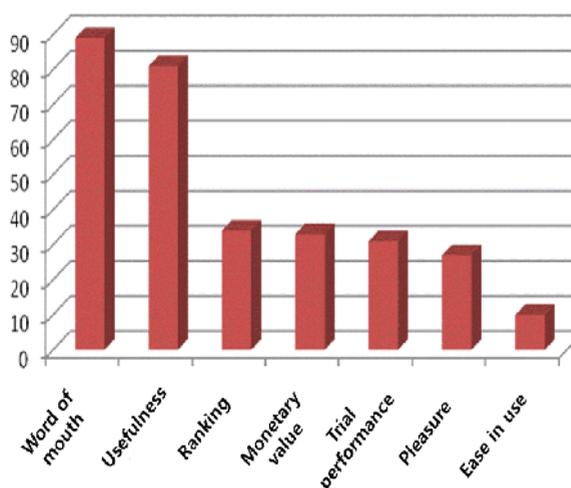


Figure 5. Overall ranking of the purchase determinants

DISCUSSION ON THE FINDINGS

From the results of the interview about smart phone apps classifying them into four categories, 23 respondents out of 30 purchased apps related to Productivity. 26 respondents were using apps related to Entertainment; 13 respondents were using apps related to Information; and also 13 respondents were using apps related to Networking. Most of the respondents had experience purchasing apps related to Productivity and Entertainment. However, in the case of Networking, there were few respondents who purchased apps that charged money since a domestic free app, 'Kakao Talk' was actively used. Apps like a dictionary, which was classified into Information, was not purchased by many people because their prices were relatively higher than other apps.

23 respondents answered that they had purchased apps in the Productivity classification. The highest ranking was useful with 29.7%. Many respondents answered that they had purchased apps because the apps enhanced their efficiency in business and was helpful in their personal lives. The second highest was word of mouth. The answers were recommendations by people, postings that recommended the app as essential in the Internet café and articles in newspaper. In addition, there are many apps, which have the same function as the apps classified in the Productivity group, and the respondents answered that they were influenced by word of mouth when they chose one from such apps. That is, they

would choose apps, which had good opinions written about them on the Internet café or good reviews in the app store or good recommendations from people. The next were trial performance, monetary value, and ranking. There were answers that indicated they purchased apps because the free version had good functions, the apps had high value for money, and the apps had high ranking in the app market.

Entertainment was used by 26 respondents. The reason that most users purchased Entertainment apps was that the apps were classified into Entertainment; that is, games and the apps of interest were significantly active in the app market, and their prices were relatively inexpensive in many cases. Many of the respondents said that they had purchased the apps because the prices were about 1~3 dollars. First, word of mouth had the highest ranking for purchase intention. The reason may be that such apps were not directly searched for based on necessity but were determined according to others' opinions in the app store, and the purchase was frequently done by the recommendation of people that the app was fun. The second highest ranking was pleasure. Many responded that they had purchased the apps since the apps were marvelous; in the case of games, some responded that they had purchased the apps for leisure. The third highest was ranking, which was 15%. Many respondents said that they had purchased the apps of high ranking in the app store when they connected to the app store. The fourth highest was trial performance: it is possible that there are many free versions for trial performance in the case of game apps. Many respondents replied that they purchased apps that charged money because the apps were fun or had limitations in their free versions. The next was monetary value. Particularly in the case of game apps, the respondents seemed to easily purchase apps that they felt were inexpensive. There was a reply on usefulness that the music currently playing could be searched, and a reply on the ease of use whether the handling was simple and easy. Also, some respondents said that he or she purchased the app since he or she originally played the guitar, or he or she had an interest in peculiar and amusing programs.

In total, 13 respondents used Information. Usefulness was the highest ranking; word of mouth, monetary value, trial performance, ease of use, and pleasure followed in descending order. The reason that usefulness was the highest ranking is as follows: apps like dictionaries and navigation are included in the Information classification, and many respondents purchased the apps for convenient use of a necessary function in a smart phone or for study. The second factor that influenced purchase intention was word of mouth, which was 18.3%. The reason that word of mouth had a high ranking is as follows: apps, which belong to the Information classification, have the same function in many cases, and the respondents answered that they were influenced by word of mouth when they choose one of those apps. That is, it is because users received information about good apps through information on the Internet and by reviews in the app store and then compared and analyzed them. Also, many respondents said that they did not purchase the free trial apps but purchased the apps that were recommended by acquaintances or purchased after sufficient consideration of information on the Internet. The third ranking was

monetary value. Although dictionaries or books have higher prices than other apps, some responded that they purchased such apps because of good functions and some responded that the purchase of the apps was cheaper than the actual purchase of a real dictionary. Next were trial performance and app ranking.

In total, 13 respondents used Networking. Word of mouth had the highest ranking, which was 41.46%. The respondents answered that they purchased apps that people near them frequently used or recommended. A certain respondent said that he or she changed from a free social network app to an app that charged money because people near he/she frequently used it. The second highest was usefulness, which was 31.7%. Most of the respondents answered that they had purchased the app in order to communicate with friends. Also, some responded that they purchased an app that charged money in order to exchange communication with foreign people. Monetary value was the third highest. This was higher than the response rate of the other classifications; it is possible that the most frequently used app by the respondents, Whatsapp, had the lowest price of all the apps, 0.99\$. The next were ranking, trial performance, and pleasure.

The results of the analysis for purchase intention are as follows. Word of mouth was ranked third in the four classifications. This means that the purchase of apps was influenced by the recommendation of others, or by information on the Internet or by reviews in the app store in many cases.

Usefulness ranked in the top or the second place in three of the classifications except for Entertainment. In many cases, people purchased apps for convenience or necessity; in the case of Networking, many people purchased apps in order to communicate with others. In the case of Entertainment, people were not concerned about usefulness but purchased apps because of interest or curiosity. Pleasure was a highly ranked for purchase intention only in the Entertainment group; compared to usefulness, the Entertainment apps were purchased because they were fun, brought about curiosity, or were marvelous.

Trial performance had a higher weight (13.6%) in Entertainment than the other classifications. It is possible that particularly in game apps, there are many free versions that make trial performance possible and during the course of using the free version, people switch to the full version which people pay for. In the case of Networking, trial performance had a low weight (2.44%); it is possible that people trusted an app that many people used without a free trial and they accepted the purchase as essential for communication with others.

Monetary value had generally high rates in the Entertainment and Networking group. In the case of Networking, it was because the price of the app was as inexpensive such as 0.99\$, or because the value for the money was high since the app had various functions like free SMS service.

Ease of use was ranked low in most classifications, but it had higher response rates in the Productivity classification, which was 5.94%. There were apps that users had to handle such as a calculator or calendar, and the users seem to prefer the apps with easy usage and simple handling.

Trial performance was remarkably lower in Networking than the other classifications; apps with social network functions do not have activated free versions, and people's tendencies were to directly purchase an app that most people had used already.

LIMITATIONS

This study reviewed the purchase intention of smart phone apps qualitatively. It has the following limitations. First, the study was confined to the purchase of apps that charged money. Now, free apps are considerably downloaded from app stores and used a lot. Also, during the course of selecting the interviewees, the authors found out that a number of people used free apps only. Therefore, an additional study on the use of free apps seems necessary.

Second, the interviewees were mostly iPhone users. This was because the Apple app store was the most active, and it had abundant number of apps that charged money. Considering now the active mobile app market, the preceding studies should be done on users from various app markets.

Third, the age of the interviewees was mostly in the twenties or thirties. This means that the active users of the app store who purchased apps that charged money were mostly in their twenties or thirties; however, considering that smart phones will be popular in the future, the study ought to reflect the propensity of ages other than the twenties and thirties. This kind of study could generalize the research results by grasping the purchase intention of various ages.

IMPLICATIONS OF THE STUDY

Implications for Research

This study presents the following theoretical and working-level implications. The theoretical implication is to do exploratory research in order to find out the factors which influence the purchase of smart phone apps. Through the results of the exploratory research, the authors extracted variables related to the purchase of mobile apps and confirmed the frequency according to each variable. Since there is no precedent research related to the purchase intention of apps, one possible implication is that the authors clarified the factors related to the purchase intention of apps through their exploratory research since the research will contribute to the methodology and literature study related to purchase intention.

The second theoretical implication is that the authors clarified diverse variables that could influence the purchase of smart phone apps. Among the purchase intentions clarified by this research, there were concepts used in existing marketing research or technology acceptance models such as monetary value, pleasure, usefulness and ease of use. Also, the variable, 'ranking,' is a newly found variable in this study, and 'trial performance' is also a variable befitting the characteristics of mobile apps. As a result of the exploratory research, the 'word of mouth' variable played a crucial role in the purchase intention of apps; the influence of word of mouth, which is an important factor in marketing, could be proven through the Internet and mobile environments through the research results.

The third theoretical implication is that the authors clarified the difference in the purchase intention of apps according to the four classifications of apps, that is, Productivity, Entertainment, Information, and

Networking. The authors counted the frequency of purchase intention according to the four categories and analyzed the results.

Implications for Practice

The working-level implications are as follows. First, the results of this research may suggest the worth that should be considered important when developers develop new apps. If developers who develop apps of diverse use can know customers' purchase intentions of apps within their field of development, they can develop apps of good quality.

The second working-level implication is that the research result can help businesses to plan effective marketing strategies when businesses plan marketing through apps like brand application. In order for customers to download apps from a business and use them continuously, value of the app that can attract customers should be reflected by the app. Value was clarified in this research as trial performance, usefulness, pleasure, and ranking, and monetary value should be reflected by the development of brand applications by businesses.

The third working-level implication is that the research results may contribute to the development of a new business model by companies engaging in the mobile platform business. This research drew out various factors related to the purchase intention of apps when precedent research related to the purchase intention of apps was scarce. The results of this study may be used as a basis on which new business models will be planned and the strategies to activate future mobile app markets can be derived.

CONCLUSIONS

The purpose of this study was to find out the purchase intention for smart phone apps through exploratory research on users who had purchased apps that charged money and to find out the ranking of the purchase intention according to four categories which were classified by the characteristics of the apps. From the results of the exploratory research done in this research, the factors that influence purchase intention were word of mouth, usefulness, ranking, monetary value, trial performance, pleasure, and ease of use. The purchase factors had differences in frequency and ranking according to the classification by the characteristics of the apps, that is, Productivity, Entertainment, Information, and Networking. The authors reviewed the whole ranking of the purchase factors, adding all the categories and analyzed the purchase intention according to the classification. The authors also analyzed the differences in the frequency of the four classifications according to the purchase intention. This study analyzed the implications of the research results and the limitations of the study.

It can be pointed out as a limitation of this study that the interviewees were mostly iPhone users and they were all around the same age. However, this study has the following implications. The theoretical implication is that the study discovered results by exploratory research on factors which influenced the purchase of apps while there was no precedent research on the purchase intention of smart phone apps. Moreover, another implication is that the authors classified apps into four classifications and found out the difference in purchase intention according to those classifications. This can contribute to the development of a new theory on the purchase intention of

apps and may derive diverse subsequent studies.

The working-level implications are that first, this study may suggest the values of an app that should be considered important when developers develop new apps. Second, this study may help enterprises plan effective marketing strategies when enterprises seek to market their products through apps; third, it may contribute to the development of a new business model by companies engaging in the mobile

platform business. This study will be the basis on which a study on the purchase of smart phone apps will advance, and it may contribute to the development of a new theory. It may also contribute to the development of an effective business model in the field of mobile apps.

APPENDIX 1: APP CLASSIFICATION

Classification	App types in the App Store	Concept	Sort of the apps
Productivity	Business Utility Productivity	Apps that amplify business efficiency or that have practicality	MS file viewer Engineering calculator Schedule manager Time table manager Photo folder organizer Express bus booking Scanner
Entertainment	Game Sports Music Photography	Apps that are interesting and fun.	Game Face recognition Mosquito eradicator Photo decorator Sleep talking recorder Tarot card Painting picture Playing the guitar
Information	Finance News Travel Books Education Medical Weather Health&Fitness Navigation	Apps that offer information to users	Navigation Magazine English-Korean dictionary GPS Speech collection Apps related to travel
Networking	Facebook Twitter	Social networking	Whatsapp, TwitBird Pre

APPENDIX 2: DETERMINANTS FOR THE PURCHASE OF PRODUCTIVITY TYPE APPS

Productivity				
Purchase intention	Example	Frequency	Cumulative frequency	%
Usefulness	Many convenient functions, Excellent function, Necessity	30	30	29.70
Word of mouth	Posting in the Internet cafe, Replies Review in the app store Grade in the app store Recommendation by acquaintance	28	58	27.72
Trial performance	Free version was good	8	66	7.92
Monetary value	Proper price, Expensive but the function is very	8	74	7.92

	excellent			
Ranking	High ranking in the app store	8	82	7.92
Ease in use	The usage is easy and the installation is easy, The handling is simple, The usage is convenient	6	88	5.94
Pleasure	marvelous, being curious	3	91	2.97
Others	Good design, Hated the ad message in the free version The individual early-adaptor propensity	10	101	9.90
Total		101	101	100

APPENDIX 3: DETERMINANTS FOR THE PURCHASE OF ENTERTAINMENT TYPE APPS

Entertainment				
Purchase intention	Example	Frequency	Cumulative frequency	%
Word of mouth	Recommendation by acquaintance Information on the Internet Review and grade in the app store	31	31	24.80
Pleasure	Marvelous Seeming like fun Being curious at reviews For leisure	21	52	16.80
Ranking	High ranking in the app store	19	71	15.20
Trial performance	Because of the limit in the game app stages The free app was fun	17	88	13.60
Monetary value	The price was inexpensive Expensive but fun	10	98	8.00
Usefulness	Wanted to know the information of the music	8	106	6.40
Ease in use	The handling is simple and easy	2	108	1.60
Others	The payment for the app was convenient Already knew about the app Design Individual interest in playing the guitar	17	125	13.60
Total		125	125	100

APPENDIX 4: DETERMINANTS FOR THE PURCHASE OF INFORMATION TYPE APPS

Information				
Purchase	Example	Frequency	Cumulative	%

intention		frequency	
Usefulness	For studying foreign language Seeming convenient for travel	30	42.25
Word of mouth	Recommendation by acquaintance Information on the Internet Review in the app store Grade in the app store	13	18.31
Monetary value	Cheaper than buying books Expensive but the function is excellent Having the term of discount	8	11.27
Trial performance	The free version does not have many functions The free version was good	5	7.04
Ranking	High ranking in the app store	5	7.04
Ease in use	Compatible with other programs	2	2.82
Pleasure	Marvelous function	2	2.82
Others	Good feeling for the brand Good service for app administration Individual preference for speech collections	6	8.45
	Total	71	100

APPENDIX 5: DETERMINANTS FOR THE PURCHASE OF NETWORKING TYPE APPS

Networking				
Purchase intention	Example	Frequency	Cumulative frequency	%
Word of mouth	Recommendation by acquaintance Information on the Internet Frequent use by people near oneself	17	17	41.46
Usefulness	For communicating with friends In place of international telephone calls	13	30	31.71
Monetary value	The price is inexpensive Having the term of discount	7	37	17.07
Ranking	High ranking in the app store	2	39	4.88
Trial performance	The functions of the free version is insufficient	1	40	2.44
Pleasure	Wondered	1	41	2.44
Ease in use		0	41	0.00
Others		0	41	0.00
	Total	41	41	100

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