Master thesis

Economics and Business: Marketing

The role of featuring in mobile app adoption

ERASMUS UNIVERSITY ROTTERDAM

Supervisor: dr. Z Jiang

Student name:	**Student number:**
Meng Meng	447015

Date: 20 June 2017

Abstract:

The main purpose of this thesis is to identify whether featuring will affect customers' App adoption and evaluation. There is no established literature about this topic, however, there are large number of the established literature about the effect of supermarket in-store display. They showed that there is a positive relationship between display and increasing sales, which means in-store display can encourage consumer buying behavior especially when the display is obvious and easy to see. Another subject prominent within literature are online consumer behavior and consumer information search behavior. Online consumer behavior mention that consumers are easily to be influenced by the name of apps, ratings and other consumers' reviews. Thus, the conceptual model was established. In addition, the type of products would also effect consumers' evaluation. As for mobile App, there are two types, hedonic and utilitarian. the main results if this research are as follows. Featuring not has a significant effect on consumers' perceived value, search costs, quality uncertainty and app evaluation. In contrast, perceived value, quality uncertainty and search costs have a significant effect on consumers' app evaluation. In addition, the moderator utilitarian and hedonic has a significant effect on search costs, but not on perceived value and quality uncertainty.

Keywords

Featuring, Mobile App, Consumer online behavior, Consumer information search processes

Table of Content:

1. Introduction:

1.1 Research background:

Mobile economy has been a hot topic in recent year. As reported in the Economics (2011), there were about 480 million units of mobile phones, which exceeded the number of laptops and PCs (about 380 million units). The author also estimated that in 2020, the number of mobile devices, such as ipad, iphone and other smartphones, would reach 10 billion. The huge number of mobile devices results in an increasing number of mobile applications. According to (Statista,2017), since 2008 to January of 2017, there were 2.2 million of apps that could be download in Apple app store. Until June of 2016, 2.2 million of apps were available in Android app store.

Mobile app stores such as Apple's app store and Google's Android Market are the main distribution channels to promote an application. However, with so many app submissions, limited testing resources and the lack of an effective filtering mechanism, app stores suffer from low quality and overloaded information, which could make some problems to the consumers. (Romel Ayalew,2011).

Product quality is seldom detectable at a glance (Gersner,1985). Especially in the online environment, Unlike the entity stores, it is often not possible to judge the quality of a product. Some attributes are very important for consumers used to infer the quality. For example, in app market, consumers are likely to use the reviews, number of download, the preference rank to infer the quality of an app. These attributes, similar to product functional attributes, play an important role in consumers' purchase decision making process. They are referred to search attributes. Search attributes are ones that can be verified prior to purchase through direct inspection or readily available source. (Nelson,1970). Consumers can use some clues to judge whether an app will satisfy their need. In addition, in order to reduce uncertainty about product performance further, thereby improving download, Apple Store has taken some actions to convey the information about the apps by affecting some aspects of consumer information search processes, featuring apps is one of most important such influences.

1.2 Research motivation:

The recent status of app market is in a mess. There are many apps with uncertain quality in this market, which lead to huge problems to consumers when they intend to choose an app to download. To have a close look at this issue, we need to understand how a consumer chooses an app. Is the process of consumers choosing and buying an app the same as choosing and purchasing other product? However, although there have been a lot of research literature about app economy, but none of them has been devoted to the impact of featuring on app adoption. In this paper, the author intends to conduct an experiment to examine the effect of featuring on consumer app adoption.

When we are shopping in a supermarket, we always see the supermarket featuring some specific products on the bulletin board and booklet. The same action we can also see in the app market. For example, when we open an app store, whether it is Apple app store or Google Play or others, we often see firstly the featured app in the homepage of the app store. These featured apps are selected by the editorial team of app store. They evaluate submitted app especially some of the new apps through some specific criteria. They try to use this action to help consumers select an app with ensured quality. Not like other forms of advertising and promotion channels, app developers don't need to pay any fees to make their apps on the homepage of Apple app store. Thus, the featuring decisions are totally made by the editorial team. In order to improve the downloads and make a higher revenue, the editorial team mainly assess the potential popularity of the apps by some experiments to check whether the apps to featured will be welcomed and profitable. Then, the team will feature the apps with huge potential. Hence, the purpose of this study is to investigate if such marketing action is really effective in consumer searching, downloading and purchasing process or the huge sales of featured app are due How dose it affect consumer search behavior?

This paper hopes to answer the above questions through research. This paper will combine the investigation of app consumers with the classical theories of consumer purchase behavior and information search processes to examine the effects of featuring.

1.3 Research question and research method

Thus, the goals of this paper are to fill the gap in research regarding the effects of app featuring on consumers when they want to choose and purchase an app in the app store. And what problem featuring solve in consumer information foraging processes. Based on these goals, the following research question are formulated:

The role of featuring in mobile app adoption

To answer the research question in a more substantial way, the following sub-question were developed:

- How consumers find an app to download and purchase?

- Whether featuring an app will affect its adoption apart from its quality factors?

- What effect does the featuring have on the app adoption?

- What problems can feature solve in consumers' information search processes?

- Is there an interrelationship between the types of application (utilitarian/ hedonic) and the effect of featuring?

To examine the role of featuring in mobile app adoption, the author prefers to design a survey to collect the data. All the data will be collected through online questionnaires. Participants are consumers of app store from all over the world. To guarantee the research outcome is rational and typical, the research should not be too student-specific. Because the survey is voluntary, the time to fill in the questionnaire should not be too long and the questions of the survey should be typical and representative. All the data are analyzed by SPSS.

1.4 Contribution:

This paper aims to fill the gap of present research fields. As mentioned above, although previous research on mobile applications is a lot, no paper has investigated the role of featuring. App featuring is a common phenomenon is app store. Through the data of App Annie Intelligence, for one app, the number of download after featured is

significantly higher than the number before. In fact, featuring has a significant impact on increasing the visibility of an app thereby improving download. However, it is still unclearly how featuring affects consumer search behavior? And what problem it solves in consumers' information search processes? This paper will combine some classic theories to explore featuring relevant issues.

1.5 Paper lay-out:

The layout of the paper is structured as follows: the theoretical background will be presented in chapter 2, where the corresponding hypotheses are formed as well. Then, in the chapter 3, the research method and implementation of the research will be laid-out. Chapter 4 describe the statistics of the data. In chapter 5, the results of the research will be discussed and chapter 6, also the last section, will consist of the final conclusion, as well as limitations and ideas for further research.

2. Theory conceptual framework:

this chapter will present previous theories related to the effect of featuring on app adoption, and provide evidence of the effects of featuring in the app market and describe each subjects to form the conceptual model that will be tested in this paper.

2.1 The role of featuring

When opening an App Store (in this paper, we mainly discuss about Apple App Store), what consumer see firstly are various of apps featured on the homepage. In addition, when entering the page of categories, there are many different app lists for consumer to choose from. These apps, both appeared on the homepage and category pages, are featured by the App Store. Featuring are lists of app that the App Store selected to promote on its homepage. These lists are presented from several days to a week to promote the app on the homepage of the app store, pages of categories and sub-categories.

There are various different types of featuring:

App top banner. The large banners at the top of each page featuring an individual app

Figure 2.1

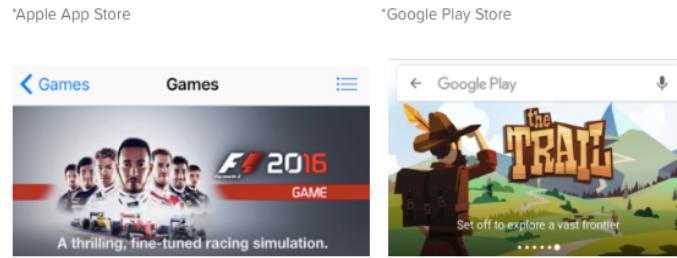*Collection top banners.* The large banners at the top of each page featuring a collection of apps.
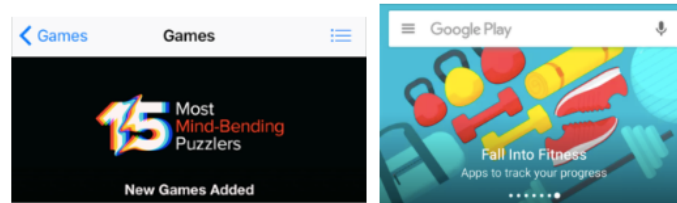

Figure 2.2

Collection list. A list of featured apps such as "New Game we love" that don't have a banner creative.
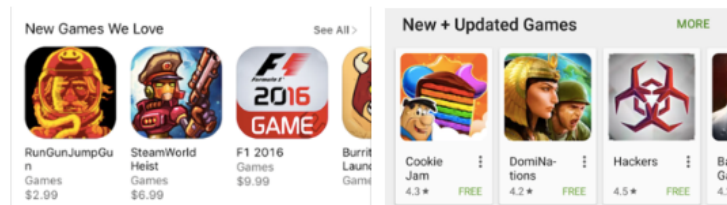

Figure 2.3

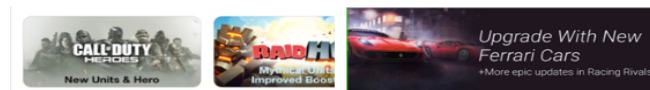*App Banner.* The smaller banners on a page featuring an individual app.

Figure 2.4

Collection Banner. The smaller banners on a page featuring a collection of apps.
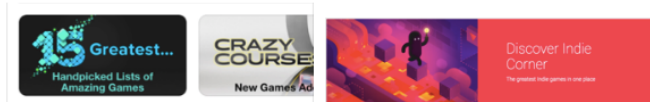
Figure 2.5

Collection Video. A list of featured apps that display video trailers. (Apple App Store only)
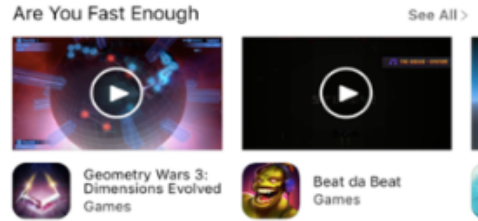
Figure 2.6

In this paper, we only discuss the action featuring taking by Apple Store, not featuring by other individual apps and other platforms.

To help the users find great apps, the teams of editors worldwide choose apps to feature on the app store. (Apple App store, 2017). The editorial team select latest apps with high-quality across all categories worldwide and some of apps just getting significant updates. The common point of the featured app is the unique value they brought to the users. Unlike other marketing action, there is no paid placement or checklist of requirements, the editors make their feature decision on variety of factors, all of which amount to a great product that users will love. (Apple App Store, Discovery on app store,2017)

Although Apple App Store not disclose more details about the criteria of featured apps, we can manage to obtain some insight through the following factors.

Table 2.1 The factors include: (Apple App Store, Discovery on app store,2017)

Factors: considered by Apple App Store
User experience: the efficiency and functionality of the app
Innovation: apps that solve a unique problem for users and take advantage of the latest Apple technologies
High-quality and relevant localizations
Integration of accessibility features
A strong App Store product page

Table 2.2 For games, editor also consider:

Factors: considered by Apple App Store (Games)
Gameplay and level of engagement
Graphics and performance
Audio
Depth and narrative
Ability to replay
Gameplay controls

There are no previous research specific to the effect of featuring on consumers' app adoption decision. But this promotion action has been used by supermarket for a long time. Supermarket use feature (in-store display) as one of the short-term strategies to increase the temporarily the unit sales of certain products. Previous research on in-store displays showed a positive relationship between display and increasing sales. (Chevalier,1975; Curhan,1973; Wilkinson, Mason & Paksoy,1982). Based on the experiment taken by Chevalier, in-store display can bring an average increase of 572% in sales. The effects of in-store display on sales are impressive and encouraging. (Chevalier,1975). In-store display, especially the places are more obvious so that customers can easily see, like the end-of-aisle or within-aisle display, are the most powerful. (Wilkinson, Mason & Paksoy,1982). Undoubtedly, the homepage is the most obvious place in the App Store. That is why app store feature apps on their homepage. In-store display like the certain products on the special place and booklets can stimuli consumers' unplanned purchase behavior. (Abratt, Goodey, 1990). Consumers' impulse purchases, tend to view and often buy products that they had no previous intention of purchasing, are simply because these act (in-store display) as reminders of shopping need. (Chevalier,1975; Kollat and Willett, 1969). Inman, Winter and Ferraro (2009) also found that display affect consumers in-store decision making. Some consumers seem these in-store display as cues to remind them of what they need to buy. Others consumer enter the store with the intention of certain produces they decided before but changes very quickly as stimulated by these display of unintended items. In some cases, as they mentioned, these in-store display can trigger unrecognized needs and unplanned purchasing. Likewise, when consumers opening an app store, exposed to a bench of

featured apps, they can easily perceive or recall that they have a need for the app. The effects of in-store display on consumers are different across products categories. They found that, hedonic goods are more likely to be purchase under stimuli. Therefore, featuring have a more powerful impact on increasing the download of hedonic apps such as games and music. (Inman, Winter and Ferraro (2009).

With regard to the difference between physical and online store, Breugelmans, Campo, Gijsbrechts, (2007) found that the use of in-store display in the online shop was quite similar to the physical store. The small and easily electronic display in the online environment can facilitate search processes. (Breugelmans, Campo, Gijsbrechts, 2007). They found that online display affects consumers' shopping decision in its own way, because of the different orders and positions the products displayed. Just like the cover page and the first screen of the online store, homepage is what users can see firstly when they opening a App Store. Gijsbrechts et al.(2003) proved that, the cover page position enhance ad visibility , placement on the first screen will entail substantially higher customer attention and choice probabilities. They also proved first-screen products are more easily to be selected, since consumers start to acquire and process information on that screen.

Same like the in-store display, being featured can significantly increase an app's visibility in the App Store, which can effectively improve the visibility of the product at the point of purchase. (Van Nierop et al, 2010). Furthermore, through the experiment, Allenby and Ginter (1995) examined that in-store display and feature can decrease the price sensitivity for the promoted products. Various studies also showed that in-store displays and feature ads can increase the probability for brands or products of being selected because of it more prominent to consumers. (Fader and McAlister 1990, Allenby and Ginter 1995, Andrews and Srinivasan 1995, Bronnenberg and Vanhonacker 1996, Mehta et al. 2003) It is easily to put the promoted items in to consumers' consideration set, which consisting of the products or brands a consumer make purchase decision among them. (Horowitz, Louviere, 1995). Besides, Baxendale, Macdonald and Wilson (2015) indicated that feature and display make the brand more

noticeable in the store, the effect of them on sales were indirect and immediately through consumers' consideration set. As they mentioned, the influence of these promotion actions are short-term. Similarly, App Store always change the apps to feature, which means every app can be featured for a short term. Thus, as the short-term strategy, featuring can lead to an immediately and short-term increase of download. There are various of performance of mobile users when they are exposing to the featured apps. Some are likely to download the app immediately after viewing the feature. Others may add the app to their consideration set, with these apps become more familiar to them, the possibility of download is increasing.

2.2 online consumer behavior

Romel Ayalew (2011) found that although consumers' behave differently for the different app they are using, the main factors they considered when they visit app store for purchase are the visual elements, prior knowledge of the consumers about the name of the apps, ratings, easy accessibility of the screenshots and consumer reviews of the apps.

The research about consumer online behavior were primarily focus on two specific aspects, the intention to review a website and the intention to purchase online. (Koufaris 2002; Li and Zhang 2002). In the context of internet, consumers are not only playing the role of traditional consumer, but also a computer user, they perform all the functions the traditional consumers performing with the computer on the internet. (Koufaris 2002). Hence, to some degree, the study of online consumer behavior can be studied based on the offline and the traditional consumer behavior. O'Keef and McEachern (1998) pointed out that the process of traditional consumer behavior mainly includes four stages, need recognition, information research, evaluation if alternatives and the actual purchases. Thinking about the purpose of this paper, we more focus on the second stage, information search process.

The first stage of the consumer behavior is need recognition. As mentioned in the previous section, featuring, as a special type of in-store display, can stimuli mobile

users' need of apps efficiently, leading to the unplanned purchase (download) behavior and ultimately increase the download of apps. That is the function of need recognition.

The biggest difference between consumer online and offline behavior is that they physical shopping environment is replaced by the technology and information system (IS) (O'Keef et al, 2000). This part, about information system (IS) and human computer interaction (HCI), are not relevant to this paper so that we do not discuss a lot here.

To further understand the second stage of consumer behavior, consumer information search processes, I will present some contribution of important theory in more details in the following section.

2.3 Consumer information searching

Consumer external information searching

Consumer information searching has been interested by academics for a long time. Understanding consumer information searching process has some realistic significance. For example, merchants and marketers can use such knowledge to influence consumers' purchase decision making. Likewise, for consumers, it can improve their decision making and saving the costs from these processes (e.g. money and time).

Many scholars classified the processes of consumer purchase decision into four stages. From problem recognition, evaluation of alternatives, purchase decision, to purchase behavior. In the information searching behavior stage, consumers try to collect the information to make a better purchase decision (Jeffrey B. Schmidt and Richard A. Spreng, 2017).

Schmidt and Spreng (2017) summarized a concise model of information searching. They proposed the information search mediated by four factors: ability, motivation, costs and benefits. The ability including the cognitive processing ability, knowledge of procedures for searching and knowledge of source of information (Brucks,1985;

Moorman, and Jaworski, 1991). Duncan and Olshavsky (1982) found that the perceived ability can increase the extent of information searching. Moreover, Srinivasan (1987) found that there is a positive relation between consumers' ability and information search. Furthermore, there are some factors can influence consumer search ability, such as educational level, product knowledge and so on.

Bettman (1979) defined motivation as the desire to put effort on a task, involving both direction and intensity. Motivation has also been seemed as "goal-directed arousal" (Park and Mittal, 1985). Thus we know the motivation for consumer information search is the consumers' intention to expend effort in the collection and processing of information searching. Moreover, Schmidt and Spreng (2017) found that higher level of motivation to search can increase consumer external information search activity. For the other two factors, costs and benefits, because it is more relative with the hypotheses, we will discuss in the next section.

External search

Through the previous research, consumer information searching can be divided into internal search and external search. The internal search occurs when consumer uses the information that they already stored in their mind. On the contrary, the external search occurs when they require the information that was not collected by them or unable to be recalled from their memory. (Jeffrey B. Schmidt and Richard A. Spreng, 2017).

The purpose of external search has been a lot of controversy. Some people defined the purpose of external search as obtaining the information related to the specific purchase. While other people, for example, Babin, Darden and Griffin (1994) argued that some consumers shopping just for the hedonic value they perceived rather than to achieve a specific purchase goal. Note that, in our real life, some people purchasing behavior is just for fun, it is normally that people always buy what they unplanned before.

Olshavsky and Wymer (1995) classified several types of sources of information that consumer is used for external search. Marketing controlled (e.g. advertising and product

package), reseller information (e.g. consultants), third-party information (e.g. consumer union, consumer community), interpersonal sources (e.g. WOM from consumers' friend and relatives) and direct inspection (consumer observation).

Information-foraging theory

Information-foraging theory can help to understand and improve human information interaction behavior. Hauser and Trifts (2000) make the point that consumer information seeking behavior is to weigh the costs if searching and evaluating the benefit of each product to make the best purchase decision when giving some alternatives to choose.

App as an information product, selecting an app to download, indeed, is a process of information seeking. Consumer in the online context need to find the information about various apps to determine which to download, time is mainly what they spend in such process.

Figure1. presents an app buyer's decision making process in the app store (Hughes, 2010). Hughes pointed that the processes start with the visual information the consumer received in the app store and end in the purchase decision. In this model, we can see that visual information is more important to affect consumer purchase decision making.

Figure2.7. The decision process of a visitor on the App Store (Hughes,2010)
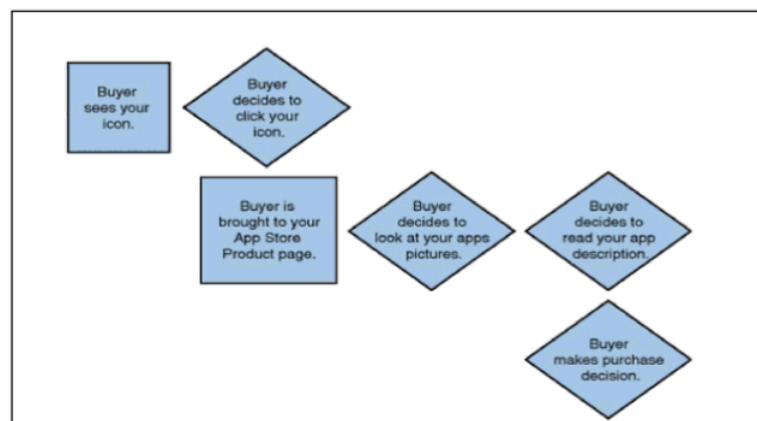
2.4 Feeling as information theory

Feeling-as-information theory classified subjective experience in judgment into affective feelings (mood and emotion), non-effective feeling (metacognitive experience) and bodily sensation (e.g. hungry and thirsty), (Schwarz, 2011). Romer (2000) and Zajonc (1980) also believed that human beings have two mechanisms to process information and make decision, thinking and feeling. Baucells and Martin Weber (2009); Beshears and Gino, (2015) defined these two systems as intuitive thinking and reasoning. The first one is automatic and instinctive, relying on the emotion and feeling. On the contrary, the second one, reasoning, is more deliberate and logical. They explained that because of the rapid and associative of the system one, we often use it unconsciously. For example, sometimes we believe our decisions are logical and reasoned, but there are times when the system one takes over, especially when we are under the pressure.

People tend to use their feeling as a dependable source of information. Higgins (1998) indicated that people commonly believe any thoughts coming into their mind and any feelings they experience are what they thinking about, when they considering something. However, they do not realize that since feeling is easily to influenced by environment, different feeling can provide different types of information, such information may come from irrelevant source. (Storbeck, Clore, 2007)

Through the experiment taken by Schwarz and Clore (1983), to a large extent, different answer about one question, the level of life satisfaction, rely on the different weathers. Respondents likely to give a higher score in the sunny day, while the lower score in the rainy day, since most of people have a better mood in the sunny day rather than the rainy day. Through this example, we can know that simple things like the different weather can even trigger the instability of feeling thereby leading to the different information. It is interesting to note that, when people realize their feeling and the source are irrelevant, they would not rely on the feeling anymore (Schwarz and Clore, 1983). Thus it can be inferred that the cognitive biases like that can be easily to eliminate.

As the amount of processing capacity and time pressure, people are more likely to process less complex information such as peripheral cues. (Kim, Chan, Gumeet and Gupta,2004). Feeling and emotion are effective cues provoking persuasion through peripheral route processing. They mentioned that the peripheral cue like feeling can produce positive or negative affects to humans' response and then influencing the evaluative judgment. The affect-as-information theory (Schwarz and Clore, 1988) also be use to explain the influence of feeling. According to the affect-as-information theory, people depend on their feeling as a valuable judgment information to form overall judgment on things. They display their target into their mind and ask themselves, "How do I feeling about it?" (Schwarz and Clore, 1988).

Furthermore, feeling can affect people's behavior directly. Romer (2000) differentiated the mechanisms of human behavior into thinking-based, feeling-based and hybrid. Through the feeling, behavioral intentions would support and increase the positive outcomes while avoiding the undesirable outcomes (Bagozzi, 1992).

Processing fluency can also affect one's feeling and the judgment toward something (Winkielman, Schwarz, Fazendeiro, & Reber, 2003). The processing fluency refer to whether it is easy or difficult to process or accept new information. Winkielman and Cacioppo (2001) found that easy processing can make people feel pleasant then generate more positive judgment. It was also proved by other researchers (Kelley & Jacoby, 1998; Lee & Labroo, 2004; Schwarz, 2004; Whittlesea, 1993), people prefer to processing fluent information than disfluent information. The more fluency people process one object the more positive evaluation they will make.

2.5 Conceptual Model and Hypotheses：

Figure 2.8. Conceptual model
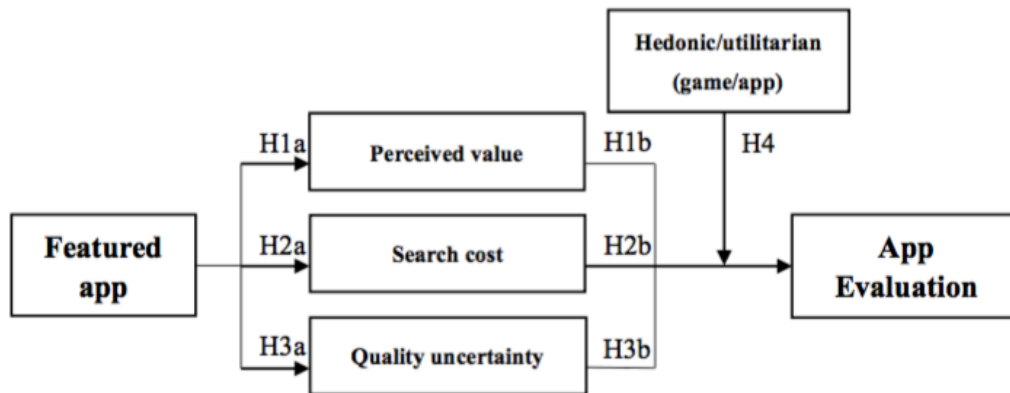
Perceived value

Perceived value of App by consumers can help explain many areas of consumer behavior, such as product choice (Zeithaml, 1988), purchase intention (Dodds and Monroe, 1985), and repeat purchasing (Nilson, 1992).

Perceived value is deemed as a trade-off between the "give" and "get" components of the products and services (Dodds, K.B. Monroe, 1985). Zeithaml (1988) believed that perceived value is consumers' overall evaluation of the utility towards products, based on their perception of what can he/she receive and what he/she was given. Kim, Chan and Gupta (2007) found that there is a positive relation between perceived value and adoption intention.

Featuring made by the editorial team of the app store can easily be deemed as the expertise information of the apps recommendation. Thus, consumers tend to have a higher quality perception about featured apps. Thus:

H1a: Featured Apps are perceived with higher value than those are not featured.

H1b: There is a positive relation between perceived value and consumers' app evaluation, the higher the perceived value of an app, the more likely it is adopted by a consumer.

search costs

Alba et al (1997), believed that for consumers, the main advantage of online shopping than the other channels are the lower search costs for products and product-related information. Previous research on search costs are more focus on product price information. However, Hoffman et al (1995) argue that a well-constructed online shop can also provided non-price information like the quality of the products to the consumers. Popkowski-Leszczyc and Rao (1990) found that the lower research costs of acquiring and process information, especially the price information, should increase price sensitivity. As we know, online shopping can easily reduce the costs of search, enlarge consumers' consideration set and make price comparison easier.

Through the previous research, search costs including the time, the energy and the money expended by a consumer who is searching the products and services for purchasing. In other words, search costs including the opportunity cost of money, time and energy the consumers can devote to other activities, for example, the money, time and energy are spent to travel between two stores examining the different options.

Break down "search costs"

"Search costs tend to higher on big-ticket items because it makes more sense to spend time, energy and possibly money researching how to get the most reliable and affordable car than it does researching how to get the tastiest and most affordable sandwich." (Inverstopedia)

Because buyers can get fast, accurate information for the products and services they want to buy through the internet, they face lower search costs for almost anything they want to buy today than they did ago. In the App Store, feature, as a type of recommendation offering some professional advices for consumers, which might a can help them reducing the search costs like time, energy even money.

Considering the finding in previous research and the evidence from the App Store, the following two hypotheses are formed:

H2a: featured apps have lower information search cost than those are not featured.

H2b: There is a negative relation between the search costs and consumers' app evaluation.

Quality uncertainty

Lupton (2005) point out that uncertainty about the product quality is a normal phenomenon in all markets. As the previous studies mentioned, the mainly reason for products' question uncertainty is information asymmetric. As we know buyers always lack of information on the quality of the products and services. Thus, in their purchase decision making process, quality uncertainty can easily influence their decision making. Thus, to make a better decision, they always rely on the information which from other channels, expertise recommendation is typical one of them. As we mentioned above, featured apps are selected by the editorial team, for some consumers, it is also a type of expertise information for the app's quality. Therefore, we assumed that:

H3a: Featured App is perceived with lower quality uncertainty than those are not featured.

H3b: There is a negative relation between quality uncertainty and consumers' app evaluation.

Hedonic/ utilitarian App

Product and services are always divided into two categories, some of within the self-oriented value like hedonic consumption for fun, others are more goal-oriented within the utilitarian value (Hartmann, 1968). As other products, App can be differentiated between these two value that they provide to consumers. In this paper, we divide App into hedonic App like game, video and music, and utilitarian app, such as email and electronic wallet.

Making a decision on which game to play is different with making decision on which utilitarian app to use for studying. Hirschman and Holbrook (1982) made the point that consumers more likely to use emotional experience when they make the hedonic

consumption, because such products are more easily to evoking their feeling. In contrast, when seeking something to fulfill their utilitarian need, they are more likely to think deliberately and analytically (Clement, Fabel and Schmidt-Stolting,2006). Thus, consumers are more easily to be persuaded by the short of information (feature), when they seeking for a hedonic app rather than a utilitarian app.

Therefore, the following hypotheses is formed:

H4: featuring has a positive impact on both hedonic and utilitarian apps. However, as for the size of such effect, featuring has larger impact on the adoption of hedonic apps compared to utilitarian apps.

Control variables

In order to make the result more accurate, in this research, we also collect the data for demographic variables of respondents like: the gender, age, income per month and the fluency of the consumer browse or download in the app store.

In addition, because the charge of app download is more complicated, for example, some apps are totally for free, some are paid, some are free but paid for upgrading, and some are paid app with a free trail version. Therefore, in this paper, we do not discuss this free-and-paid question. We make it as a control variable, aimed at reducing the impact of this problem on the results of the study.

Moreover, unlike some type of information search process, whose consumers are initiative to search product and service information for the purchasing goal. In App Store, some of the users are not have a specific goal and need of download, feature as a type of information provided by App Store, are not customer actively search for. In other words, features are what consumers can see when they opening an App Store. Thus, in this paper, we seem this question as a control variable, we assume that consumers have a specific need of download Apps when they opening an App Store.

3. Methods

3.1 Table of construct

The measurement for the variables in the conceptual model are based on findings in literature sources. To make the measurement more suitable for the construct, the measurements are modified to fit the context of this study. Table 1 in the Appendix gives an overview of each construct, the variables that will measure the construct, the scale, source, the variable type and the adjusted version.

3.2 Context

Because of the use of mobile app has become very common in our daily life, there is no limitation for the ages and educational background of the respondents in this experiment. However, the most of the expected respondents will still be students. To make the result of the experiment not be too student-specific, the author will try to send the survey to people who are already in working and through different age levels. Important to note is that, in the survey, before every section, we have give some description about the particular situation. It is will help the respondents to understand the question more clearly. The respondents will fill in their judgement of the hypothetical situation by answering the conforming scale questions.

3.3 Survey design

Because this is a voluntary survey, the time of the filling in the survey should be taken into account and therefore I chose to have three questions for each section. There are totally 19 questions and need less than 5 minutes to finish. There are 3 sections in the survey. The first section is in order to understand the respondents' app using habit. According to their habit, a corresponding app download simulation scenario is give automatically. The second section is the key part of measuring the 3 independent variables, perceived value (6 questions), quality uncertainty (3 questions), search costs (4 questions) and a dependent variable, app evaluation (1question). In addition, there are also 3 questions about the respondent demographic condition, the age, gender and

education level. As seen in the Table of constructs (Appendix Table 1) the construct are measured by 7-point Likert scales.

The survey will be available to the respondent panel through Quatrics. The final survey can be found in the Appendix.

4. Data and Results

In this part, the collected data (distributed through qualtrics website) is executed and analyzed. This section of the paper will firstly explain the demographic features of the experiment, thereafter the descriptive of the used variables will be explained.

The following part will then describe the used method to test the hypotheses and provides an elaboration of the test's mathematical model.

4.1 Descriptive Statistics

4.1.1   Demographics

The first count of all collected respondents was 290. However, after deleting test subjects, and non-completed surveys, the total amount was 207 respondents. Age, gender and highest education level were the asked demographic features of each respondent. In percentages, 5.3% of respondents were 20 years or younger, 93.7% were between 21 and 44 years and the remaining 1.0% of respondents were 45 years and older. With regards to gender, 71.0% of the respondents were female and 29.0% were male. Besides, for highest education level, 5.3% of respondents were of high school level, 60.4% were bachelor, 32.9% were master level, and 1.4% were doctor and above level.

These variables are kept constant throughout the experiment to see whether they have an influence on the relationship between independent and dependent variables. In other words, these two demographic features serve as control variables.

Table4.1. Respondents Demographics

		Frenquency	% of the respondents
Age	Younger than or 20 years old	11	5.3

	Between 21 and 44 years old	194	93.7
	45 years old or older	2	1.0
Gender	Female	147	71.0
	Male	60	29.0
Highest Education Level	High School	11	5.3
	Bachelor	125	60.4
	Master	68	32.9
	Doctor and above	3	1.4

4.1.2   Central Tendency and Variability

All used variables were measured on a 7-point Likert-scale which explains the ordinal nature of the data. Because the possible answers ranged from strongly disagree (1) to strongly agree (7), it is not always obvious to interpret the numeric results from the output. In this case however, a series of items was used to measure one particular variable each (three items for one construct) and therefore the variables can be assumed as Likert scale data, which means that the data can be analysed at the interval measurement scale (Clason & Dormody, 1994; Boone & Boone, 2012). It is therefore possible to derive the mean, standard deviation and variance of each variable. Note that the average of the items was used to calculate the descriptive statistics for each construct. This is shown in *Table 3.2* below:

Table 4.2 Descriptive statistics

	N	Mean	Std. Deviation	Variance
Perceived Value	207	5.3406	.85305	.728
Quality Uncertainty	207	4.4509	.90045	.811
Search Costs	207	3.2246	1.07301	1.151
App Evaluation	207	5.1208	1.15326	1.330

These descriptive can be interpreted as follows: the tendency of answers on quality uncertainty and search costs construct is between "neutral" and "somewhat agree" (values between 4.4509 and 4.7754) which means that on average no extreme answers

were noticeable for these two constructs. This is not a favorable outcome, because it is difficult to identify effects and relationships when the answers are indifferent. However, for perceived value and app evaluation, the tendency of answers is between "somewhat agree" and "agree" (values between 5.1208 and 5.3406), meaning that on average the respondents are satisfied with the perceived value and app evaluation. The results of these factors indicate that in general, they are satisfied with the app that they selected. Because quality uncertainty and search costs are contrary to the questions of perceived value and app evaluation.

4.1.3   Validity

To measure internal consistency of each of the variables, the Cronbach's Alpha (CA) is used as important guidance. For a variable to be accepted as internally consistent, which means that all related items should measure the same construct, the CA should be equal or higher than 0.7 (Bland & Altman, 1997). Table below shows the CA for all used variables. There was one variable – quality uncertainty – that had a lower CA of 0.613. However, considering that there is a reverse item and the number of items is only three, this CA is acceptable for further studies.

Table 4.3 Validity Test

Variable	Number of Items	Cronbach's α
Perceived Value	6	0.876
Quality Uncertainty	3	0.613
Cost Saving	4	0.732

4.2 Correlation Analysis

For measuring correlation between variables, the Pearson r is used. This can be found in the Table3.5. Important takeaways within this table are the significant values for quality uncertainty (0.583**) and app evaluation (0.713**) on perceived value as well as for search costs (-0.152*) and app evaluation (0.628**) on quality uncertainty, contrary to search costs which does not have significant correlation with app evaluation

and perceived value. This is an interesting observation, as search costs was established to be an antecedent of app evaluation in the conceptual model.

Table 4.4 Correlation Matrix

		Perceived Value	Quality Uncertainty	Search Costs	App Evaluation
Perceived Value	R	1	.583**	.080	.713**
	Sig. (2-tailed)		.000	.249	.000
	N	207	207	207	207
Quality Uncertainty	R		1	-.152*	.628**
	Sig. (2-tailed)			.029	.000
	N		207	207	207
Search Costs	R			1	.023
	Sig. (2-tailed)				.741
	N			207	207
App Evaluation	R				1
	Sig. (2-tailed)				
	N				207
**. Correlation is significant at the 0.01 level (2-tailed).					
*. Correlation is significant at the 0.05 level (2-tailed).					

4.3 T-test for means

Based on the questionnaire, the way the respondents evaluate the apps may have an influence on the perceived value, quality uncertainty and search costs, therefore the t-test for means difference was implemented.

This T-test wants to test the difference of all factors between feature and no feature. Based on the result, there is no significant difference between respondents who choose apps from homepage or from search page, which is not consistent with the hypothesis.

This is probably because of the implication of feature or no feature are not clear enough. In the experiment, the author tries to use the "tip" like "homepage" and "search" on the top of the page to imply the respondents this list of apps are featured by the app store or not. But it is may be not very clear and obvious, and may be easy to ignore. Thus, the respondents' reaction to the "tips" are not clear.

Table 4.5 T-test for Feature/ No Feature

	Sum of Squares	df	Mean Square	t	Sig.
Perceived Value * Feature_Search	.025	1	.025	.034	.854
	149.881	205	.731		
	149.906	206			
Quality Uncertainty * Feature_Search	1.325	1	1.325	1.639	.202
	165.704	205	.808		
	167.028	206			
Search Costs* Feature_Search	.830	1	.830	-.720	.397
	236.350	205	1.153		
	237.179	206			
App Evaluation * Feature_Search	2.928	1	2.928	2.214	.138
	271.053	205	1.322		
	273.981	206			

This T-test is aimed to test whether the respondents respond on hedonic or utilitarian have a difference opinion on all the factors, and the results showed that hedonic or utilitarian is an influencing factor on cost saving (0.17), which means the types of app have an effect on respondents' evaluation of cost saving. Furthermore, respondents who download the app for fun or the app for accomplish a task will put different level effort to searching and determining which app to download. For the most people, app for fun will cost less effort like time and energy than app of utilitarian.

Table 4.6 T-test for Hedonic/ Utilitarian

	Sum of Squares	df	Mean Square	t	Sig.
Perceived Value *	.315	1	.315	.432	.512
Model Rater	149.591	205	.730		
	149.906	206			
Quality	.136	1	.136	.167	.683
Uncertainty *	166.892	205	.814		
Model Rater	167.028	206			
Search Costs*	6.490	1	6.490	-5.767	.017
Model Rater	230.690	205	1.125		
	237.179	206			
App Evaluation *	.312	1	.312	.234	.629
Model Rater	273.668	205	1.335		
	273.981	206			

4.4 Linear Regression

Regression analysis is a technique which is used to determine the linear relationship between dependent variable independent variables. In other words, regression analysis can explain how much the dependent variable changes when the relevant independent variable variates (Wim Janssens, Karien Wijnen, Patrick De Pelsmacker, Patrick Van Kenhove, 2008, Marketing research with SPSS.). A linear regression model in its general form is expressed as follows:

$$Y = b_0 + b_1 X_1 + \cdots + b_n X_n + \varepsilon$$

where Y =dependent variable

X_i = independent variable

b_i = parameter to be estimated, coefficient

ε= disturbance term

A regression analysis will estimate the parameters for the variables (b_i) which is used

to estimate the predicted values for the dependent variable when you have the actual value of the independent values. (Wim Janssens, Karien Wijnen, Patrick De Pelsmacker, Patrick Van Kenhove, 2008, Marketing research with SPSS.)

In this section the results of the tests will be discussed as well as the notion whether they support the aforementioned hypotheses. Note that a 95% confidence interval is used for the hypotheses which means that α = 0.05, hence the significance level should be lower than 0.05 to support a particular hypothesis. In Table 4.1 the corresponding tests are shown with the estimates and significance levels.

Three linear regression in total are performed in order to find relationships between variables. The first regression model examines the relationships between independent variables and dependent variable without eliminating the outliers. For the first regression model perceived value, quality uncertainty, search costs and feature/ no feature are used as independent variables and app evaluation is used as the dependent variable in order to establish any relationships between these variables. The following equation is applicable to the first regression model (the intercept is not significant, so this analysis is done without intercept):

App Evaluation = f (Perceived Value, Quality Uncertainty, Search Costs, Feature/ No Feature)

Table 4.7 Linear Regression 1: All Independent Variables

App Evaluation		Unstandardized Coefficients		t	Sig.
		B	Std. Error		
1	Perceived Value	.660	.060	10.951	.000
	Quality Uncertainty	.412	.074	5.551	.000
	Search Costs	.063	.041	1.543	.124
	Feature/ No Feature	.155	.105	1.474	.142

After putting the outlier factor into consideration, the second regression model is done without the outliers:

App Evaluation = f (Perceived Value, Quality Uncertainty, Search Costs, Feature/ No Feature)

Table 4.8 Linear Regression 2: All Independent Variables-Outliers Eliminated

App Evaluation		Unstandardized Coefficients		t	Sig.
		B	Std. Error		
1	Perceived Value	.600	.053	11.366	.000
	Quality Uncertainty	.509	.066	7.751	.000
	Search Costs	.084	.036	2.318	.021
	Feature/ No Feature	.169	.092	1.826	.069

The most noteworthy observation from the second regression model is that all independent variables are significant under the confidence interval 90%, although feature/ no feature is insignificant under the confidence interval 95%. Feature/ no feature has a positive influence on app evaluation, which means that the respondents who choose the apps through homepage is more likely to be satisfied with the apps. Perceived value and quality uncertainty both have a positive influence on app evaluation, which means that respondents who are satisfied with the perceived value and the quality uncertainty are satisfied with the app.

The third linear regression focuses on the model rater, which shows whether the respondent is randomly distributed into hedonic or utilitarian group. This regression model puts model rater as an interaction factor to find if it is an influencing factor of app evaluation. The third regression model is:

*App Evaluation = f (Perceived Value, Quality Uncertainty, Search Costs, Feature/ No Feature, Perceived Value * Hedonic/ Utilitarian, Quality Uncertainty * Hedonic/ Utilitarian, Search Costs* Hedonic/ Utilitarian)*

Table 4.9 Linear Regression 3: Independent Variables & Model Rater

App Evaluation		Unstandardized Coefficients		t	Sig.
		B	Std. Error		
1	(Constant)	.242	.404	.600	.550
	Perceived Value	.624	.082	7.633	.000
	Quality Uncertainty	.462	.092	5.003	.000
	Search Costs	.111	.056	1.969	.050
	Feature/ No Feature	.155	.094	1.648	.101
	PV*M	-.152	.112	-1.349	.179
	QU * M	.118	.135	.872	.384
	SC*M	-.049	.076	-.651	.516

The third regression model shows that the interacting variables do not have a significant influence on the dependent variable, meaning that hedonic/ utilitarian doesn't have a significant effect on the independent variables. In the other word, the types of apps is not a key factor of the respondent's satisfaction with apps. In addition, the intercept is also insignificant in this model, thus the second regression model is the final model that all independent variables are significant when the confidence interval is 90%. The equation follow is the final regression model:

$$\text{App Evaluation} = 0.600 * \text{Perceived Value} + 0.509 * \text{Quality Uncertainty} + 0.084 * \text{Cost Saving} + 0.169 * \text{Feature}$$

4.4.1 Relationship of feature on perceived value, search costs and quality uncertainty.

in the analysis, featuring was found to not have a significant effect on respondents' perceived value, search costs and quality. This observation could already be predicted from the correlation matrix, where the correlation between these variables showed non-significant effects. The most reasonable explanation therefore is that the signal "homepage" and "search" are not efficient to inform the respondents this list of apps are featured by the app store or not. Thus, these signal not have a significant effect on respondents' app evaluation. The other reason may be that one respondent can see one app list, featured or not, therefore, to the respondent there is no comparison between featured and no featured, they likely to make the evaluation more subjectively and ignore the signal of "homepage" and "search". This seemingly explains why there is no apparent relationship between feature and perceived value, search costs and quality uncertainty.

4.4.2 Perceived value on app evaluation

Perceived value is an independent variable that has established a significant effect on app evaluation $(0.000 < \alpha)$. This supported the hypothesis that people with high perceived value likely to make the higher evaluation of the same app. Consequently, perceived value can be acknowledged as a strong motivator for persuasion which

positively influence customer's app evaluation.

4.4.3　Quality uncertainty on app evaluation

Quality uncertainty has a strong effect ($0.000 < \alpha$) on the dependent variable, app evaluation (satisfaction of the app). This explains the logical relationship also found in literature that if customers believe there is some uncertainty about the app's quality involved, they are less likely to make satisfactory comments on the app.

4.4.4　Search costs on app evaluation

Search costs is the independent that was firstly found not to have a significant effect ($0.124 > \alpha$) on the app evaluation, but was found significant ($0.021 < \alpha$) after deleting some outliers, and the effect is very slightly negative (-0.084). This can be already seen in the correlation analysis, where search costs is not correlated with app evaluation. The results can show that search costs is not a key influencing factor of app evaluation, which is probably because not like other tangible commodities, app is a virtual product that not need to spend lost of money on it, since many mobile apps are free of charge. Because of the less cost on money, consumers are not likely to spend so much time and energy on search and download a app. when they find the app which they downloaded is not useful or when they not satisfied with it, they can cancel it immediately without thinking a lot because of the less cost they spend on it. That is why search costs can affect consumers' app evaluation but it not a key influencing factor.

4.4.5　Feature/ no feature on app evaluation

The first model shows that feature/ no feature is not significantly influencing ($0.142 > \alpha$) app evaluation, however, after eliminating the outliers, it's a significant independent variable ($0.069 < \alpha$) when α is 0.01. This can be explained as whether the app is found through homepage or through search is actually influencing evaluation of the app. When the app is found through homepage, on average the app evaluation is 0.169 point higher. The most reasonable explaination is when respondent answer the questions about the three independent variables they are likely to be influenced by the above page,

the logo and the name of the app, and the introduction of the app, and may ignore the signal of "homepage" and "search". And when they make the final evaluation of the app, they are less easily to be influenced by the logo, name and introduction of the app. Thus they may more easily to retrieve that by which way they selected the app among the list, and the feature of the list. That might can explain why feature not has a significant effect on the three variables but has a significant effect on the app evaluation.

4.4.6 Hedonic Versus Utilitarian Apps

Whether the app is hedonic or utilitarian is found not to be a significant interacting factor of app evaluation, whose interactions of all three independent variables are all insignificant. App evaluation is indifferent whether the app is hedonic or utilitarian, and this is probably because consumers ignored the types of app they choose to download, the survey are not efficient enough to inform them. And in the first stage of survey, the consumers were assigned to hedonic and utilitarian randomly, there is no comparison showed toward them, thus they are not easily to take the types of app into account.

Consequently, the linear regression tests and the correlation matrix shoes which of the hypotheses that were established in section 2 of the thesis are supported and which ones are not. An overview is seen in **Table 4.10**.

<p align="center">Table 4.10: Hypotheses</p>

H1a	Featured Apps are perceived with higher value than those are not featured.	**Not supported**
H1b	**There is a positive relation between perceived value and consumers' app evaluation, the higher the perceived value of an app, the more likely it is adopted by a consumer.**	Supported
H2a	**featured apps have lower information search cost than those are not featured.**	Not supported

H2b	There is a positive relation between perceived value and consumers' app evaluation.	Supported
H3a	Featured App is perceived with lower quality uncertainty than those are not featured.	Not supported
H3b	There is a negative relation between quality uncertainty and consumers' app evaluation.	Supported
H4	featuring has a positive impact on both hedonic and utilitarian apps. However, as for the size of such effect, featuring has larger impact on the adoption of hedonic apps compared to utilitarian apps.	Not supported

5. Conclusion

5.1 General Conclusion

The main purpose of this thesis is to find whether featuring by Mobile App Store will affect consumers' mobile app adoption. Although there is no previous literature about the effect of featuring, there are large number of the established literature about the effect of supermarket in-store display. They showed that there is a positive relationship between display and increasing sales, which means in-store display can encourage consumer buying behavior especially when the display is obvious and easy to see. Another subject prominent within literature are online consumer behavior and consumer information search behavior. Online consumer behavior mention that consumers are easily to be influenced by the name of apps, ratings and other consumers' reviews. Consumer information search behavior contain sour stages, evaluation of alternatives is more close to our topic, in this stage, consumers try to collect and process information to make a better purchase decision. Through the previous literature, the author find that consumer perceived value, quality uncertainty and search search costs have a considerable effect on consumer purchase decision. This research aimed to find whether app featuring will affect consumer perceived value, quality uncertainty and

search costs whether affecting consumer app adoption.

The research found that featuring not has a significant effect on consumers' perceived value, search costs, quality uncertainty and app evaluation. These outcomes are probably result from the unefficient signal of feature or not. In this survey, I try to use "homepage" and "search" to inform the respondents which apps are featured by the app store and which are not. However, these signal are very easily to be ignore by the respondent, thus they are not play the expected role in the experiment. The other reason is the respondents have be influenced by the logo, name and introduction of the alternative apps, they may answer the questions about the three variables based on the the previous page, which contain the the logo, name and introduction of the app, rather than the showing channel, feature or search. In addition, one respondent can see one app list, featured or not, therefore, to the respondent there is no comparison between featured and no featured.

In contrast, perceived value, quality uncertainty and search costs have a significant effect on consumers' app evaluation. People with high perceived value likely to make the higher evaluation of the same app, people with high uncertainty about the quality less likely to make satisfactory evaluation on the same app. For search costs, the effect is very slightly negative, that is mainly because unlike other commodities, mobile app not be seemed as high cost (money) product, thus people are not tend to spend to much money, time and energy on searching it. The risk of download app also very small, when they not satisfied with the app they can remove it immediately without thinking a lot cause the less costs.

In addition, the moderator utilitarian and hedonic has a significant effect on search costs, but not on perceived value and quality uncertainty. These finding show people who try to download utilitarian app are more likely to consider the search cost including the time and energy, which was accordance with finding in the literature, people who search a product for accomplishing a task will spend more costs than who search a product for fun, meanwhile, people who search a utilitarian product are more likely to consider the search cost in their search process.

5.2 Managerial Implications

As found in results, perceived value and quality uncertainty has a strong effect on consumers' app evaluation. Consumer perceived value and perceived quality should therefore be taken into account when a firm wants to persuade a consumer download and make a positive evaluation of a app. They should try to provide more useful information on the app introduction page and show the features of the app more obvious. In the other word, the firm need to offer information to help increase consumer perceived value of the app information and the app, and decrease consumer perceived quality uncertainty of the app.

It is also beneficial for the firm to help consumer save the searching costs of download an app. Firm can improve the way of showing the information to make the information more clearly, especially for utilitarian app, because consumer like to spend more costs on searching app for accomplishing a task than app for fun. Simplify the entertainment mobile app which are free because these apps are seemed with low risk, thus consumers are not tend to spend much time and attention on it.

Reference：

[1] Feature History and Daily Features Report Guide & FAQ.

https://support.appannie.com/hc/en-us/articles/234807567-Feature-History-and-Daily-

Features-Report-Guide-

FAQ?flash_digest=9368f2b87510b935b27788b71f6c358a3f8b23bf)

[2] Curhan, 1973, "shelf apace allocation and profit maximization in mass retailing*,"* *Journal of marketing*, 37(july),54-60

[3] Wilkinson, J. B., Mason, J. B., & Paksoy, C. H. (1982). Assessing the impact of short-term supermarket strategy variables. *Journal of Marketing Research, 19*(1), 7-86.

[4] Van Nierop, E., Bronnenberg, B., Paap, R., Wedel, M., & Franses, P. H. (2010). Retrieving unobserved consideration sets from household panel data. *Journal of Markting Research, 47*(1), 63-74.

[5] Abratt, R., & Goodey, S. D. (1990). Unplanned buying and in-store stimuli in supermarkets. *Managerial and Decision Economics, 11*(2), 111-121.

[6] Kollat and R. P. Willett (1969). Is impulse purchas- ing really a useful concept for marketing decisions? *Journal of Marketing 33,* January, 79-83.

[7] Inman, J. J., Winer, R. S., & Ferraro, R. (2009). The interplay among category characteristics, customer characteristics, and customer activities on in-store decision making. *Journal of Marketing, 73*(5), 19-29.

[8] Breugelmans, E., Campo, K., & Gijsbrechts, E. (2007). Shelf sequence and proximity effects on online grocery choices. *Marketing Letters, 18*(1-2), 117-133.

[9] Gijsbrechts, E., Campo, K., & Goossens, T. (2003). The impact of store flyers on store sales and store traffic: a geomarketing approach. *Journal of Retailing*, *79*(1), 1–16.

[10] Joel L Horowitz, Jordan J Louviere, what is the role of consideration sets in choice modeling?, *international journal of research in marketing*, 12 (1995), 39-54

[11] Allenby, Gerg M, James L. Ginter, 1995. the effect of in-store display and feature advertising on consideration sets. *internat. J. Res.Marketing*, 12, 67-80.

[12] Andrews, Rick L., T. C. Srinivasan. 1995. Studying consideration effects in empirical choice models using scanner panel data. *J. Marketing Res*, 32(1) 30-41.

[13] Bronnenberg,Bart J., Wilfried R. Vanhonacker. 1996, Limited choice sets, local price response, and implied measures of price competition. *J. Marketing Res. 33 (May)*, 163-173.

[14] Fader, Peter S., Leigh Mc Alister. 1990. An elimination by aspects model of consumer response to promotion calibrated on UPC scanner data.*J.MarketingRes*.27(August)322–332.

[15] Mehta, Nitin, Surendra Rajiv, Kannan Srinivasan. 2003. Price uncertainty and consumer search: A structural model of consideration set formation. *Marketing Sci*. 22(1) 58–84.

[16] Baxendale, S., Macdonald, E. K., & Wilson, H. N. (2015). The impact of different touchpoints on brand consideration. *Journal of Retailing, 91*(2), 235-253.

[17] Romel Ayalew, consumer behavior in Apple's App Store, Uppsala University.

[18] O'Keefe, R.M., Cole, M., Chau, P.Y., Massey, A., Weiss, M.M., & Perry, M. (2000). From the user interface to the consumer interface: results from a global experiment: *International Journal of Humanc-Computer Studie,*53, 611-628

[19] Li, N., Zhang, P., Ramsower., R & Windsor, J. (2002). Consumer Online Shopping Attitudes and Behavior: *An Assessment of Research, in Proceeding of Eighth Americas Conference on Information Systems Dallas, TX, August, pp. 508 517*.

[20] Feature History and Daily Features Report Guide & FAQ. https://support.appannie.com/hc/en-us/articles/234807567-Feature-History-and-Daily-Features-Report-Guide-FAQ?flash_digest=9368f2b87510b935b27788b71f6c358a3f8b23bf)

[21] Romel Ayalew, consumer behavior in Apple's App Store, Uppsala University.

[22] O'Keefe, R.M., Cole, M., Chau, P.Y., Massey, A., Weiss, M.M., & Perry, M. (2000). From the user interface to the consumer interface: results from a global experiment: *International Journal of Humanc-Computer Studie,*53, 611-628

[23] Li, N., Zhang, P., Ramsower., R & Windsor, J. (2002). Consumer Online Shopping Attitudes and Behavior: *An Assessment of Research, in Proceeding of Eighth Americas Conference on Information Systems Dallas, TX, August, pp. 508 517.*

[24] Manel Baucells, Martin Weber, 2009, mind your mind traps, *IESE*, second quarter, issue1.

[25] John Beshears, Francesca Gino, 2015, Leader as Decision Architects, *Harvard Business Review*, May

[26] Romer, P. M. "Thinking and Feeling," The American Economic Review (90:2), 2000, pp. 439-443.

[27] Kim, Hee-Woong; Chan, Hock; Chan, Yee; and Gupta, Sumeet, "Understanding the Balanced E ects of Belief and Feeling on Information Systems Continuance" (2004). *ICIS 2004 Proceedings*. 24.

[28] Schwarz, N., and Clore, G. L. "How Do I Feel About it? Informative Functions of Affective States," in Affect, Cognition, and Social Behavior, K. Fiedler and J. Forgas (Eds.), Hofgrefe International, Toronto, 1988, pp. 44-62.

[29] Schwarz, N. (2011). Feelings-as-information theory. *Handbook of theories of social psychology*, 1, 289-308.

[30] Schwarz, N., & Clore, G. L. (1983). Mood, misattribution, and judgments of well-being: informative and directive functions of affective states. *Journal of personality and social psychology*, 45(3), 513.

[31] Bagozzi, R. P. "The Self-Regulation of Attitudes, Intentions, and Behavior," *Social Psychology Quarterly* (55:2), 1992, pp. 178-204.

[32] Storbeck, J., & Clore, G. L. (2007). On the interdependence of cognition and emotion. *Cognition and Emotion*, 21(6), 1212-1237.

[33] Winkielman, P., Schwarz, N., Fazendeiro, T., & Reber, R. (2003). The hedonic marking of processing fluency: Implications for evaluative judgment. *The psychology of evaluation: Affective processes in cognition and emotion*, 189-217.

[34] Kelley, C. M., & Jacoby, L. L. (1998). Subjective reports and process dissociation: Fluency, knowing, and feeling. *Acta Psychologica*, 98(2), 127-140.

[35] Lee, A. Y., & Labroo, A. A. (2004). The effect of conceptual and perceptual fluency on brand evaluation. *Journal of marketing research*, 41(2), 151-165.

[36] Schwarz, N. (2004). Meta-cognitive experiences in consumer judgment and decision making. *Journal of Consumer Psychology*, September.

[37] Whittlesea, B. W. (1993). Illusions of familiarity. *Journal of Experimental Psychology: Learning, Memory, and Cognition*, 19(6), 1235.

[38] Higgins, E. T. (1998). Promotion and prevention: Regulatory focus as a motivational principle. *Advances in experimental social psychology*, 30, 1-46.

[39] Jeffrey B. Schmidt, Richard A. Spreng. 2017. A Proposed Model of External Consumer Information Search. *Journal of the Academy of Marketing Science*. Vol 24, Issue 3, 246-256]

[40] Brucks, Merrie. 1985. "the effects of product class knowledge on information search behavior." *Journal of consumer research* 12 (June): 1-15

[41] Maclnnis, Deborah J., Christine Moorman, and Bernard J. Jaworski, 1991. "enhance and measuring consumers' motivation, opportunity, and ability to process Brand Information from Ads." *Journal of Marketing* 55 (October):32-51.

[42] Duncan, Calvin P. and Richard W. Olshavsky. 1982. "external search: the role if consumer beliefs." *Journal of marketing research* 19 (February): 32-43

Srinivasan, Narasimhan. 1986. "A Path Analytic Model of External Search for Information for New Automobiles." In advances in consumer research, Vol. 14. Eds. M. Wallendorf and P. Anderson. Provo, UT: *Association for Consumer Research*, 319-322.

[43] Bettman, James R. 1979. An information processing theory of consumer choice. Reading, MA: Addison-Wesley.

[44] Park, C Whan and V. Paeker Lessig. 1981. "familiarity and its impact on consumer decision biases and heuristics." *Journal of consumer research* 3 (September):223-230.

[45] Hauser, J.R., & Trifts, V. (2000), Consumer Decision Making in Online Shopping Environments: *The Effects of Interactive Decision Aids, "Marketing Science, 19 (1), 4–21 C*

[46] John G. Lynch, Jr., Dan Ariely, 2000. wine online: search costs affect competition on price, quality and distribution. *Marketing Science* 19 (1): 18-103.]

[47] Hughes, J. (2010). iPhone and iPad Apps – Secretes to Selling Your iPhone and iPad Apps Marketing. Chapter 5 Building Your App's Total Message.

[48] Alba, Joseph, John Lynch, Barton Weitz, Chris Janiszewski, Richard Lutz, Alan Sawyer, Stacy Wood. 1997. Interactive home shop- ping: incentives for consumers, retailers, and manufacturers to participate in electronic marketplaces. *J. Marketing* **61** (July) 38– 53.

[49] Hoffman, Donna, Tom Novak. 1996. Marketing in hypermedia computer-mediated environments: conceptual foundations. *J. Marketing* **60** (July) 50–68

[50] Popkowski-Leszczyc, Peter, T. L., Ram C. Rao. 1990. An empirical analysis of national and local advertising effect on price elas- ticity. *Marketing Lett.* **1**(2) 149– 160.

[51] Hartmann, R. (1968). The structure of value: Foundations of scientific axiology.

[52] Hirschman, E. C., & Holbrook, M. B. (1982). Hedonic consumption: emerging concepts, methods and propositions. *The Journal of Marketing*, 92-101.

[53] Clement, M., Fabel, S., & Schmidt-Stolting, C. (2006). Diffusion of hedonic goods: A literature review. *The International Journal on Media Management*, 8(4), 155-163.

[54] Zeithaml, V. A. (1988). Consumer perceptions of price, quality, and value: a means-end model and synthesis of evidence. *Journal of Marketing*, 52, 2–22.

[55] Dodds, W., & Monroe, K. B. (1985). The effects of brand and price information on subjective product evaluations. *Advances in Consumer Research*, 12, 85–90.

[56] Nilson, T. H. (1992). Value-added marketing: marketing management for superior results. Berkshire, UK: McGraw-Hill.

[57] Hee-Woong Kim, , Hock Chuan Chan , Sumeet Gupta,2007. Value-based Adoption of Mobile Internet: An empirical investigation. *Science Direct*, decision support system 43, 111-126

[58] W.B. Dodds, K.B. Monroe, The effect of brand and price information on subjective product evaluations Advances in Consumer Research, 12 (1) (1985)

[59] V.A. Zeithaml, Consumer perceptions of price, quality and value: a means-end model and synthesis of evidence, *Journal of Marketing*, 52 (3) (1988 (Jul.)

[60] Sylvie Lupton; Shared quality uncertainty and the introduction of indeterminate goods. *Cambridge J Econ* 2005; 29 (3): 399-421. doi: 10.1093/cje/bei009

Appendix:

Construct Table

Construct	Explanation	Measurement	Scale	Source	Variable	Adapted
Perceived value	"a trade-off between 'give' and 'get' components of the product and the service (app)." "the overall evaluation of the utility towards products, based on their perception of what can she/he receive and what she/he was given."	1. I believe the app I download is useful for me. 2. I believe the app I download can fully meet my need. 3. I believe the app I downloaded is interesting. 4. I believe it will be fun to use the app I chosen download. 5. I believe the app I chose to download is easy to use. 6. I believe the app I chose to download ed is user-friendly Convenience/ accomplis	7 point Likert scale	Davis et al.(1992)	Independent variable	adjusted to fit within context, scale adapted

Quality uncertainty	Consumers' concerns about the product (apps) quality and performance.	1. I believe the app I chose to downloaded is reliable in terms of quality and performance. 2. I am not sure about the quality of the app I chose to download. 3. I think this app is trustworthy to use.	7 point Likert scale	Klein, Gary.(1982)	Independent variable	Specifically adjusted to fit within context

The first row shown (continued from previous page):

		h a … task/ save time by using				

Search Costs	"search costs for products and product-related information." "search Costs including the time, the energy and the money expended by a consumer who is searching the products abs service for purchasing."	1. It takes me considerable time to find the app I want. 2. I think the channel I used to find the app is very convenient. 3. It costs me a lot of attention to find the app I want. 4. I think it is not easy to find the app I actually want.	7 point Likert scale	Lundstrom and Lamont, 1976	Independent variable	adjusted to fit within context, scale adapted
App evaluation		I am very satisfied with the app I chosen to download.	7 point Likert scale	J Consum Res (1980)	Dependent variable	adjusted to fit within context, scale adapted

Questionnaire:

Q1 Thank you for participating in this survey. This study is for my Master Thesis at Erasmus University Rotterdam. The study will take approximately 5 minutes. I hope this survey will be interesting for you to fill in. please answer the question below:

Q2 what is your age?

<20 years (1)

21-44 years (2)

>45 years (3)

Q3 what is your gender?

Male (1)

Female (2)

Q4 what is your highest education level?

primary school (1)

high school (2)

Bachelor (3)

Master (4)

Doctor and above (5)

Q5 How do you usually choose a app for working to download in Apple App Store?

Go to "search" with a defined key word (1)

Choose from apps listed on the "homepage" or "categories" in App Store. (2)

Q6 Supposed you are thinking of downloading an app of time management, then you open the apple app store and go to "search", inputting the keyword "time management", the search output like below list is showed in front of you. Please choose an app to download from the list.

Calendar (1)

Calendar-ing (2)

CalendarMe (3)

Q7 Supposed you are thinking of downloading an app of time management, then you open the Apple App Store and try to find the app on the "homepage" or go to the "category" of "efficiency" and you see the list of apps below. Please choose an app to download from the list.

iCalendar (1)

Calendar-ing (2)

CalendarMe (3)

Q11 Please read the details of the app you have chosen, and answer the following questions.

Q12 Please read the details of the app you have chosen, and answer the following questions.

Q13 Please read the details of the app you have chosen, and answer the following questions.

Q17 Please read the details of the app you have chosen, and answer the following questions.

Q18 Please read the details of the app you have chosen, and answer the following questions.

Q19 Please read the details of the app you have chosen, and answer the following questions.

Q8 How do you usually choose a game to download in Apple App Store?

Go to "search" with a defined key word. (1)

Choose from apps listed on the "homepage" or "categories" in App Store. (2)

Q9 Supposed you are thinking of downloading a music app, then you open the apple app store and go to "search", inputting the keyword "music", the search output like below list is showed in front of you. Please choose an app to download from the list.

LMusic (1)

Music-ing (2)

Musician (3)

Q10 Supposed you are thinking of downloading a music app, then you open the Apple App Store and try to find the app from the homepage or go to the "category" of "music" and you see the list of music apps like below. Please choose an app to download from the list.

LMusic (1)

Music-ing (2)

Musician (3)

Q14 Please read the details of the app you have chosen, and answer the following questions.

Q15 Please read the details of the app you have chosen, and answer the following questions.

Q16 Please read the details of the app you have chosen, and answer the following questions.

Q20 Please read the details of the app you have chosen, and answer the following questions.

Q21 Please read the details of the app you have chosen, and answer the following questions.

Q22 Please read the details of the app you have chosen, and answer the following questions.

Q23   I believe the app I   download is useful for me.

Strongly agree (1)

Agree (2)

Somewhat agree (3)

Neither agree nor disagree (4)

Somewhat disagree (5)

Disagree (6)

Strongly disagree (7)

Q24   I believe the app I download can fully meet my need.
Strongly agree (1)
Agree (2)
Somewhat agree (3)
Neither agree nor disagree (4)
Somewhat disagree (5)
Disagree (6)
Strongly disagree (7)

Q25 I believe the app I download is easy to use.
Strongly agree (1)
Agree (2)
Somewhat agree (3)
Neither agree nor disagree (4)
Somewhat disagree (5)
Disagree (6)
Strongly disagree (7)

Q26 I believe the app I download is user-friendly.
Strongly agree (1)
Agree (2)
Somewhat agree (3)
Neither agree nor disagree (4)
Somewhat disagree (5)
Disagree (6)
Strongly disagree (7)

Q27 I believe the app I download is interesting.
Strongly agree (1)
Agree (2)
Somewhat agree (3)
Neither agree nor disagree (4)
Somewhat disagree (5)
Disagree (6)
Strongly disagree (7)

Q29 I believe it will be fun to use the app I chosen to download.
Strongly agree (1)
Agree (2)
Somewhat agree (3)
Neither agree nor disagree (4)
Somewhat disagree (5)
Disagree (6)
Strongly disagree (7)

Q31 I believe the app I chose to download is reliable in terms of quality and performance.
Strongly agree (1)
Agree (2)
Somewhat agree (3)
Neither agree nor disagree (4)
Somewhat disagree (5)
Disagree (6)
Strongly disagree (7)

Q32 I am not sure about the quality of the app that I download.
Strongly agree (1)
Agree (2)
Somewhat agree (3)
Neither agree nor disagree (4)
Somewhat disagree (5)
Disagree (6)
Strongly disagree (7)

Q33 I think this app is trustworthy to use.
Strongly agree (1)
Agree (2)
Somewhat agree (3)
Neither agree nor disagree (4)
Somewhat disagree (5)
Disagree (6)
Strongly disagree (7)

Q35 It takes me considerable time to find the app I want.
Strongly agree (1)
Agree (2)
Somewhat agree (3)
Neither agree nor disagree (4)
Somewhat disagree (5)
Disagree (6)
Strongly disagree (7)

Q36 I think the channel I used to find the app is very convenient.
Strongly agree (1)
Agree (2)
Somewhat agree (3)
Neither agree nor disagree (4)
Somewhat disagree (5)
Disagree (6)
Strongly disagree (7)

Q37 It costs me a lot of attention to find the app I want.
Strongly agree (1)
Agree (2)
Somewhat agree (3)
Neither agree nor disagree (4)
Somewhat disagree (5)
Disagree (6)
Strongly disagree (7)

Q38 I think it is not easy to find the app i actually want.
Strongly agree (1)
Agree (2)
Somewhat agree (3)
Neither agree nor disagree (4)
Somewhat disagree (5)
Disagree (6)
Strongly disagree (7)

Q42 I think i am very satisfied with the app i chosen to download.

Strongly agree (1)

Agree (2)

Somewhat agree (3)

Neither agree nor disagree (4)

Somewhat disagree (5)

Disagree (6)

Strongly disagree (7)