"Measuring Thai consumers' acceptance of free-application advertisement in Android and iOS device: A conceptual model"

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Abstract Advertising on mobile has become more concerned since 2002. Numerous of previous research frameworks related to acceptance of mobile marketing and service have yielded. Most of them focused on text-based advertising such as SMS or MMS. Since free application advertisements have distinctive characteristics additional from erstwhile mobile advertising. This paper proposed a conceptual framework for measuring Thai consumers' acceptance of free-application advertisement targeting two most widespread smart phone operating system, Android and iOS device users. The framework extended from The Unified Theory of Acceptance and Use of Technology (UTAUT) by adding trust, and Utilization of contextual information to make it more compatible with constraint of free-application advertisement.

1 Introduction

A number of smart phone and tablet PC users are increasing rapidly around the world since last two years including in Thailand. There are two main competitors in the market, Android from Google and iOS from Apple. According to Nielsen Research Company [1] ending in quarter two 2011, Android OS have market share of 50 percent, Apple have 29 percent share in U.S. This two main competitor have totally 79 percent in smartphone market and growing. Also in Thailand they reported that 50 percent of Thai Internet users who don't have smart phone are intends to buy one by the end of 2011.

A mobile application is software that designed especially for installed and executed on mobile device. Both of Android and iOS have the application store, which allows consumers to purchase and download applications for their mobile device immediately. Everyone can develop applications and sell it in the application store, no matter a high school student or an experience application development company.

Advertising on mobile has become interested since 2002, started from short text message service; it was the illustration of a huge market success on mobile advertising now [3]. Today, telecommunication technology has been improved in combination with faster processing power, greater storage capacities, Assisted GPS system of smart phone device; can be delivered new service level of application, for example adapting an advertisement to show to customer by current position or by application category that opened. Consumers can approach different content and services independently by using distinctive applications.

There is an application type that users can download and use it for free of charges. The developers of these applications can indirectly get their revenue by offering free basic functions then if consumers are satisfied and willing to pay for it, they will unlock more features. The most successful and trendy method to get revenue is to display advertisements banner aside the application screen. This research aims to inspect the factors that persuade Thai consumers to accept advertisements in free application. The Unified Theory of Acceptance and Use of Technology (UTAUT) [4] model has been extend to construct a conceptual model.

2 Backgrounds and Related Work

A. *Studies on Consumer Acceptance of Mobile Marketing and Service*

Academic researches that focus on empirical studies in mobile advertising acceptance started from 2002 [5] when the SMS advertisement was born. Mobile advertising was increasing widely exposed to consumers. Numerous of studies have classified different factors that determine consumer acceptance of mobile advertising in different context.

Bauer et al (2005) [3] provide an explanation, as what factors will drive consumer to accept mobile marketing as an empirical study. Theory of Reasoned for Action (TRA) has been use to create new model. The result suggest that consumer are intent to have positive attitude toward mobile marketing if the marketing message contain creativity, entertainment and high information value, which will lead to behavioral intention to use mobile marketing services. They also conclude that one factor that all of advertisement company should pay attention is trust.

Merisavo et al (2005) [5] implied that consumer perceived utility and perceived sacrifice have strong impact in mobile advertising [5]. Also Perceived value, utilization of contextual information also needs to be regarded as well. The result based on SMS advertising, which is only text-based. They have contributed five factors of Structural equation modeling: utilities, context, control, trust, and sacrifice.

Carroll et al (2005) [6] conducted a survey in the New Zealand to find the attitude forward SMS market. The result shows that contextual; trust; permission; content or permission/control are the factors that will impact on consumer acceptance.

Shuang (2011) [7] demonstrates that mobile consumers in China by propose a framework based on TAM model. The result indicate that perceived usefulness, subject norm consumer attitude and perceived ease of use as primary effect for customer to adopt mobile advertisement.

According to Shen (2008) [8]. Informativeness, Entertainment, and Credibility are the factors most important that persuading the consumers' acceptance of mobile advertisement. They have integrated the TPB and TAM to construct a new framework as Quan (2008) [9] also use the same methodology but different factors Quan show that Credibility, perceived self-efficacy, and perceived cost have effect on the adoption of mobile service in China

Rajala et al (2010) [10] says that value content (personalization, context) and trust (Credibility, Privacy) in advertisers are key predictors of the acceptance in mobile advertisement also their framework was based on TRA.

Unified Theory of Acceptance and Use of Technology (UTAUT) model is one of the most popular framework that use to measure the behavior intension to use Information Technology which is developed by Venkatesh et al [4] in 2003. They have compare and unified eight IT acceptance models including the motivational model (MM), the theory of reasoned action (TRA), the technology acceptance model (TAM), a model combining the technology acceptance model and the theory of planned behavior (C- TAM-TPB), the theory of planned behavior (TPB), the innovation diffusion theory (IDT), the social cognitive theory (SCT), and the model of PC utilization (MPCU). The model has four primary factors – performance expectancy, effort expectancy, social influence, and facilitating conditions – along with fours moderating variables gender, age, experience, and voluntariness of use, which are the one of strengths of UTAUT.

There are some researches on consumer acceptance of mobile services and advertisements, which use UTAUT as a model. He et al (2007) [11] demonstrate an integrated model that represents consumer's perceptions and acceptances towards mobile advertising on short message service in China. They have improved Unified Theory of Acceptance and Use of Technology, Innovation Diffusion Theory, and Task-Technology Fit theory as a new framework. The resulted, Effort Expectancy and Individual Innovativeness was not effect behavior intension but Social Influence and Permission was. They implied that the result provided new penetration (Permission

and Innovativeness) to measure the acceptance of consumer's behavior to accept mobile advertising.

Figure 1: Original UTAUT Model
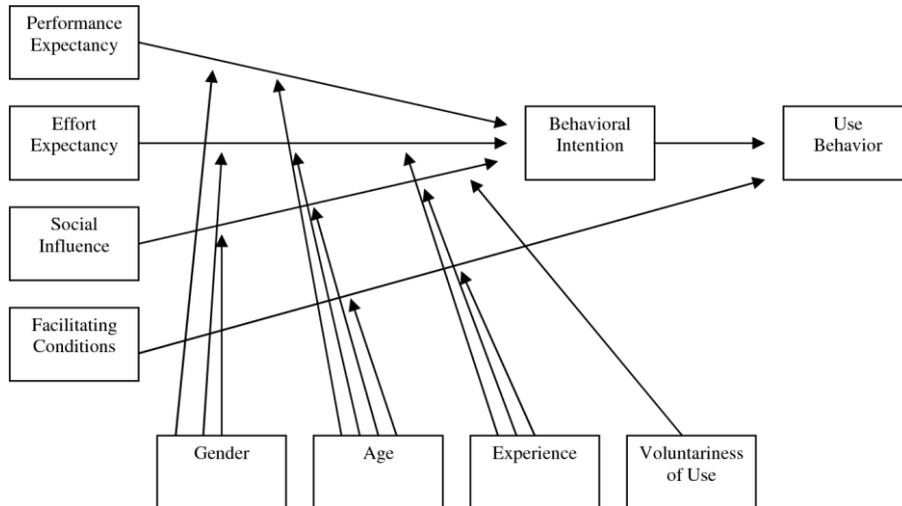
Koivimäki et al (2008) [12] described that UTAUT can use as a framework to discussion of adoption of new technology [12]. They showed that consumer perception of the use of new mobile service does not relate with duration of the use therefor familiarity and skill have an impact.

In conclusion, most of researcher adopted TRA or TPB as a based theory to create a model framework for measure the adoption of mobile market or service; some of them integrated both TPB and TRA together or adding new factors [3][5][6][7][8][9][10] to the theory to suite their sample. UTAUT is also the theory that has studied the mobile advertising acceptance [11][12]. Only SMS advertisement has been focused to measure the consumer acceptance.

B. Advertisement inside Mobile Application

Application is an implementation of a related set of functions that perform useful work, often enabling one or more services. It may consist of software and/or hardware elements [13]. Mobile Application is specific applications that design especially for mobile device. There are some of limitation of mobile device that make major different from other application such as limited memory, small screen size, small keyboard or input method and simplicity of user interface [14] with those restricts software developer need to design the application carefully to make the most of all resources.

In recent years, mobile application market has rapidly developed itself. Consumers can download and install latest software by themselves with a few clicks via Mobile Application Platform that exists in most of smartphone operating system such as App Store, Google Android Market, Microsoft Windows Market, Nokia OVI Store, RIM Blackberry App World and so on. Application can be separated into two groups based on budget, Free and Paid application. For the paid version, vendors get revenue from selling application itself. Due to highly competitive in the market, price of software have been drop, open the opportunities for free application. In free application, venders get revenue by offer free basis content and feature first then consumer can buy more additional, or put the advertising banner inside the application screen, know as in-application advertisement. The studies on mobile advertisement acceptance still don't have focus on this type of advertisement yet.

Mobile Marketing Association (MMA) defined advertisement as "Any collection of text, graphics or multimedia content displayed and accessible inside of an application for the purposes of promoting a commercial brand, product or service [15]." The type of mobile advertisements can

be dividing in two main type, push and pull advertisements [16]. Push type means that advertisement will forcible send content to mobile consumer. Pull type means that consumer will receive advertising only if they need to. Jung woo (2009) [16] suggested that each type of advertisement can be differ more by the characteristics. Push type can be classified in to location base, time based, wireless Internet connection type, multimedia type, and coupon type. Directory, banner, page insertion, and mobile code can categorize as Pull type. Each characteristic organized by different time, place, content, and appearance.

In-application advertisement can be categorized into many categories since they have shared characteristics e.g. most of the smart phone have AGPS system so that application can display the ads based on your location, be able to display images combination made them a multimedia type, showing a QR code or scanning one make them a coupon type etc.

As review of the literature shows that in-application advertisement has completely different characteristics for both aspect of advertisement and acceptance model that has been studied. Mobile device performance has improved faster CPU, higher storage and memory, bigger screen size, and location service enable by AGPS. In advertisement aspect of mobile application also has been changed. So these reasons bring gaps for the past researches, which are not sufficient for this kind of advertisement. It needs to be improved

3 A Conceptual Model For In-Application Advertisement Acceptance

From an extensive review of literatures suggest that previous studies on mobile advertisement acceptance models were not compatible with Thai consumers acceptance for in-application advertisement in three reasons. First, In-application advertisement has completely different characteristics comparing with SMS based advertisement (location enabled, multimedia, interactive etc.), which is the most studied in previous literatures. Second, Thai consumers have different culture from other country. The marketers, developer, and venders need to have different marketing strategy from other country [17]. Frameworks that have been developing from other country are not suitable. Third, Smartphone and telecommunication technology has been improved. Some aspects are not effect any more.

It was found that existing UTAUT model is not suitable enough in with 3 conditions above, new characteristics of advertisement, different in culture in country, and improvement of mobile application technology. Extended variables including trust, and Utilization of contextual are important factors [3] that will impact the adoption of in-application advertisement along with fours variables from existing UTAUT [4]. The research framework shows below.

Venkatesh et al [4] defined performance expectancy, as the degree to which an individual believes that using the system will help him or her to attain gains in job performance. Effort Expectancy as the degree of ease associated with the use of the system. Social influence as the degree to which an individual perceives that it is important others believe he or she should use the new system. Facilitating Condition as the degree to which an individual believes that an organizational and technical infrastructure exists to support use of the system. The following is the explanation for three more variables trust, and Utilization of contextual information.

A. Trust

Many study demonstration that trust of consumers has dramatic impact among consumer acceptance of mobile service [3][5][6][8][9][10]. Trust is an integral component in many kind of human interaction allowing people to act under uncertainty and with the risk of negative consequences [18]. The way that consumer interact with advertisement also need trust. Bauer et al (2005) [3] implies that Trust for mobile have directly effected with the motivation to authority of the reception and permit their personal information to be share with advertising message. So they assume that trust is a precondition for the consumer acceptance of mobile marketing. Trust also can divide into sub category as Permission, Privacy, and Credibility.

B. Utilization of contextual information

Perceive value have positive relation with the utilization of time and place because people carry their mobile device, online, using application many times a day. The mobile advertising will benefit from different time, place, and consumers [5]. For example: when you were walking near the restaurant in the afternoon, you will receive discount coupon for lunch from restaurant near you. For the in-application advertisement showing advertisement that related to application type is also an important factor such as when user are using cooking related, the application should push a cooking class ads, discount coupon for buying fresh ingredient etc.

Figure 2: A Conceptual Model for Thai Consumer Acceptance of In-Application Advertisement
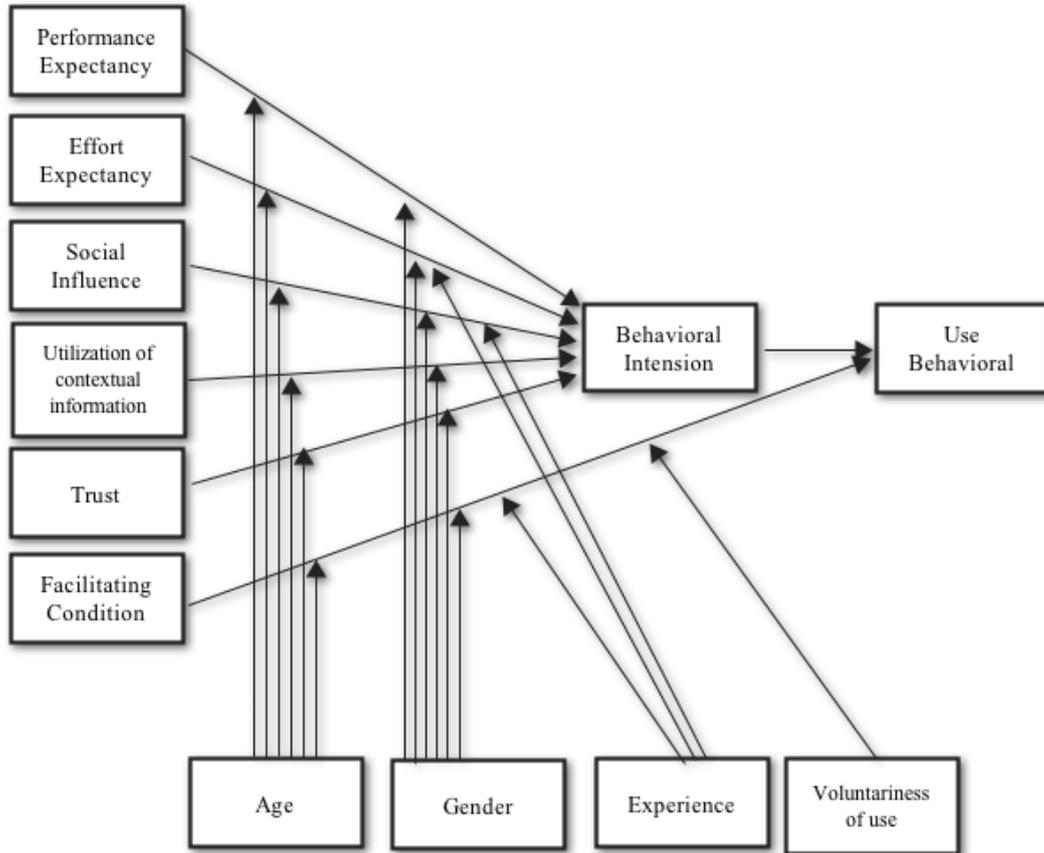
4 Conclusions

This paper has been review, analyses, compare and explains existing literatures that related to consumer acceptance of mobile marketing. Numerous researchers have suggested factors that will impacts on consumer adoption on mobile service and marketing however it is not suitable for measuring Thai consumer acceptance for in-application advertisement because of three constrains, new characteristics of advertisement, different in culture in country, and improvement of mobile application technology. A new conceptual framework has been proposed by extended the original UTAUT model. There are two factors including trust and utilization of contextual information that require for measure Thai consumers acceptance of in-application advertisement. The future research will be carried out an empirical study to test and validate the conceptual model

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