The Importance of Mobile Phone Applications to Young Consumers: An exploratory study in Malaysia

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Abstract

A survey studying students' preferences for mobile phone applications was conducted on a convenience sample of 312 Malaysian students who were mobile phone users. Analysis showed that students emphasised communication, emergency assistance, and entertainment applications in their use of mobile phones. However, students with higher mobile services expenditure also considered transaction based, location based, and content delivery applications to be important. The majority of students were prepaid users, which resulted in a number of limitations in their level of mobile phone expenditure. As a result they tended to emphasise communication and personal enjoyment in their use of mobile services.

Keywords: mobile application, students, Malaysia

Introduction

Mobile phones have changed the lifestyle of many consumers, especially those in younger generations. Most school children and youth have owned at least one mobile phone. Mobile phones offer a range of applications, from telephone conversation and simple text messages (SMS), to multimedia messaging services (MMS) and Internet access, depending on the capability of individual mobile phones and the services available. These applications have been made possible through various developments in mobile telephone technology such as GPRS, WAP and the 3G standard (Abdul Karim, Darus and Hussin, 2006).

In Malaysia, several major telecommunication operators such as Maxis Communication Bhd., Celcom Malaysia, and Digi Telecommunication have been granted licenses to operate the new 3G standard (Abdul Karim, *et al*., 2006). Broadband internet service providers are now moving into a second phase of market development, from marketing broadband as a high-speed Internet access service to an enabler of higher end services such as triple play and digital home concepts (Lee and Lee, 2006).

The total number of mobile subscribers in Malaysia is approximately 30,379,000 (MCMC, 2010) with a penetration rate of around 106% due to multiple subscriptions. There has been an increase in the popularity of pre-paid mobile telephones following the development of pre-paid systems where the user purchases a fixed amount of access beforehand rather than the traditional system of paying for use afterwards. This convenient system has influenced the penetration rate tremendously, particularly among youth subscribers, who account for more than 30% of the total of mobile subscribers in Malaysia.

The main objectives of this research are to explore the preferences of young consumers, particularly students, for mobile applications. As this group of consumers will be using mobile services for a longer time span, it is important to understand their preferences. Young consumers are technology savvy, early adopters of new technologies, and always willing to try new things. Rapid changes in mobile applications often attract their attention and they are easily prompted to take on a new promotional package or service.

Therefore, the research also has the objective of understanding students' exposure to and usage of mobile applications, as well as what types of mobile applications and services they emphasized. Although there are quite a number of studies on mobile commerce application (Dholakia and Dholakia, 2004; Olatokun and Bodunwa, 2006; Sadeh, 2002; Wei and Ozok, 2005), not many studies have looked at the relationship between students and mobile applications. Hence, this study aimed to offer an exploratory analysis of this group of consumers.

Literature Review

The term m-commerce was coined in the late 1990s during the dot-com boom. Olla, Patel and Atkinson (2003) defined mobile commerce as mobile Internet applications on ubiquitous mobile networks allowing real-time, anywhere, anytime connectivity to services. The mobile channel is used not only for distribution and commerce transactions, but also for communications, entertainment, and marketing (Becker, 2005a). The mobile channel is a multi-faceted interactive, inter-operable network composed of various mobile delivery technologies used by companies to market to an individual and deliver communication, personalisation, information, and entertainment products and services to individual consumers (Becker, 2005b, 2005c; Bragge, et al., 2005; Dickinger, et al., 2004; Manis, 2005; Nysveen, et al., 2005). Muller-Veërse (2000) estimated that around 90% of current SMS volume is person-to-person communication, with information services, email notification, SMS chat, and distribution of ring tones accounting for the remaining 10%. The messaging frame is now being extended to include multimedia message services (MMS), which combine pictures, video, and sound (Okazaki, 2005). Many brands and media companies include text message numbers in their advertisements to enable interested consumers to obtain more information. This mode of advertising takes advantage of valuable channels of wireless communication to enhance customer relationships, and to carry out direct marketing and promotional activities (Frolick and Chen, 2004; Okazaki, 2005).

Over the last few decades, mobile applications have been evolving, with a wide variety now in use. Applications have been developed for existing mobile platforms including laptop PCs, PDAs, telephone handsets, and specialty pagers. Mobile applications have focused on (a) delivering existing Internet services to the mobile customer, (b) using location sensing to deliver location based information, (c) using location sensing for tracking (fleet services, automobiles, pets, etc.), and (d) using broadband to deliver mobile entertainment content (music, games, etc.). Mahatanankoon, Wen and Lim (2005) suggested that usage of mobile commerce applications mainly revolves around buying products, locating friends and family, or receiving instant coupons.

Prior to this, Anckar and D'Incau (2002) conducted a consumer survey on mobile applications adoptions in Finland. They found high adoption ratess for communications and banking services. However, online games, music, news services, and personalized shopping offers received low acceptance rates. The study did not provide reasons behind the different adoption rates for different mobile applications. The Technology Acceptance Model (TAM) has been widely used in many studies to identify factors influencing technology adoption among different consumer groups. Yang (2005) surveyed 866 Singaporean students, analysed the results through a TAM framework, and found that consumer perceived usefulness, attitude toward using, perceived ease of use, innovativeness, adoption behaviour and demographic factors were important acceptance variables for mobile commerce. In Malaysia, a study conducted by Toh et al. (2009) showed that perceived usefulness, social influence, perceived

financial cost, and trust were positively associated with consumer intention to use mobile commerce. Recently, Li and Yeh (2010) found that design aesthetics, customisation, perceived usefulness and ease of use increased trust in mobile commerce.

Kumar and Lim (2008) found that age affects mobile service perceptions and loyalty decisions. They found that Generation Y placed more emphasis on emotional value from mobile services, with psychological benefits such as enjoyment and fun being important determinants influencing their satisfaction with and loyalty to mobile services. Noble, Haytko and Philips (2008) also noted that issues relating to socialization, feelings of accomplishment, and connectedness drove Generation Y consumers' product purchases and retail patronage. Based on a study conducted by Freestone and Mitchell (2004), this generation seems technology savvy and willing to adopt new technology. Martin and Bush (2000) commented that teenagers are trendsetters for one another and the population at large. They usually received consumption influence or examples from parents, peers, teachers and media. From previous literature, it appears that young consumers are willing to adopt new technology including mobile commerce. Therefore, it is important to find out what mobile commerce applications are important to this group of consumer.

Methodology

Primary data for this research was collected using a self-administered questionnaire designed to serve the purpose of the research objectives. The questionnaire was divided into two sections - the first explored the consumer's experience with mobile applications and services, their mobile usage preference, and the importance of mobile service applications. The second section explored the mobile user's background.

Participants were high school and tertiary students in Malaysia who were using mobile phones. These groups of consumers tend to have a good understanding of mobile commerce and its applications, either from peer influence or from academic learning in information technology courses. Five hundred copies of questionnaires were distributed at major shopping centres in several cities (Kuala Lumpur, Petaling Jaya, Penang, Johor Bahru and Miri) in Malaysia over a one-week time period. Field assistants identified shoppers as potential participants who were members of the target group, who had used mobile applications, and who were willing to participate. There were 124 copies of distributed questionnaires not returned to the field assistants. Out of the 376 returned questionnaires, 64 copies were incomplete. Therefore, a total of 312 usable questionnaires were analysed, with a response rate of 62.4%. The sample consisted of 157 (50.3%) male and 155 (49.7%) female respondents.

With reference to mobile applications suggested from previous studies (Anckar and D'Incau 2002; Liang and Wei 2004), respondents were asked about their perceived level of importance for various mobile phone applications. Six applications were measured: communication (e.g. short messaging service, chats), content delivery (e.g. read and receive updates, emails, Internet search), transaction based (e.g. online banking, booking, purchasing), location based (e.g. personalized shopping offers, advertisements, alert notification), emergency assistance (e.g. hotline numbers, report of emergencies, roadside assistance) and entertainment (e.g. listen/download music, games, movies). These six applications were categorized based on literature reviewed in earlier section. Respondents were required to rate the applications from 'Not important at all' to 'Very important' based on a five-point rating. Cronbach Alpha values

for all applications were higher than 0.64, which shows an acceptable level of reliability (Hair, *et al.*, 2006).

Results

Importance of Applications

Table 1 lists the mean importance of each mobile phone application, and shows that communication, emergency assistance, and entertainment are of higher importance to student consumers. As most of the students in Malaysia are relying on mobile phones to connect with friends and family, it is not surprising that communication has the highest mean. Currently, many models of mobile phones such as the iPhone and the Sony Ericsson Walkman series have incorporated attractive entertainment features, and students who have free time after school are regular users of these applications. Transaction based, location based, and content delivery were found to be less important among students, which is probably due to the fact that this group of consumers have limited income to spend on these mobile activities. Online shopping, personalized alerts or Internet browsing require higher web service usage and the cost is correspondingly higher. In addition, the majority of the respondents (73%) were using prepaid packages that attract higher charges for mobile web services.

Table 1: Importance of Applications

Mobile phone application	Mean
Communication	3.98
Emergency assistance	3.31
Entertainment	3.14
Content delivery	2.70
Transaction based	2.52
Location based	2.30

Gender

To explore the relationship between the importance of various mobile phone applications and gender, a series of independent sample t-tests were conducted. Table 2 shows that there was no difference between males and females for all applications except transaction based, and this suggests that male respondents are more likely to be involved in transaction based mobile activities such as online booking and purchasing. Female respondents appear to be more cautious of monetary transactions in mobile services.

Table 2: Importance of Applications - Gender Comparisons

Importance of application	Male	Female	t-value	Sig (2-tailed)
Communication	4.01	3.96	3.88	0.698
Content delivery	2.87	2.72	1.13	0.260
Transaction based	2.65	2.39	2.08	0.039 *
Location based	2.40	2.38	0.16	0.871
Emergency assistance	3.22	3.39	-1.18	0.238
Entertainment	3.18	3.10	0.59	0.553

** significant at 0.01 level (2-tailed)
* significant as 0.05 level (2-tailed)

Level of Mobile Phone Expenditure

The average monthly mobile phone expenditure for respondents ranged from below RM100 to more than RM250. As the majority of the respondents (about 67%) spent less than RM100 per month, two groups were identified, with one group having monthly expenditure below RM100 and the other group having monthly expenditure of RM100 and above. A series of independent sample t-tests were again used to look at the relationship between the expenditure group and the importance of the mobile phone applications. Results are presented in Table 3, which shows some differences between the expenditure groups. Respondents with higher spending emphasised transaction based applications, location based applications, and content delivery. This group of respondents were more likely to conduct transactions via mobile phones, subscribe to mobile alerts on shopping offers, and browse the Internet.

Table 3: Importance of Applications - Expenditure Group Comparisons

Importance of application	Below RM100	RM100 and above	t-value	Sig (2-tailed)
Communication	3.96	4.04	-0.663	0.508
Content delivery	2.68	3.03	-2.608	0.010 *
Transaction based	2.37	2.83	-3.439	0.001 **
Location based	2.24	2.69	-3.347	0.001 **
Emergency assistance	3.36	3.20	1.009	0.314
Entertainment	3.18	3.07	0.780	0.436

** significant at 0.01 level (2-tailed)
* significant at 0.05 level (2-tailed)

Conclusions, Limitations and Future Research

Students in Malaysia represent a new pool of consumers, and mobile service providers are keen to capture this growing market. This research revealed several observations on students as mobile services consumers, providing useful insights to service providers. Firstly, students are familiar with the mobile applications available and know which applications are important to them. Secondly, as the majority of students do not have income and depend on their parents for financial support, they have limited spending available for some forms of mobile services and tend to be prepaid users. Their emphasis on mobile applications is mainly for personal communication, emergencies, and entertainment. Mobile services providers could attract student consumers by offering more attractive prepay packages emphasising talk time, music/games downloads, and chat functions. This group of consumers uses mobile phones to relate to friends and for personal enjoyment. However, students with higher mobile services expenditure recognise the importance of other more extensive web-related services such as online booking and shopper's alert. This suggests that continuing upgrades of transaction and location based applications are also vital to gain higher market spend.

As this is an exploratory research, there were limitations. The sample size, sample spread (only a few major cities were covered), and sampling method does not enable us to generalize to all students in Malaysia. Although students in towns and rural areas may have different views, students in cities are likely to have better exposure to mobile phone services. Limited 3G coverage means that students in rural areas may not have many opportunities to use mobile web applications. This exploratory research only considered the importance of mobile applications to students and future research could explore their experiences in using these applications. Furthermore, this study only focussed on students in Malaysia and could be replicated to other contexts such as different age groups or countries.

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