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Effect of Lifestyle on the Adoption of Mobile Services

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Abstract: Although mobile services have gained huge potential market in recent years, the adoption of mobile services has been far slower than expected. Many scholars put forward mobile services adoption models to explore the causes of low adoption of mobile services. But few researchers have explained why different types of services differ in terms of popularity from the view of lifestyle. The authors attempt to explain the adoption of various mobile services in the view of lifestyle through descriptive analysis and ANOVA analysis in China. And the conclusions are as follows: 1) the adoption of different types of mobile services varies with different groups of users, because 2) different groups of users often have their own lifestyles (e.g., new life consciousness, arbitrary consciousness, financial consciousness, etc.), 3) which can significantly affect their intention to adopt various mobile services.

Keywords: lifestyle, mobile services adoption, Chinese context

1. INTRODUCTION

Along with the popularity of smart phones, the market scale of mobile services in China had reached 39.31 billion, of 97.5% growth rate compared with last year^[1], mobile services have gained huge potential market with its characteristics of ubiquitous, personalization, flexibility, and wide dispersion^[2]. Although many scholars have predicted that mobile services would become mainstream applications, the adoption of mobile services has been far slower than expected^{[3][4]}. For this phenomenon to occur, many scholars have put forward some mobile services adoption models to explore the causes of low and different adoption of different mobile services. These causes include user-friendly interface issues^[5], security and privacy issues^{[6][7]}, the cost of using mobile services^[6], users' experience^[8], and demographic characteristics^[9], and so on.

However, few researchers have explained why different types of services differ in terms of popularity from the view of lifestyle. "Lifestyle", which comes from sociology and psychology, stands for one person's way of life and provides the basic motivation and guidance for one's consumption^[10]. Lifestyles affect all aspects of consumer behaviors, such as consumers' consumption patterns, time, location, etc.^[10]. It has been confirmed in the field of marketing that lifestyle is more convincing to explain the causes of consumer behavior to some extent^[11]. Therefore, incorporating the view of lifestyle into the research on mobile services adoption is still worth of examination.

This research tends to analysis the association between lifestyle and different types of mobile services, focusing on how lifestyle impact people's adoption of mobile service. The reminder of this paper is organized as follows. In section 2, the authors review related literature. Section 3 presents the study design. The authors analyze the data collected in this study in section 4. Section 5 concludes this research and points out some directions for future research.

2. THEORETICAL BACKGROUND

2.1 Mobile service

2.1.1 The classification of mobile service

Mobile commerce involves mobile services, mobile communication technology and business models^[2].

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Along with the innovation of mobile communication technology and business model, various mobile services appear in people's daily lives^[9]. Many scholars attempted to make classification on various mobile services according to their views on this.

The first classification is based on the context of mobile services. For example, Schilit and Adams (1994) divided mobile services into three categories: the services under computing context (where you are); the services under user context (who are you with) and the services under physical context (what resources are nearby)^[12]. The second classification classifies mobile services based on how mobile services relate to work place and time. Such as, Zhao and Reich (2002) categorized mobile services into the following categories: notifications, location tracking, navigation, and real-time mobile job scheduling^[13]. The third classification is aimed at the types of mobile business models. In Li (2008)^[14], according to different e-business models, such as B2B, B2C, and B2E, mobile services are classified into proactive service management, mobile advertising; mobile entertainment, mobile information, and mobile financial transactions. The fourth partition is the most widely accepted classification, which categorizes mobile services according to their different functions. For example, Zarpou et al. (2011) divided mobile services into entertainment service, communications service, transactions service, and information service^[15]. And Yuan and Zheng (2009) categorize mobile services into four categories to address the need of mobile workers: mobile communications services (including general mobile voice communications and SMS); mobile information search services (including looking for information via a wireless to the Internet or company's systems); mobile transaction and processing services (including capturing transaction data, real-time transaction processing, such as orders, payment processing, inventory management), and mobile office services (such as word processing, spreadsheets, presentation software, etc.)^[16].

2.1.2 The present research on mobile services adoption

Despite mobile services become more and more popular, the adoption of mobile services is much slower than expected^[4]. In addition to technical limitations, scholars believe that there are some other reasons which can explain why mobile services are not widely accepted^[17]. Thus, scholars have proposed different models to measure the users' acceptance of mobile services, such as TAM^[18], TPB^[19], DOI^[20], and UTAUT^[21].

Current researches are mainly focused on the three categories as follows:

- Analyzing the characteristics of mobile application services in terms of technology. Fang, Hsu and Wang (2004) pointed out that the efficiency of mobile technology has a significant effect on the adoption of instant messaging services^[22]. The previous studies showed that the compatibility of the mobile service has a direct effect on users' perceived usefulness and intention of use, and ultimately affect the users' adoption of mobile services^[6].
- Discussing the adoption of mobile services from the view of consumers. The primary conceptions mentioned frequently are perceived ease of use^[5], perceived usefulness^[2] and personal characteristics^{[5][23]} (consumer demographic experience, maturity, etc.). For instance, scholars found that the adoption of the same technology differs with different groups^[4]. The main factors affecting users' intention to use mobile services are individual initiative and characteristics, trust, and perceived ease of use^[5]. And individual with high innovation is more likely to gain higher perceived value-added from mobile services^[23].
- Exploring the adoption of mobile services from the perspective of environmental factors, such as culture and use context. Scholars have proved that the use of context indirectly influences user's intention to use by perceived ease of use and perceived usefulness^[5], and location tracking and navigation can get a higher perceived usefulness in case of positioning, while mobile notification and location tracking have a higher perception of usefulness in critical situations^[24]. Other authors pointed out that network externalities are an important factor affected information technology acceptance for

the information technology with network externalities^[22].

However, according to previous research, (e.g., Gao, 2010; Gao, Moe, & Krogstie, 2010; Wu & Wang, 2005; Bouwman, et al, 2008; Saskia, et al, 2011) the author finds that some limitations of current studies: first, most of present research limited their research to the initial-adoption of new mobile service. There are few studies focusing on the post adoption of mature mobile services. Second, existing classifications of mobile service is targeted at mobile workers. However, this classification might not work well in China since the majority of users of mobile services are students in China. Therefore, this study reclassifies the types of mobile services and analyzes the adoption of mature mobile services from the standpoint of lifestyles.

2.2 Lifestyle

Lifestyle^[25] reflects an individual's attitudes toward himself, other people and life's basic goal. It is shaped by personal past experiences, culture background, values, demographic variables, sub-culture, reference groups, family background, motivation, mood, personality, and the situation and that time, etc. Lifestyle provides the basic motivation and guidance for one's consumption, and it affects all aspects of consumer behaviors, such as consumers' consumption patterns, time, location, etc.^[10].

In recent years, lifestyle is widely used and concerned in marketing management field and consume sociology field. Many scholars have developed different scales to measure lifestyle. The most widely used scales are AIO (Activities, Interest and Opinion) scale which put forward by Plummer in 1974, VALS (value and lifestyle survey) system and its optimization system-VALS2 created by Stanfoul Research Institute. AIO scale is composed of four dimensions, including consumer values, interests, opinions and demographic variables^[26]. Each dimension has nine sub-dimensions and the scale has 36 sub-projects in total, resulting in quite a long questionnaire scale and higher difficulty for respondents to answer^[27].

The VALS system is based on the theory of Maslow's hierarchy of needs and David Reisma's "the lonely crowd"^[27]. VALS segments US consumers into eight distinct types^[28]. However, VALS relies too much on demographic data and it can not adapt to the rapid change of commercial market and consumer behavior^[27]. As a result, in 1989, VALS is revised to VALS2. VALS2 only contains measuring statements relevant to consumer behavior, and segments the groups through consumer's consumption resources and drive factors. However, both VALS and VALS2 are on the basis of U.S. consumers. There are wide gaps between the American "hunting nations" and Oriental "agricultural nations" in terms of cultural heritage and values, so VALS and VALS2 model are not applicable for marketing research in Oriental countries^[26]. And the Japan-Vals model which is jointly developed by Stanfoul Research Institute and NTT data Company to adjust to Asian "Confucian cultural circle" is also not fit for Chinese context, because there are tremendous difference between Japan and China in terms of social structures and economic systems.

Therefore, China-Vals model, which is created by Wu (2004), has become the good choice to measure Chinese consumers' lifestyle. China-Vals model is developed based on AIO and VALS model, and make a further exploration on Chinese consumers' grouping, values, and social stratification. China-vals model includes 33 statements on lifestyles with a total of 11 lifestyle consciousnesses (see Table 1).

Table 1. Basic factors of lifestyles

C1: new life consciousness	C5: achievement consciousness	C9: family consciousness
C2: advertising consciousness	C6: economic expenditure consciousness	C10: financial consciousness
C3: Fashion consciousness	C7: media consciousness	C11: work/money consciousness
C4: diet healthy consciousness	C8: arbitrary consciousness	

Wu's China-Vals model was based on large sample survey of Chinese consumers. He made a combination of Chinese domestic and international research results to analyze and study the specific circumstances of China.

The China-Vals model was a theoretical basis and application of the paradigm structure of Chinese consumers, which fills the theoretical and empirical research gaps on China's lifestyle research.

2.3 Lifestyle and the adoption of mobile services

In the field of marketing, lifestyle rather than demographic characteristics is more widely used to study the different behavior of various consumer groups. The reasons are as follows: first, using demographic variables to measure consumers' behavior can only get the information about who consumes these products, but taking lifestyle as a measurement can also analyze the motivation of consumers to purchase the product^[29]. Second, Anderson and Golden (1984) further suggested that lifestyle is correlated to how people live, including interests, values, how to distribute time and consumption^[30]. Therefore, by analyzing lifestyle, it is easy for a company to better understand the relationship between customer consumption patterns and buying behavior, which allows the company to communicate effectively with its customers^[26]. Thus, lifestyle can better understand, forecast consumer behavior and preference than consumer behavior variables^[11], and apply lifestyle to study the acceptance of mobile services in different groups. It is conducive to study the underlying causes of different mobile service adoption in the same situation and help service providers put forward targeted marketing activities.

Therefore, this study aims to address two questions as follows:

- try to reclassify the types of mobile services in China;
- explore why the adoption of mobile services are different from the view of lifestyle.

3 RESEARCH DESIGN

3.1 Research methods

The study aimed to explore the influence of consumer lifestyles on the adoption of different types of mobile services, thus the authors firstly adopted semi-controlled depth interview with postgraduates and experts in mobile commerce to understand the types of mobile service in China, secondly utilized SPSS software V 16.0 to analyze the pretest data of a initial questionnaire, and then conducted a nationwide survey selecting respondents throughout the teen years and into the forties, which were the major users of mobile services and had some past experience with mobile services.

The study utilized SPSS software V 16.0 to analyze the collected data from the questionnaire, and drew relevant conclusions by descriptive analysis, factor analysis, and ANOVA analysis of the data.

3.2 Scale design

The questionnaire used in our research adopted 5-point Likert scale (ranging from 1=strongly disagree, 5=strongly agree). The questionnaire was divided into two parts. The first part of the scale was the measurement of consumer lifestyles with 33 items all from Yin WU (2004)^[27], as Wu's scale met localized needs and purpose of this study, and had a high reliability and validity.

The second part of the scale was designed to measure consumers' adoption of different mobile services. In this part, the authors firstly drew attention to the study of Zheng et al. (2009), and then conducted a depth interview with 16 postgraduate students majoring in Electronic Business and some experts in mobile business.

Each interviewee was interviewed one by one following the outlines prepared in advance. Firstly, when asked if he or she had used mobile services, if yes, the outline should be "how many mobile services do you often use" "how many kinds of functions do you think mobile services have" "what types of functions the mobile services you use belong to". The authors found that most interviewees' opinion on the major functions of mobile services is similar to the study of Zheng and Yuan (2009), including communication, information search, transaction, and learning of office tools^[16]. The only difference was the entertainment added to the major types of mobile services, as these interviewees thought that, the young generation in China was a major group of

mobile users and they were more likely to play games on their mobile phone in Chinese context. The types of mobile services are shown in Table 2.

Table 2. Types of mobile services

Communication	M1	Instant messaging tools (e.g. QQ, micro letters, flying letters, etc.)
	M2	Social network (e.g. micro-blog, renren, etc.)
Information search	M3	Search engine query
	M4	Read the news through a browser
Transaction	M5	Mobile trading services (e.g. online buying, mobile payment, etc.)
	M6	Financial services (e.g. stock software, accounting, etc.)
Learning/office tools	M7	Office software (e.g. WORD, PDF, PPT, E-Mail, etc.)
	M8	Learning tools (e.g. dictionaries, formula conversion, etc.)
Entertainment	M9	Online entertainment (e.g. online games, songs, videos, etc.)
	M10	Download games, music and other mobile services

3.3 Pretest

30 college students were selected randomly to conduct the pretest, and 26 valid questionnaires are available, equally 86.7% efficiency, by deleting the incomplete questionnaires. Then the authors utilized SPSS software V 16.0 to analyze the valid data, and focused on the correlation coefficient, Cronbach's Alpha and the item-total correlation. The formal scale was formed after regulating the structure of the scale and some descriptions appropriately.

3.4 Data collection

In sampling, the authors chose a broader range of people to finish formal questionnaires. The candidates were chosen based on the following criteria: (1) workers aged from 24 to 40 are the major consumer group; (2) well educated students (e.g., undergraduate students, postgraduate students) as well as the frequent internet users. The questionnaire was distributed on the internet, from October 15 to November 15, 2011, and a total of 350 questionnaires were distributed. As a result, 320 questionnaires were collected, including 312 valid questionnaires, which was equivalent to 97.5%. According to the data analysis, the value of Cronbach's Alpha of all items was above 0.709. It meant that the reliability of the scales is quite good. Concerning the construct validity, as mentioned in the last section, the authors conducted a pretest prior to the final questionnaire.

4. DATA ANALYSIS AND DISCUSSION

4.1 Descriptive analysis

Among the subjects in this study, 128 participants (40.9%) were male and 185 participants (59.1%) were female. These respondents come from 19 cities and 13 provinces in China, which the proportion of students reach 66.1%, employees sample reach 23.6%, and managers account for 8.3%.

According to the analysis, the authors found that search engine query, instant messaging tools, read news, social network, and learning software ranked were among the top five in mobile services adoption. The widely acceptance of these mobile services was partially attributed to the technology maturity^[31] and personality characteristics of the sample population^{[5][8]}. In addition, most of the samples were students and they paid more attention to their surrounding social changes. Mobile payment, office software, and online entertainments have not been widely accepted. The lowest accepted mobile services are mobile payment and office software. The causes may be the high cost of use^[6], technical security^{[6][7]}, conveniences^[7], mobile terminal screen size^[5], and other restrictions.

4.2 Factor analysis

The study employed ANOVA analysis to explore the relationship between 11 lifestyle factors and 10 kinds of mobile services (see Table 3), and administered how different lifestyle factors affect the adoption of different mobile services.

Table 3. ANOVA analysis

	C1	C2	C3	C4	C5	C6	C7	C8	C9	C10	C11
M1	.028**	.003***	.002***	.351	.001***	.238	.544	.092*	.980	.788	.436
M2	.028**	.000***	.000***	.732	.096*	.970	.005*	.046**	.279	.488	.342
M3	.661	.006***	.000***	.563	.098*	.944	.197	.299	.789	.316	.320
M4	.968	.013**	.000***	.233	.086*	.718	.067*	.867	.246	.974	.029**
M5	.029**	.000***	.007***	.249	.004***	.128	.048*	.010**	.843	.489	.117
M6	.149	.003***	.022**	.062*	.000***	.060*	.227	.004***	.703	.612	.992
M7	.807	.004***	.000***	.948	.110	.260	.341	.644	.760	.872	.902
M8	.325	.000***	.003***	.179	.038**	.760	.010*	.137	.826	.041**	.007***
M9	.769	.017**	.000***	.585	.118	.447	.585	.054*	.455	.510	.491
M10	.344	.133	.000***	.708	.113	.238	.408	.051*	.300	.230	.846

*** p<0.001 ; ** p<0.01 ; * p<0.05 Significance levels are for ANOVA analysis

Generally speaking, the lifestyle factors have positive effect on relative mobile services adoption. As shown in Table 3, the new life consciousness can significantly affect people's adoption of mobile communication and information services. People with high new life consciousness are more likely to pursue new things and concern about the changes of surrounding environment. Therefore, the mobile phone becomes a portable tool for them to search new information.

Advertising consciousness and fashion consciousness would significantly affect the adoption of all types of mobile services. Groups with high advertising sense usually get a variety of information initiatives, while people with high fashion consciousness have a strong interest in any new thing and they are keen to use all kinds of mobile services.

People with high diet health consciousness or high economic expenditure consciousness are more willing to use mobile phones to read news. The former may be because of in the Chinese context, food safety issues have become more critical and they hope to get information on the dynamics of food safety information timely. The latter may prefer to get news about the economy and consumption-related information.

Both achievement consciousness and media consciousness would influence the adoption of all types of mobile service except for entertainment services. People with high achievement consciousness are more likely to use mobile communication services, information and office software services because these services can help them establish good interpersonal relationship, and keep abreast of information and knowledge about their work. People with higher media consciousness may be more concerned about any information they are interested in, so they prefer to search initiatives for and share information.

Arbitrary consciousness has the most significant influence on the adoption of mature and widely used mobile services. Groups with high arbitrary consciousness prefer mature mobile service (e.g., information search, social network, view news, etc.) to some services they think is premature. It is hard for groups with high arbitrary consciousness to gain strong loyalty to a specific tool; they are more concerned about convenience and

could easily change their preference without others.

However, not all lifestyle factors are positively related to the adoption of mobile service. By comparing the high score groups with low score groups of each lifestyle factor, the results indicate that financial consciousness and work/money consciousness have significantly negative impact on consumers' adoption of office and learning tools. As to the former, people with high financial consciousness may be in favor of conservative financial management, so as that they would rather use traditional tool than new mobile tools. While for the people with high work/money consciousness, they care more about their career development, so they may spend more time on working rather than on learning.

5 • CONCLUSION AND FUTURE RESEARCH

In the research, the authors identify five major types of mobile services in China: mobile communication, mobile information search, transaction, office tools, and mobile entertainments. This study also explores the relationship between lifestyle and the adoption of mobile services with the responded valid questionnaire from 312. The findings are as follows: (1) the adoption of different types of mobile service is different. Among these mobile services, communication and information services were with the highest acceptance rate while mobile payment and office software were with the lowest acceptance rate. (2) From the perspective of lifestyle factors, different lifestyle factors affect the adoption of different types of mobile service. In general, the higher associated lifestyle consciousness people have, the higher adoption of relatively mobile services is. But there are also some factors, such as financial consciousness and work/money consciousness, having significant negative impact on the adoption of office/learning services.

The authors are also aware of some limitations in this research. Firstly, the sample size of the study was small. This might reduce the power of our findings. The second limitation is about variable selection. The study mainly considered the influence of lifestyle on the adoption of mobile services. However, there are many other variables affecting mobile services adoption. This study has not taken these factors into account so far.

As for future research, the authors firstly plan to make a deeper exploration on the effect of lifestyle on mobile services adoption with a larger sample size (more than 1000 users), possibly with subjects from other nationalities. Secondly, the authors will try to establish a new research model to better examine the adoption of mobile services from the view of lifestyles.

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