Chapter 14

Mobile Phones and Sustainable Consumption in China: an Empirical Study among Young Chinese Citizens

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Abstract: This millennium the number of mobile phones has exponentially grown in Western nations, however China is now the biggest mobile phone market. The present study contains questions about the sustainability aspects of purchasing mobile phones: both of the mobile phones purchase itself, and how mobile phones are used to gather environmental and health information for consumption. The results of the present study suggest, that mobile phones became an important source of information about environmental protection issues, but the specific applications do not play an important role as a source of information about environmental conscious consumption yet.

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Introduction

This millennium the number of mobile phones has exponentially grown in Western nations, however China is now the biggest mobile phone market. In contrast with Western nations, where growth is slow or has stalled, the mobile market is still growing in China. In May 2011, there were more than 900 million mobile subscriptions in China (PC World 2011), approximately half of the population, and therefore further growth is expected.

With the rapid growth of the mobile industry in China, consumers are disposing of used phones more frequently, and the number of waste mobile phones in China is still unknown. The production, distribution and usage of mobile phones require more energy as the number of active mobile phones increases (Yu et al. 2010). The present study contains questions about the sustainability aspects of purchasing mobile phones: both of the mobile phones purchase itself, and how mobile phones are used to gather environmental and health information for the purchase.

As the usage of the mobile technologies has significant social influence (Das – Mohanty 2007), in the present study the relationship of the mobile technology, environmental consciousness and environmental concerns will be discussed. The results show how mobile technology can influence the way of thinking and purchasing habits of young Chinese citizens, and how this technology can foster sustainability.

Trends in Mobile Industry

There are more mobile Internet users in China than any other country, China claims to have the highest mobile Internet usage in the world (CNNIC 2010). According to The China Internet Network Information Center (CNNIC) report, there were 420 million internet users in 2010 in China, and 277 million (65.9 %) of this amount were mobile Web users. The majority of mobile internet users also access the Web via PC or laptop, but 11.7 percent (49 million) of Web users exclusively use mobile to access the Web. However the 3G users of them is only 67 millions (PC World 2011). The number of people accessing the mobile Internet via laptops and smart phones is growing fast and is expected to overtake the PC as the most popular way to get on the Web (ITU 2010).

The United States is the dominant mobile application market, followed by China, which is the fastest growing mobile application market (Farago 2011). Downloads of new applications from China grew from 1.2% to 12% over the course of the year, from January through October (Farago 2011).

In 2010 the most popular activities using mobile internet were instant messaging (62 percent), followed by mobile search, web music, web literature, social networking, and online games, video, mobile email and mobile online payment in China (CNNIC 2010). From the view of content, the internet access using mobile web still concentrates on the leisure (music, literature and games). Similarly, games and social networking capture most of the U.S. residents' time (Newark – French 2011).

In this study young Chinese people were asked which kind of mobile based applications they think they will use in the future, and how likely it is that they use these kind of applications to foster an environmental friendly way of consumption.

Research Results

Research Methodology

Data collection was carried out between August 2011 and September 2011 in Beijing. Total sample size was 227 respondents. The research was conducted with face-to-face interviews, and the questionnaire was in Chinese language. Data was analyzed using the SPSS software suite.

The questionnaire contained 16 questions, with 5 questions concern demographics. Questions were focused on values, environmental attitudes, level of information about the environment, the pro-environmental behaviors of the respondents and their attitudes towards the mobile application usage fostering environmental conscious behavior.

In this paper we present the results of the questions about the information gathering habits, and the intention to use mobile phones and mobile applications to get information about environmentally friendly consumption.

Characteristics of the Sample

The respondents were young Chinese citizens, mainly students from Peking University, with average age of 24.59 years. Table 1 details the demographics of the sample.

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Table 1. Demographic Characteristics of the Sample

	Frequency of the sample	Percentage of the sample
Gender		
Male	106	45.7
Female	126	54.3
Total	232	100.0
Age		
18- 25	112	48.3
25-30	87	37.5
30-	33	14.2
Total	232	100.0
Residence		
City of provincial rights	40	17.5
Special Economic area	3	1.3
Provincial capital	55	24.0
City	115	50.2
Village	16	7.0
Total	229	100.0
Education		
Below Bachelor	32	14.2
Bachelor	137	60.6
Master	50	22.1
PhD	7	3.1
Total	226	100.0
Income		
Much lower than average	26	11.2
Bit lower than average	60	25.9
Average	115	49.6
Bit higher than average	26	11.2
Much higher than average	4	1.7
Total	231	99.6

Source: calculations of the authors

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Level of Information about Environmental Issues

The respondents do not feel well informed in the questions of environmental issues (M=3.25). The majority of the respondents feel that they do not have enough information on „the use of genetically modified organism in farming". The second topic is the impact of chemicals on our health, and the third issue for the Chinese is the environmental impact of their consumption habits (see Table 2).

Table 2. Main Issues which the Respondents Feel Lack of Information (Percentage of Respondents)

Environmental issues (N=185)	*Percentage*
The use of genetically modified organisms in farming	68.8
The impact on our health of chemicals used in everyday products	51.9
Our consumption habits	43.4
Loss in biodiversity	42.9
Growing waste	31.2
Agricultural pollution	30.7
Man made disasters	26.5
Noise pollution	25.4
Climate change	20.1
Impact of current transport modes	19.6
Depletion of natural resources	19.0
Urban problems	18.0
Water pollution	16.4
Natural disasters	10.1
Air pollution	8.5

Source: calculations of the authors

The most important information source is the internet (M=4.34), then the television news (M=4.17) and the mobile phones are only the 6th in the row (see Table 3), having medium importance (M=3.28).
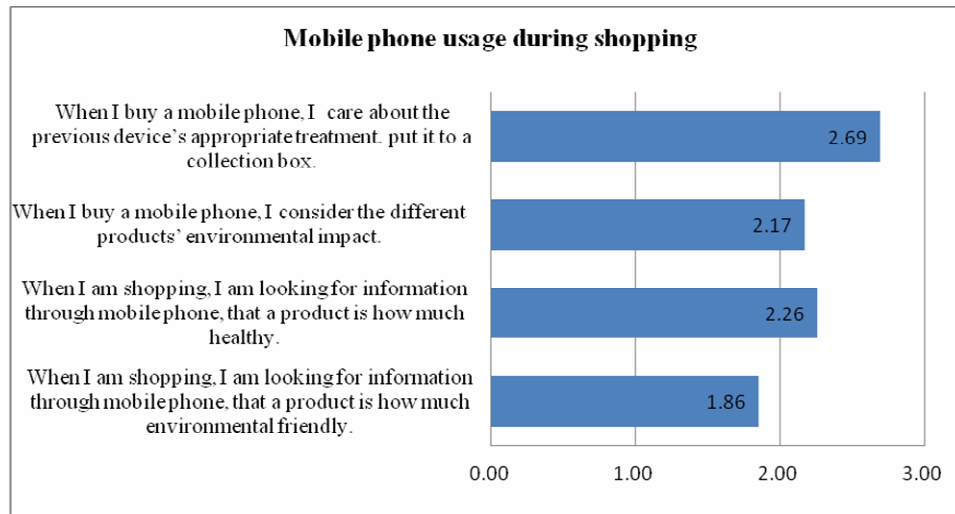
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Table 3. Main Information Sources

Information sources (N=185)	Mean
The Internet	4.35
Television news	4.11
Blogs. forums. social media	3.77
Films and documentaries on television	3.74
Conversations with relatives. etc.	3.61
Mobile phones	3.30
Books	3.29
Publications\ brochures\ information and material	3.22
Newspapers	3.11
Magazines	2.66
The radio	2.50
Events (conferences. fairs. exhibitions. festivals)	2.46

Source: calculations of the authors

Mobile Phone Usage and Technology Acceptance

Although the respondents tend to use mobile phones in order to get general information about environmental issues, when it comes to consumption, they don't use their mobile phones. It is interesting that though the environmental impact of consumption habits is important for the respondents, but they feel uninformed about it. During shopping the respondents do not look for additional information about the products environmental or health related characteristics (see Diagram 1).

Diagram 1. Mobile Phone Use in Environmental Conscious Decissions

Mobile phone usage during shopping

Statement	Value
When I buy a mobile phone, I care about the previous device's appropriate treatment. put it to a collection box.	2.69
When I buy a mobile phone, I consider the different products' environmental impact.	2.17
When I am shopping, I am looking for information through mobile phone, that a product is how much healthy.	2.26
When I am shopping, I am looking for information through mobile phone, that a product is how much environmental friendly.	1.86

Scale: 0.00   1.00   2.00   3.00

Source: calculations of the authors

Concerning the environmental impact of mobile phone purchase the respondents are slightly more conscious. 18 percent of the respondents take into consideration the products environmental impact and 27 percent ensure the proper treatment of the used mobile phones.
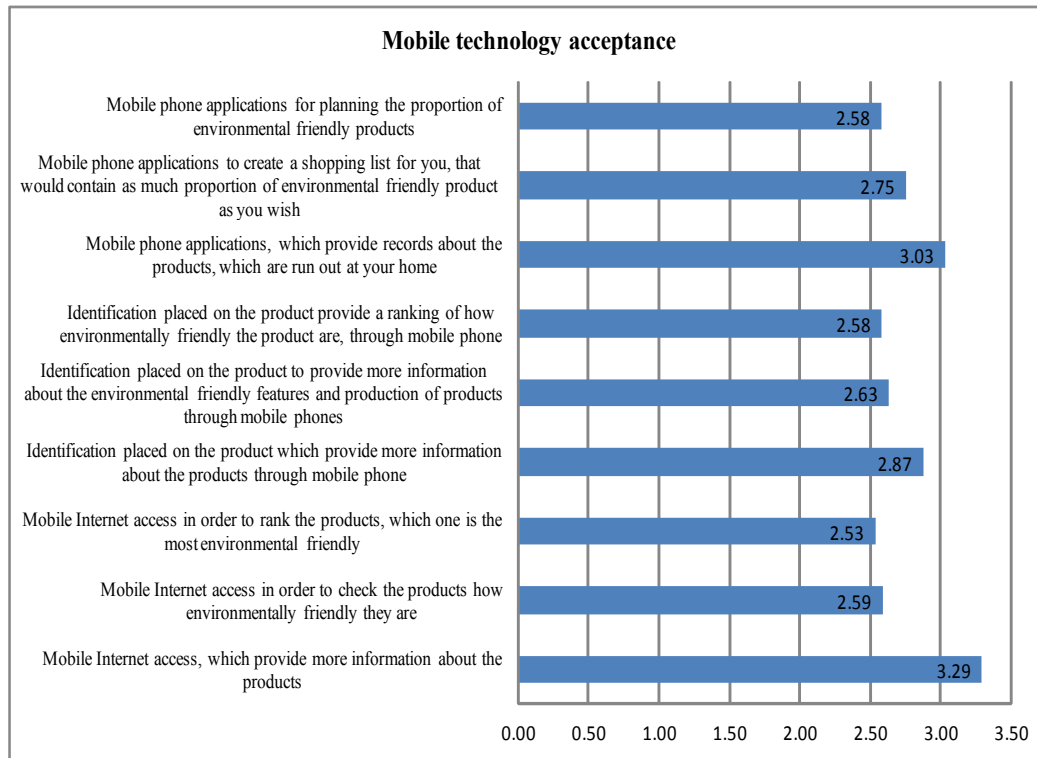
Most likely would the respondents use the mobile internet access to get information about the product features (M=3.29). The average usage intention gets lower if the information are specified as environmental friendly features of the products (M=2.59).

In the study we tested the acceptance of different type of mobile applications. That application, which generally helps to enhance the shopping experience, helps planning the shopping lists and the necessary quantity and quality of the needed products was more likely to be used. The acceptance of those applications, which supports the environmental conscious consumption was lower (see Diagram 2).

The respondents found that application most useful, which provide records about the products that are run out at home (M=3.03). An application, that helps to create a shopping list with an exact quantity of environmentally friendly product had a lower acceptance (M=2.75). The lowest average with 2.58 score was given to those mobile phone applications, which help the user planning the proportion of environmental friendly product they wish to purchase in a month, and they can monitor purchase with mobile phone.

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Identification placed on the product (for example BAR code), which provide more information about the products through mobile phone would be in use nearly in moderate likelihood (M=2.87). The probability of using the application slightly got lower, if the received information was about the product's environmentally friendly features (M=2.63), or a ranking about it (M=2.58).

Diagram 2. Acceptance of Possible Mobile Technologies

Mobile technology acceptance

Category	Value
Mobile phone applications for planning the proportion of environmental friendly products	2.58
Mobile phone applications to create a shopping list for you, that would contain as much proportion of environmental friendly product as you wish	2.75
Mobile phone applications, which provide records about the products, which are run out at your home	3.03
Identification placed on the product provide a ranking of how environmentally friendly the product are, through mobile phone	2.58
Identification placed on the product to provide more information about the environmental friendly features and production of products through mobile phones	2.63
Identification placed on the product which provide more information about the products through mobile phone	2.87
Mobile Internet access in order to rank the products, which one is the most environmental friendly	2.53
Mobile Internet access in order to check the products how environmentally friendly they are	2.59
Mobile Internet access, which provide more information about the products	3.29

Source: calculations of the authors

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Conclusions

Although the mobile phone penetration is high in China, the respondents in our study are not yet open to use the new mobile technologies to get information on environmental conscious consumption. The results of the present study suggest, that mobile phones became an important source of information about environmental protection issues, but the specific technologies (applications) do not play an important role as a source of information about environmental conscious consumption yet. The young Chinese citizens in the sample are more likely to care about the proper treatment of the obsolete devices when they buy a new mobile phone, than the environmental friendliness of the new one.

The young people have an important role in innovation acceptance, which is also true in the acceptance of possible new mobile technologies. As we examined the young Chinese citizens in our pilot study, we found, that those innovations, which make consumption more easy or conscious more likely to be used, than those innovations, which are connected to the environmental conscious consumption. Further research is needed to define factors that secure acceptance of mobile application as a source of information on environmental conscious consumption.

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