Smart Mobile Devices in Lifestyles under Transformation: A Comparative Study of Smart Communication among Youth in Hong Kong and Beijing

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Abstract. Social and individual lifestyle patterns are undergoing rapid change in the 21st century. The globalisation of the culture, economy and technology requires 'global' design. Globalisation shapes culture and trends in a more integrated way, and Internet technology enables designers to deliver their services and practices without regard for geographical borders. However, diverse regional and local cultures and individual preferences still significantly affect design practice. In China, with its diverse and developing cultures, the trend for smart communication has generated new lifestyle choices, creating marketing opportunities and challenges. We observed the use of smart mobile devices among young people in Hong Kong and Beijing, and compare and discuss the differences in preferences and use scenarios for smart mobile devices in a first to analysing data from users and attempting to trace a new cross-cultural design pattern for smart communication. We conclude that a holistic perspective on smart mobile products and services is needed to solve the problems brought about by the information age in cross-cultural contexts.

Keywords: Chinese lifestyle, Cross-cultural, Smart mobile devices, Smart communication.

1   Introduction

This paper is based on a case study of smart communication design among Hong Kong and Beijing youth. Smart communication is communication that is digital, intangible, fast and effective, and is no longer communication in the traditional sense. The case study aimed to gain a better understanding of Chinese people and their lifestyles and how this relates to design through observation of the use of smart mobile devices among young people — users — in Hong Kong and Beijing. The study analysed users' communication behaviour to compare and discuss differences in user preferences and use scenarios. The aim was to find suitable methods to analyse target users and to generate new ideas for cross-cultural design patterns for smart communication.

The case study used questionnaires and field study, and looked at both the current market and the potential and future markets. The study also explored the involvement of product designers in the Chinese design process for mobile digital products to determine whether and how the user-centred design of smart mobile devices fits the newly transformed Chinese lifestyles. Beijing and Hong Kong were chosen for comparative purposes. Beijing is the capital of China, and has the most mobile Internet companies, start-ups and universities. Zhongguancun High-Tech Zone in Beijing is known as China's Silicon Valley. Three Chinese mobile phone operators – China Mobile, China Unicom and China Telecom – have the widest wireless network coverage in Beijing. In contrast, Hong Kong has 4G (LTE) networks and the fastest mobile network in China, which is an important feature for smart device users. The Wi-Fi hotspot coverage in Hong Kong is also extensive. As a special administrative region of China, Hong Kong has two cultural backgrounds, Eastern and Western, and is thus an interesting city to study.

2   Method

To understand the differences in the lifestyles of Hong Kong and Beijing youth, the study used qualitative research approaches to comparative their culture, behaviour and preferences. Questionnaires were used to determine the general situation, and field study was then adopted to observe and interview target users. Inductive and deductive qualitative analysis methods can be used to identify and articulate interactive design patterns (Baggetun, 2004).

2.1   Questionnaire

Standardised questionnaires are typically used to uncover the similarities among groups of people by comparing their answers to the same set of questions (Zeisel, 1981). This research aimed to understand the usage of smart mobile devices among young users in Hong Kong and Beijing. The most appropriate general survey method is the questionnaire, as such quantitative research allows the status of respondents to be understood very quickly and can be used to define the qualitative research.

Questionnaires were distributed in Hong Kong and Beijing, and 50 responses were received from each city, respectively, giving 100 responses in total. This generated general data about how young people use smart mobile devices, including the kind of smart mobile devices that they use, the most important reason for choosing a particular smart mobile device and how smart mobile devices have changed their lifestyle. The questionnaire is shown in Appendix 1. Based on the questionnaire survey results, we devised and initiated interviews and focus groups and generated typical 'personas' for users in each city.

2.2   Field Study

The field study of young smart device users was conducted in different environments in Hong Kong and Beijing. Young people between the ages of 18 to 40 were observed and interviewed in their natural environments to learn about how they use smart mobile devices and how these devices have changed their lifestyle.

Observation and Interview. The observations were made in different locations, including in the subway, at bus stops and in shopping malls, restaurants, cafes, and college canteens. Interviews were conducted three young people each in Hong Kong and Beijing. The interviews were used to clarify points of interest raised in the observations and to learn more about activities that could not be observed, such as phone use at home or in private. The interviewees were given cameras, audiocassette recorders and diaries to record their smart device related activities. The field observation collected data to generate the hypotheses and theories. Like other qualitative techniques, field observation is more concerned with description and explanation than it is with measurement and quantification (Wimmer & Mominick, 2006).

Table 1 shows the different behaviour of the young people in the two cities' subways. In the Hong Kong subway, where there are fewer people, most young people use smart mobile devices in idle times. In the Beijing subway, which is always crowded, some young people use smartphones or tablets in idle times, but others choose to read newspapers. This finding demonstrates the different user preferences and uneven economic levels in Beijing. Beijing culture also combines the traditional and the modern, which is reflected in varied ways of obtaining information, with some people choosing traditional media such as newspapers and magazines and others choosing new media based on mobile Internet.

Table 1. Different scenes in the Hong Kong and Beijing subways

Location	Hong Kong Subway	Beijing Subway
Scene		
Behaviour	Using smartphones in the subway	Using different smart mobile devices and reading newspapers in the subway

Smart mobile devices make people communicate in more diverse ways, and change the way in which people respond to their friends. For instance, using voice messages to chat with friends is very popular nowadays, and in both Hong Kong and Beijing young people use a popular app called 'WeChat' to communicate. Figure 1 shows a young person using WeChat voice messaging to chat with a friend. This kind of smart communication does not require the inputting of text, and allows users to easily chat with friends even in crowded streets and when they are busy.

Fig. 1. A young person using voice messaging to chat on a Hong Kong street

The field observation did reveal the real behaviour of young people using smart mobile devices, but because this method has many limitations the observation was built around existing smart device products and also could not reveal specific user behaviour characteristics. Such data would only be obtainable by examining users' conversations, records and unconscious actions. Products generally correspond with typical behaviour trends, but product users are always under the influence of the relationships around them and display specific behaviour.

Generating Personas. User-centred design requires the study of user characteristics, and the generation of 'personas' so that commonly desired features are included in the design. These personas should be based on research and can be described in narrative form.   Personas are commonly used in user experience design and in design for all, but were first introduced by Alan Cooper in 'The Inmates Are Running the Asylum' (1988), in which Cooper play-acted fictitious characters to help solve design questions.

We used the data from 100 informants from Beijing and Hong Kong to generate a persona of young smart mobile device users for each city (Figures 2 and 3).

We can draw several conclusions from the personas.

1. Both are keen to adopt new technology, especially where they feel that it matches their lifestyle and reflects their image.
2. Their needs span both work and their personal life, which tends to be more compartmentalised than other segments and includes multiple but not deep relationships.
3. Due to these needs, their smart phones need to be the "latest and greatest" across all aspects of design, and features.
4. They are strongly attracted to prominent, well-respected brands but want to have a 'new and different' model before others get it.

Fig. 2. Hong Kong persona   **Fig. 3.** Beijing persona

The user-centred approach as a means to achieve a particular end can be simulated as a 'funnel'. When the user-centred approach is the goal, the design process is presented from beginning to end based on an existing idea. Each user thinks not only of his or her own situation as a user, but also of the process as a whole, which leads to a result that was partially predicted. During the concept generation stage, the research methods used in this study can inform user-centred design research, which is a more effective means of design than traditional methods. Structured design research that focuses exclusively on user experiences helps designers to acquire an in-depth understanding of user needs and preferences, and to obtain an accurate design direction through examining real-world use.

3   Findings and Discussion

Design investigation is a complicated process. Some of the basic processes, such as project identification and the definition of requirements are not easy to define. Although existing design methods greatly improve efficiency, they do not show users' real behaviour, feelings and thoughts. For the smart device users in this study, the most important features were the network speed and network charges. The questionnaire results showed that most of the young people in Beijing and Hong Kong cared most about the speed and cost of the mobile network, but this issue was more obvious in Beijing.

Young people choose different kinds of smart mobile devices depending on mobile data charges. For example, they prefer to use smartphones in Wi-Fi environments to save money. In Hong Kong, there are five mobile phone operators — Peoples, SmarTone, 3, CSL and PCCW Mobile – competing for a market of 7 million people. It is easy to swap providers without changing cell phone numbers in Hong Kong, and as a result cell phone charges are very cheap. Table 2 shows that mobile data charges in Hong Kong are much cheaper than in Beijing, and all operators offer unlimited mobile data packages for young people, allowing them to use their smart mobile devices more conveniently.

Table 2. Mobile phone operator charges in Hong Kong and Beijing

Mobile phone operators	Hong Kong					Beijing		
	Peoples	SmarTone	3	CSL	PCCW	China Mobile	China Unicom	China Telecom
Mobile data charges (lowest)	68HKD/ month (unlimited)	68HKD/ month (unlimited)	68 HKD/ 400M	87 HKD/ 1GB	119 HKD/ 1GB	WLAN:0.1 RMB/M GPRS: 0.01RMB/ KB	GPRS:0.03 RMB/KB 3G: 0.01RMB/ KB	3G: 0.003 RMB/KB 0.3072 RMB/M

In Beijing, there are three Chinese mobile phone operators: China Mobile, China Unicom and China Telecom. The number of China Mobile users exceeds that of China Unicom and China Telecom. Competition is relatively weak, and thus cell phone charges in Beijing are more expensive than in Hong Kong. Smart device users spend more money on data transmission, which is a bigger component of carrier revenues from young people than voice traffic.

When people feel bored, such as on the road, in the toilet, waiting in line, and before sleeping, they use their smart mobile devices to surf the Internet (Figure 4). In such situations, people feel that time is passing slowly, and their attention is considered to be 'high-quality attention'. It is for this reason that building advertising, corner advertising and subway advertising was developed. In competition with these forms of media, mobile Internet allows users to choose to use their phone when bored to play games, watch videos, read the news or engage in micro blogging.

The interviews revealed that the young people in both cities like playing on smart mobile devices on the subway or on the bus. Smart mobile devices thus provide a diversion in idle times as well as being useful, and allow users to escape into their own world.

Fig. 4. Young people play with smartphones when they are bored (before meals, before sleeping, on the subway, waiting)

4   Conclusion and Further Research

This study attempted to investigate the lifestyle of young people in Hong Kong and Beijing through quantitative and qualitative research approaches to compare their culture, behaviour and preferences in the use of smart mobile devices. Questionnaires from 100 informants in Hong Kong and Beijing gave a general picture of the status of smart mobile device use among young people. Field study among target users

revealed the scenarios in which they use smart mobile devices. Cultural differences are evident across modern Chinese lifestyles, and different cultures lead young people to develop different ways of communicating. Beijing culture is a combination of traditional and modern, whereas Hong Kong culture is a mix of West and East.

Smart communication has generated a host of changes.

1. Smart communication has changed people's lifestyles, resulting in a more intelligent life.
2. Smart communication has changed people's social relations, which are more diverse and 'smart'.
3. Smart communication has changed design, moving it away from being strictly function orientated to generate better and exciting experiences for interactive smart mobile devices.

This research is the first step towards comparing Chinese lifestyles among young Hong Kong and Beijing smart mobile device users. The research is ongoing, and the results cannot be presented in a single paper. A new cross-cultural design pattern for smart communication will be explored as more results are produced.

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Appendix

Questionnaire responses of the young people in Beijing and Hong Kong (questionnaire designed by the authors).

Questions	Options	Hong Kong	Beijing
1. Gender	A. Male	26	23
	B. Female	24	27
2. Occupation	A. Student	10	7
	B. Teacher	4	1
	C. Institutional staff	10	4
	D. Corporate staff	14	34
	E. Soldier	0	0
	F. Freelance	6	2
	G. Other	6	2
3. What kind of mobile smart device do you use? (Multiple choices)	A. Smartphone	50	50
	B. Tablet (e.g., iPad)	18	23
	C. E-book	16	1
	D. PDA	2	0
4. Which system do you use?	A. iOS	30	25
	B. Android	22	25
	C. Windows	8	3
	D. Symbian	0	6
	E. Others_____	0	4
5. How much does your smart mobile device cost?	A. Below to RMB 2000 (HKD 2500)	0	5
	B. RMB 2001-3000 (HKD 2501-HKD 4000)	6	15
	C. RMB 3001-4000 (HKD 4001-HKD 5000)	12	12
	D. RMB 4001-5000 (HKD 5001-HKD 6000)	20	17
	E. Up to RMB 5000 (HKD 6000)	12	5
6. What was your main reason for purchasing your smart mobile device?	A. Appearance	4	12
	B. Price	2	5
	C. Function	24	30
	D. Design fit my taste	10	12
	E. Others' opinion	2	0
	F. Brand, a status symbol	8	4

7. What is the most worrying problem with using smart mobile devices? (You can choose more than one option)	A. Quality	18	11
	B. Short battery life	28	29
	C. Soon out of fashion	8	4
	D. Radiation emissions	2	7
	E. High fees for data transmission	2	25
	F. Slow Internet speed	6	27
8. How satisfied are you with your smart mobile device?	A. Very satisfied	12	7
	B. Satisfied	36	37
	C. Unsatisfied	2	5
	D. Totally unsatisfied	0	1
9. What is your favourite mobile social app for communication? (You can choose more than one option)	A. WeChat	34	40
	B. Sina micro blog	20	35
	C. RenRen	2	12
	D. WhatsApp	38	4
	E. Facebook	24	3
	F. LBS	0	1
	G. Mi-talk	0	0
	H. Momo	0	2
	I. Kaixin001	0	1
	J. E-mail	22	20
	K. Other_____	Line, Viber	QQ, Kakao Talk
10. How long do you spend on your smart mobile device each day?	A. Less than 1 hour	4	1
	B. 1-3 hours	30	19
	C. 3-5 hours	8	13
	D. 5-8 hours	6	8
	E. More than 8 hours	2	12
11. How would you describe the role of your smart mobile device in your life?	A. Not a normal life without it	20	13
	B. Uncomfortable without it	18	31
	C. Dispensable	12	4
	D. Happier without it	0	2
12. What do you think of the development of smart mobile devices?	A. Very optimistic, products are updated very quickly	32	37
	B. The market is saturated	8	7
	C. Do not care	10	6
13. How would you like to interact with your smart mobile device in the future? (You can choose more than one option)	A. Touch	32	19
	B. Voice control	16	21
	C. Gesture	6	13
	D. Eye control	14	5
	E. Telepathy (brain waves)	10	22
14. What form would you like smart mobile devices to take in the future?	A. A general form	34	23
	B. More ornaments	14	17
	C. In the body	2	7
	D. Telepathic	4	15

15. What kinds of features would you like to be added to smart mobile devices in the future?	Open Question	Can enlarge or shrink in size as I want, Device payment ability, Remote control, Invisible keyboard, Drive car, Wireless charger, Physical examination, replace keys.	Private secretary, Remote monitoring, Security features, Electronic identity cards, Cooking, 3D display, Physical interaction, Physical examination, No charging, Projector.
16. What is the greatest influence that smart mobile devices have had on your life?	A. Made life more convenient	40	28
	B. Ubiquitous communication	12	30
	C. Reduced privacy	6	8
	D. Extended entertainment time	4	9
17. What do you mainly use your smart mobile device for? (You can choose more than one option)	A. Communication	46	39
	B. Entertainment	26	26
	C. Socialising	30	25
	D. Work	22	26
	E. Getting information	34	24
	F. In public	16	2
	G. At home	6	5