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Exploring regional differences in
Chinese consumer acceptance of new mobile technology: A qualitative study

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Abstract

This study examines consumer adoption of 3G mobile technology in China. The qualitative study involved 45 in-depth interviews undertaken in three major Chinese cities to explore the beliefs and attitudes which determine Chinese consumers' acceptance of the mobile technological innovation. The findings are compared and contrasted against those reported in Western studies. The variations underpinning adoption of 3G between consumers in the three regional cities were identified. Specifically, it was found that the regions differed in terms of the relative importance of the identified adoption determinants, such as perceived social outcomes for using the innovation and the effects of social influence on the adoption. These findings provide subtle insight into the nature of Chinese consumers' responses to new mobile technologies and a better understanding of variations among regional Chinese consumers.

Introduction

In recent decades the significant technological evolution in the mobile telecommunication industry has enabled the rapid development of new business ideas and innovative mobile communications services. Studies in Western countries have revealed determinants of consumer acceptance of various mobile technological innovations (e.g. Bauer et al., 2005; Benbunan-Fich and Benbunan, 2007; de Marez et al., 2007; Nysveen et al., 2005; Sullivan Mort and Drennan, 2007). While the majority of research has occurred in Western nations, China has already become the largest mobile communication market in the world, and is attracting an increasing number of Western companies looking for business opportunities (Lai et al., 2009). When these companies implement marketing strategies for mobile technological products or services in this foreign market, questions may arise as to whether those adoption determinants found in the Western context will prove to be similarly important in China and as equally effective on Chinese consumers when used in marketing strategies.

Furthermore, Western companies may mistakenly regard China as a single entity when doing business in this emerging and promising market (Zhang et al., 2008). It has been documented, however, that China is a not a homogenous market, but rather consists of multiple heterogeneous regional markets (Schmitt, 1997; 1999). Each regional market has its unique geographic topography, economic base, and cultural heritage (Veeck et al., 2007). Chinese consumer preferences for consumption therefore tend to differ according to geographic location and there are significant differences in lifestyles, purchasing power, and consumption attitudes between the regions (Cui and Liu, 2000). It has also been argued that regional socio-economic and cultural environments may influence consumers' thoughts on innovation development (Eves and Cheng, 2007). Consequently, any attempts to explore

Chinese markets and Chinese consumers cannot disregard regional variations (Sin and Ho, 2001).

This paper examines the case of Chinese consumers' adoption of a new mobile technology, namely 3G, the third generation mobile communication technology, which has recently been launched in China. It is well known that the Chinese government deliberately postponed 3G license issuance in order to allow time to develop its indigenous 3G standard (Passerini et al., 2007). As a result, China has fallen far behind Western developed countries in 3G business development. Since 3G has only recently been introduced, many Chinese consumers consider it a novelty, and little is known about how they would respond to this innovation.

To examine this issue, the study has two key objectives. Firstly, to identify what beliefs, perceptions and attitudes underpin Chinese consumers' adoption intentions towards 3G and to compare and contrast them with findings in Western countries. Secondly, this research was conducted in three regional Chinese markets (i.e. East China, North China, and Central China), to test whether there are differences in the three regional consumers groups regarding factors that influence their 3G acceptance. Through a qualitative, sub-cultural comparison of these three groups, we provide a better understanding of Chinese consumers' beliefs, perceptions and attitudes underpinning their intentions to adopt new mobile technological innovation.

We begin with an overview of the theoretical framework which was used to guide the study development, together with a brief review of literature about technology adoption behaviour. A discussion on regional Chinese markets is also included to provide the context for the study. The methodology is outlined, followed by a discussion of the results. The paper concludes with the implications for theory and practice.

1. Theoretical frameworks for consumer adoption of technology

Individuals' motives for using technological innovations have been researched extensively and a variety of theoretical perspectives have been advanced. Although many modifications and extensions have been suggested in the literature, most studies have been conducted on the basis of the Theory of Reasoned Action [TRA] (Fishbein and Ajzen, 1975), the Theory of Planned Behaviour [TPB] (Ajzen, 1985, 1991), and the Technology Acceptance Model [TAM] (Davis, 1989).

TRA forms the foundation of both TPB and TAM, but is limited in assuming that individuals have complete control over their behaviour conditions (Ajzen, 1985, 1991). TAM has been criticised as being too parsimonious for assuming only two definitive beliefs of innovation adoption and failing to consider the effects of social and situational aspects (Venkatesh, 2000). TPB, as a revision of TRA, is not constrained by the complete volitional control condition (Ajzen, 1991). It is particularly geared to explore individuals' innovation adoption behaviour (Venkatesh and Brown, 2001), because it is able to explain the most variance in the target behaviour (Taylor and Todd, 1995). Compared with TAM, TPB can guide researchers to obtain more specific and expansive information that assists in predicting and explaining innovation adoption (Mathieson, 1991).

According to TPB, whether a person performs an action or not is a function of: 1) their attitude towards the behaviour, 2) subjective norm, and 3) perceived behavioural control (Ajzen, 1985, 1991). These three constructs determine the behaviour, and can therefore be used to capture motivational factors, and reflect consumers' readiness to perform a given behaviour (Ajzen, 1991). Attitude towards the behaviour is a person's favourable or unfavourable evaluation of the behaviour in question whilst subjective norm is a person's perceived social pressure to perform or not to perform the behaviour (Ajzen, 1991, p.188). Lastly, perceived behavioural control is a person's perceived ease or difficulty of performing

the behaviour of interest (Ajzen, 1991, p.183). In turn, these three core constructs of TPB are determined by three sets of cognitive beliefs: behavioural beliefs (i.e. the likely consequences or attributes of performing the behaviour), normative beliefs (i.e. the normative expectations of other people on the behaviour), and control beliefs (i.e. the presence of factors that may further or hinder performance of the behaviour) (Ajzen, 1991).

Conceptually, TPB is considered universally applicable in predicting and explaining behaviour based on information processing theory and learning theory (Davidson and Thompson, 1980; Malhotra and McCort, 2001). Empirically, many existing TPB based cross-cultural studies have also validated its generalisability, for example, it has been applied across: China, Italy, Japan, and USA (Bagozzi et al., 2000); UK and Greece (Kalafatis et al., 1999); South Korea and USA (Lee and Green, 1991); and China and USA (Pavlou and Chai, 2002). Based on the aforementioned, TPB provides the guiding theoretical framework in this study.

2. Regional Chinese markets

China is a culturally heterogeneous country as evidenced by variations in the dialects, values, lifestyles, traditions, and customs of the Chinese people (Swanson, 1998). Moreover, while China's economy is growing and transforming rapidly on the whole, regions enjoy different rates of economic development (Jones et al., 2003). As a result, China cannot be viewed as a single market, but as a country with multiple regional markets.

Swanson (1989), who proposed the '*Twelve Nations of China*', is considered to be the first western researcher to note that China's regional diversity is important for marketing operations (Cui and Liu, 2000). Subsequently, an increasing number of researchers have paid attention to this topic with the aim of segmenting the Chinese market for managerial and marketing purposes (e.g. Cui, 1999; Cui and Liu, 2000; Schmitt, 1997, 1999; Swanson, 1998).

The majority of the studies have suggested a geographic segmentation of China based on location, economic development, and local culture. In these studies, China was divided into several regional markets, for instance, South China, East China, North China, Central China, Southwest China, Northwest China, and Northeast China markets (Cui, 1999; Cui and Liu, 2000), with each of these geographically segmented markets comprising several provinces. This is the conventional way for the regional division of China in both historical and modern times (Cui and Liu, 2000). Some studies have similar segmentations (e.g. Swanson, 1989; Veeck et al., 2007; Yang, 2007), while other researchers simply employ a dichotomous segmentation approach of coastal and inland markets (e.g. Dou et al., 2006; Zhang et al., 2008; Zhou et al., 2009).

A number of marketing and consumer behaviour studies in China have found the following: 1) regional diversity and disparity have significant implications for new product introduction across China (e.g. Cui, 1997, 1999); 2) consumers from various regions have conflicting perceptions of and attitudes towards advertising and marketing (e.g. Chan and Cui, 2004; Chan, 2008); 3) they have different media usage preferences (e.g. Dou et al., 2006); and 4) variations in consumer decision-making styles (e.g. Zhou et al., 2009) and shopping behaviours (e.g. Tsang et al., 2003; Varia Fram et al., 2004). In line with the aforementioned studies, it is suggested that: a marketing strategy that worked in one region may not automatically translate into success in another region (Swanson, 1998); products are increasingly advertised and sold differently from city to city in China (Schmitt, 1997; Dickson et al., 2004); and consequently, firms' market orientation and business performance are strongly affected by the diversity and disparity between these regional markets (Sin et al., 2003; Sin et al., 2004). The heterogeneous nature of regional China markets may therefore affect people's perception of technological innovations, as well as their adoption readiness,

thus precluding an identical response to a mobile technological innovation, such as 3G, across regions.

3. The research design

In order to examine the factors that best predict Chinese consumers' acceptance of 3G, this study firstly sought to capture their beliefs about using 3G[1]. According to Ajzen and Fishbein (1980), beliefs can be obtained by free elicitation from relevant participants. Given the exploratory nature of the study, a qualitative approach was considered appropriate. This is supported by Yin (1994), who proposes that qualitative methods are appropriate for studying contemporary events and to explore previously under-researched subjects. The in-depth interview method was employed, which is an open-ended, discovery-oriented method that is well suited for eliciting beliefs from respondents (Rubin and Rubin, 2004). In-depth interviews have also been recommended by Ajzen (2008) as a means to elicit beliefs relevant to a specific topic of interest.

Under the guidance of TPB, a semi-structured interview format with three sections was developed. The first section of questions encouraged participants to express their perceptions and beliefs about using 3G in order to determine the most frequently perceived advantages and disadvantages of adoption. The second section encouraged participants to make explicit any perceived influences that would impact on their decision to use 3G, in order to identify categories of social influence. These questions help to identify who are likely to apply social pressure in respect to 3G adoption, as well as the sources of secondary information that may further influence their decision. The final section in the interview guide

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[1]We found that 3G as a concept has been heavily promoted and advertised in China. The use of 3G is already understood by Chinese consumers as accessing advanced mobile services, such as mobile Internet and video talk by using a 3G mobile phone. Also, because 3G is in the early development stage, there is no single specific 3G mobile service that is representative of 3G innovation across China. Therefore, we employed the term 'using 3G', instead of specifying a particular 3G mobile service to represent the behaviour of interest when conducting this research in China.

asked what respondents thought may encourage or hinder their likelihood using 3G, verifying the facilitating factors or barriers to their 3G adoption.

As the focus of our research is consumer adoption of 3G, our city selection is by necessity limited to those city where 3G technology is available. The three regional cities selected to conduct in-depth interviews are Beijing, Shanghai, and Wuhan where this technology is available. The three metropolitan cities are considered to be representative cities for North China, East China and Central China respectively (Cui and Liu, 2000) and, as such, represent sites with sufficient cultural and economic diversity and disparity (Veeck et al., 2007), for the objectives of this study. Interviews were conducted in each of the three cities during January and February, 2009.

The recruitment process commenced through purposive sampling (Patton, 2002), where the initial interviewees were selected from the researchers' personal contacts or from a Chinese university alumni record in each research city. Additional respondents were then located through the snowball sampling technique, where interviewees suggested other individuals to interview. In selecting the participants, three screening criteria were employed:

(1) All participants had to be mobile phone users.

(2) All participants had to have some awareness of 3G.

(3) All participants had to be second generation residents of Beijing, Shanghai, or Wuhan, e.g., they were born, educated, and now work in that city.

The first two criteria ensured participants' involvement with using mobile technology and excluded individuals with no awareness of 3G and who would not be suitable for the purpose of this study. The third criterion ensured that all participants were acculturated and truly representative residents of each city so that the three groups of regional market consumers could be compared with regard to their mobile technological innovation adoption in accordance with the second objective of this study. Additionally, when selecting

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participants, attention was paid to ensuring that the three groups had homogenous demographic backgrounds, which may avoid variations in findings caused by this issue. The final sample comprised of 45 participants (15 from Beijing, 15 from Shanghai, and 15 from Wuhan). Appendix 1 shows the participants' demographic information.

All interviews were conducted in Mandarin Chinese and then audio-taped and transcribed in the original language. This raw data facilitated a detailed, two-stage analysis using constant comparison (Strauss and Corbin, 1990). First, all transcripts were coded and the emergent themes labelled. The coding scheme was derived from TPB, which served as a basis and allowed detailed themes to emerge. In the second stage, responses from the three groups of interviewees were compared and contrasted to identify differences regarding the themes between regional cities. Following the coding stage, the emergent themes and statements representing them were translated into English. Finally, back translation was undertaken to achieve equivalence of the two language sources (Brislin, 1970). Every attempt was made to retain the subtle meanings and nuances in the original language.

4. Emergent themes from the data

Under the TPB framework, all interview data can be coded into three major categories. The first category comprised of attitudes, which included the interviewees' beliefs and perceptions reflecting their favourable or unfavourable disposition towards 3G adoption. Themes under this category revealed interviewees' perceptions of using 3G mobile phone, such as *facilitating routines*, *enhancing lifestyle, having fun* and *social status change*. Second, the subjective norm category comprised of normative beliefs derived from interviewees disclosing information about who they perceived influenced their attitudes towards 3G adoption. One theme emerged in this category, *normative influence* from social network. Lastly, the perceived behavioural control category contained themes underlying the level of

control participants believed they would have when using 3G. Mostly, the data revealed constraints inhibiting 3G adoption, including *high cost, worries about quality, content being offered* and *compatibility* relating to the diffusion of 3G technologies. The categories and emergent themes are summarized in the Table 1 and each theme is explored in more detail below.

[Insert table 1 here]

Facilitate routines and enhance lifestyle

3G technologies offer users a range of advanced mobile communication services, such as video talk, broadband wireless data, and mobile Internet services, which are supposed to be useful and have the ability to facilitate various routines for the user. Almost every participant in the interviews discussed this utilitarian aspect by highlighting their expectation of the functionalities and conveniences brought by 3G technology. Specifically, they perceived 3G as useful in *facilitating users' routines* and *enhancing their lifestyles*.

One of 3G's new features often mentioned in the interviews is high speed mobile Internet, which enables users to access Internet at any time and at any place (Salkintzis, 2004), and is expected to boost participants' work performance:

> *'The faster and more convenient data transfer may enhance the effectiveness of my work, for example, I would be able to get my client's orders by using 3G mobile handset to access my company's website when I am not in my office.'* (ID B02, Beijing)
>
> *'If I used 3G mobile phone, I would be able to check email at any time and any place, and I would not be worried about missing my boss's email.'* (ID S04, Shanghai)
>
> *'My job makes me travel a lot. I think 3G will get me the access to the Internet when I am on a business trip and the wired Internet is not available.'* (ID W05, Wuhan)

Additionally, interviewees indicated that they looked forward to the convenience brought by the new mobile technology:

> *'I would love to have this kind of 3G mobile service: I would receive discounts and sales information when I am shopping.'* (ID B08, Beijing)
>
> *'You know, the Internet plays a very important role in my life, and 3G would enable me to access to the Internet even when I am not with a computer or a laptop.'* (ID S11, Shanghai)

Clearly, the utilitarian value of using 3G was recognised by interview participants. It has been argued in the extant literature that product attributes influence consumer perceptions of using the innovation (Rogers, 1995) and that these attributes are perceived as being linked to the consumer's lifestyle (Zhu et al., 2009). The responses from Chinese consumers in our study evidently support and verify these arguments. The themes identified may have equally similar meaning and function as the factor of effectiveness, usefulness, or utilitarian value identified in Western studies (e.g. de Marez et al., 2007; Nysveen et al., 2005; Sullivan Mort and Drennan, 2007), as they all refer to the mobile technological innovation being useful for users or enhancing their performance.

Among the three participants groups, no significant differences were found in their utilitarian outcome expectations as a result of using 3G. Consistently, the groups indicated that 3G would be useful and have the capacity to enhance performance. These outcome expectations may therefore positively influence their likelihood of adopting 3G.

Fun

Having fun is similar to the concept of hedonic value (e.g. Sullivan Mort and Drennan, 2007), or enjoyment (e.g. de Marez et al., 2007; Nysveen, et al., 2005) in Western literature, which refers to the perceived pleasure derived from using the innovation. Since the applications of 3G include some entertaining functions, such as mobile online games or mobile TV, hedonic

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outcomes can be anticipated, which in turn may influence consumers' attitude towards its adoption. Hedonic attributes were identified by all participants in the three cities in that they expressed high expectations of being entertained by this new technology:

> *'I am very keen to some 3G services, especially entertainment services, like playing online games on a mobile handset.'* (ID B05, Beijing)
>
> *'I really expect to use some new 3G services, which will bring me some fun, such as video talk. I think it is very entertaining.'* (ID S02, Shanghai)
>
> *'If I used 3G, I will use some of the entertainment services. That would be fun.'* (ID, W01, Wuhan)

Status gains and status losses

Rogers' (1995) Innovation Diffusion Theory posits that the desire to gain status is an important reason for adoption behaviour. Recognition by others is achieved by adopting an innovation where the adoption decision is considered socially desirable (Venkatesh and Brown, 2001). Individuals thus perceive their image or status as enhanced in their social system (Karahanna et al., 1999).

In traditional Chinese cultural values, *'face[2]'* is a concept of central importance; the amount of face a person has is a function of his or her social status (Ho, 1976; Yau, 1988). Moreover, being "face conscious" may be important in social activities and motivate consumers to pay greater attention to products to express a certain social status (Wang and Walker, 2011). The action of adopting innovations ahead of peers could be perceived by the Chinese consumer as a means to gain face or to increase their social status (Zhu and He, 2002). Alternatively, if an individual fails to keep pace with the social or reference group in innovation adoption, they might feel that they are losing face in front of their peers. Therefore,

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[2] Face is a Chinese term that has its origin in psychology, literally translated from equivalent Chinese expressions (Ho,1976). Basically, it has two facets involving gaining and losing face. Gaining face is normally considered as an antecedent of social status gains and losing face is related to social status losses in Chinese cultural values (Ho, 1976; Hwang, 1987; Yau, 1988).

social outcomes may affect Chinese consumers' attitudes or intentions towards adopting 3G, particularly in the early stages of its diffusion in China. However, there appears to be limited published research that specifically addresses the extent to which face is an influencing factor in the adoption of new communication technologies either as a belief underpinning attitude or as a normative influence.

We noted that the interviewees from Beijing and Shanghai did not express status gaining motivations for the adoption of 3G. In contrast, several respondents from Wuhan city articulated their expectations of *gaining face* by using 3G in front of their friends, for example:

'I think using 3G is cool, and people like trying new things, I would feel gaining some face if I was the first one using 3G of my friends.' (ID W04, Wuhan)

'I would be seen as at a higher status by my peers if I used the latest technology.' (ID W08, Wuhan)

Conversely, the interviewees from all three cities expressed fear of status loss due to using obsolescent technology, which may force them to adopt new technology products, such as 3G. They do not want to be seen as laggards who cannot keep pace with society and technological development. Although they might not want to change, in order to save face they may feel forced to adopt innovative products due to pressure from reference groups:

'I would use 3G if my friends had already used it, since I do not want to fall behind them.' (ID B01, Beijing)

'I do not want to be seen as a fossil man in the process of technology diffusion, so I think I may use 3G, if someone I know already started using it.' (ID S09, Shanghai)

'I am someone who always follows the trends, because if not, I may lose face before peers, therefore, I will use 3G because I think using 3G will be a trend.' (ID W09, Wuhan)

These findings suggest that not all of the interviewees considered *status gains* as an important factor influencing their adoption decision. It has been identified that social status gains may influence adoption decisions for individuals from Wuhan, but have less effect on individuals from Beijing and Shanghai. As an inland city, Wuhan is relatively closed off to the foreign world compared to the other two cities in our study and its residents have less Western cultural influence (Zhou et al., 2009). Extant research suggests that compared to consumers from Beijing and Shanghai, Wuhan consumers are more conservative, slow to change shopping habits and less prone to switching brands (Veeck et al., 2007). Moreover, Wuhan residents reserve more traditional cultural values compared to other two cities' residents (Ralston, et al., 1996; Zhang et al., 2008). It is argued therefore, that they are likely to place more importance on the factors related to social status change in their innovation adoption and would still perceive using advanced mobile technology as a status symbol.

However, there was evidence from all three cities that respondents did perceive *status losses* as a motivator for adopting innovations. Thus, it appears that interviewees from Beijing and Shanghai may not perceive using 3G as a status symbol or they may not consider that using 3G can increase their status significantly, positioning them as more cosmopolitan and sophisticated consumers (Davis, 2005) compared to the more conservative Wuhan residents (Ralston, et al., 1996; Zhang et al., 2008).

Antecedents to innovation adoption relating to social status change are not original findings that are specific to Chinese consumers, although they are not found in Western studies of mobile technological innovation adoption. That is, whilst adoption studies of other types of technological innovation in the West have addressed a similar rationale (e.g. Karahanna et al., 1999; Venkatesh and Brown, 2001; Venkatesh and Davis, 2000), the results of those studies revealed that perceived social status outcomes had limited influence on Western consumers. In contrast, we argue that the Chinese consumer may place more

emphasis on social status change in respect to new technology adoption. Because the claim to face rests on the basis of social status in Chinese society (Ho, 1976), it has a pervasive influence in social activities among Chinese people (Yau, 1988), and using an innovation may be instrumental in gaining or losing face. Our finding is supported by studies in China showing that attributes related to the social image of an innovation significantly impact Chinese consumers' attitudes towards it (e.g. Zhu and He, 2002). In our study, the findings also show that preventing the loss of face is more predominant than gaining face. This finding is in line with Ho (1976) and more recently Anderson & He (1999) who suggests that losing face is much more serious than gaining face for Chinese consumers, particularly for conspicuous consumption.

Normative influence

According to psychological theories, individual volitional decisions tend to be characterised by social influence (Burnkrant and Cousineau, 1975). Accordingly, in many Western innovation adoption studies, influences from one's social networks, such as friends, family members, colleagues, superiors, and others, were shown to affect adoption decision-making (e.g. Bauer et al., 2005; de Marez et al., 2007; Pedersen, 2005).

A number of interviewees in all three groups identified that their social networks would influence their 3G adoption decision. Furthermore, based on their responses, different types of referents may exercise varying degrees of influence. Notably, many interviewees from across the three cities valued their spouse, or girlfriend/boyfriend, as the most powerful influence on their 3G adoption decision. This may be because such partners are and will be the most contacted group after the individual adopts the 3G communication technology, or they just want to be in accordance with the beliefs, attitudes, and behaviours of their partners:

'If my girlfriend loved to use 3G, I think I should use it too.' (ID B02, Beijing)

'I will see if my boyfriend will use 3G, his choice may directly decide my decision in this case, because he is the one I call most.' (ID S04, Shanghai)

'I will listen to my husband in this case, because he is the one in charge of updating technological products in my family.' (ID W02, Wuhan)

Apart from family members and friends, interviewees identified innovative people as an influential source. There may be some overlap between the friend and innovative people reference groups, as the innovative people normally came from a participant's social network of friends:

'I will consult with some innovative people who have more knowledge and experience using modern technologies.'(ID B11, Beijing)

'I would go to one of my friends working in IT industry, I think he can give me some good advice about using 3G.' (ID S13, Shanghai)

'I will listen to some of my innovative friends' suggestions in this case, because they are like new technology experts.'(ID W07, Wuhan)

These findings are consistent with the social influences on innovation adoption found in Western studies (e.g. Andrews and Boyle, 2008; Fitzgerald, 2004; Pedersen, 2005; Yang and Jolly, 2009). These studies demonstrate that social influence from an individual's interpersonal network affects their decisions to adopt interactive communication technology innovations.

Perceived constraints

Consistent with Western studies (e.g. de Marez, 2007; Pedersen, 2005), perceived availability of resources has been identified as a barrier or perceived constraint inhibiting 3G technology adoption in this study. Given the evidence from prior marketing research, cost has been shown to significantly affect consumer decisions, especially in the case of expensive goods (e.g. Sahni, 1994; Venkatesh and Brown, 2001). The cost of replacing a 3G mobile

phone and the high price of using some of the 3G services were perceived as a deterrent by interviewees from all the three interviewee groups:

> *'Some mobile Internet services cost too much, I do not want to spend so much money on them.'* (ID B09, Beijing)
>
> *'If I wanted to use 3G, I have to buy a 3G mobile phone at first, it would cost me thousands.'* (ID S11, Shanghai)
>
> *'The price of 3G mobile handsets is too high for me.'* (ID W11, Wuhan)

As 3G technology has only recently started its trial in China, issues relating to the quality and maturity of the technology have already become a concern to Chinese consumers:

> *'I am worried about the quality of the 3G network and its coverage, also the quality of 3G services.'* (ID B07, Beijing)
>
> *'I know there are not many 3G mobile phones in the market, and I heard that some models are not such good quality.'* (ID S14, Shanghai)
>
> *'I think in the first few months 3G network coverage should be a big problem for 3G users, I know there are complaints about bad coverage'* (ID W14, Wuhan)

Additionally, concerns about whether 3G services are interesting and innovative were identified by interviewees from Beijing, while the practicality of 3G was questioned by interviewees from Shanghai:

> *'I want some innovative and interesting 3G services, such as customer-made type, but they are not available now.'* (ID B10, Beijing)
>
> *'I doubt if the 3G services currently provided are interesting, because they are just some services which are simply transferred from the Internet.'* (ID B12, Beijing)
>
> *'I only spend my money on what I need, that is, I would use 3G if it provided practical services'* (ID S09, Shanghai)
>
> *'I am not sure if some 3G services are practical and are worth using.'* (ID S15, Shanghai)

From the above quotes from the data, we can see that the three interviewee groups placed different emphasis on some perceived constraints, for example, all three groups

recognised high cost and low quality as factors that could stop them from using 3G, but interviewees from Beijing and Shanghai also showed concerns about the content that 3G provides. Moreover, on the issue of content to be offered, Beijing interviewees cared more about hedonic value and they asked for interesting and innovative 3G services, whereas Shanghai interviewees placed importance on utilitarian feature and they needed practical and value for money 3G services. This is in accordance with previous studies on those two cities, which revealed that Beijing citizens give priority to intrinsic satisfaction on consumption, while Shanghai citizens are more likely to be practical consumers (Cui and Liu, 2000; Zhang et al., 2008). In summarising these regional differences it was found that Wuhan consumers considered using advanced and updated mobile technological innovation as a status symbol to increase their social image, while their counterparts from Beijing and Shanghai did not. Consumers from Beijing and Shanghai paid attention to different aspects of the contents or services provided by the mobile technological innovation, Beijing consumers cared more about the hedonic features, while Shanghai consumers emphasized the utilitarian features.

This section has explored the qualitative data that supports the perceptions, beliefs and attitudes of Chinese consumers regarding their likelihood of adopting 3G. Additionally, the findings identified how these factors varied between regional cities. Their theoretical and practical implications are discussed in the next section.

5. Theoretical contributions and implications for practice.

This paper makes three theoretical contributions to the literature. First, it represents one of the first efforts toward understanding Chinese consumers' mobile technological innovation acceptance, taking into account regional market differences. Extant research on Chinese consumption or adoption behaviour available tends to use samples from Beijing (e.g. Chen & Eves, 2007) or a combination of two major cities representing north and south China

regions, e.g. Beijing and Guangzhou (Zhu & He, 2002). Our study moves beyond this regional limitation to include another city. Thus our selection of cities represents north, east and central China (Cui and Liu, 2000) and are recognised as having sufficient cultural and economic diversity and disparity (Veeck et al., 2007) for the purpose of this study. As a result, we qualitatively identified factors that may influence Chinese consumer adoption behaviours towards 3G technology and compared the relative importance of those factors among three regional China markets. Moreover, the findings for Wuhan tend to support other research suggesting that individuals living in this city have not been "Westernised" as much as those living in major cities such as Beijing (e.g. Ralston, et al., 1996; Veeck et al., 2007; Zhang et al., 2008; Zhou et al., 2009). Nor have the technological trends seen major cities such as Beijing or Guangzhou necessarily diffused to all regional markets as suggested by Zhu and He (2002).

Second, our study contributes to the Western innovation adoption theories by using TPB as a guiding framework and then exploring the emerging themes from the qualitative data to gain richer insights into how the beliefs, subjective norms and perceived behavioural control constructs can be construed in an Eastern context. We found that most factors influencing Chinese consumers' innovation adoption, although spoken of in an Eastern context, were similar to the findings in Western studies. However, we also argue that the relative importance of those factors differ between the East/West cultures. For example, Chinese consumers may focus more on the social status change attributes of using an innovation than Westerners, because factors related to social status are more predominant in Chinese consumers' decision making (Bao et al., 2003). So from a theoretical viewpoint, our findings pose a similar question to that by Wang and Walker (2011) as to how consumer concerns with *face* fit into theories such as TPB. When these issues are taken together, the

findings in our study complement and extend the application of attitude theory in Western studies for consumer innovation adoption in China.

Third, by comparing and contrasting regional Chinese consumers, this study contributes to cross-cultural marketing theories by adding knowledge about consumer behaviours in an intra-cultural context. Cross-cultural studies have long been conducted in two or more nations, but less has been done within one nation's boundaries (Au, 1999). China is a substantial and complex market, and regional Chinese consumers have different consumption preferences, which is ideal for intra-cultural comparative research. Thus, the study contributes to the theoretical application of TPB to intra-cultural research through its application to consumer adoption behaviour in three metropolitan cities in China with sufficient cultural and economic diversity representing significant regional variations.

For practitioners these findings have implications for future marketing strategy and campaigns, particularly for Western companies currently operating or planning to operate in China. The findings are also of importance to domestic companies. For example, the findings in our study provide a richer understanding of what underpins Chinese consumers' beliefs, perceptions and attitudes towards adopting 3G as they were drawn from the consumers themselves. When planning to implement marketing programs to encourage the take up of 3G technology, practitioners will need to ensure that they are positioning their offerings in ways that resonate with these thematic factors. Additionally, our study identified variations in these factors among Chinese regional consumers. Thus practitioners can consider such variations when adapting their marketing strategies to suit regional Chinese consumer markets. Specifically, marketing communication strategies must address differences such as the conventional and conservative nature of Wuhan consumers as compared to the more cosmopolitan and sophisticated Beijing and Shanghai consumers.

6. Limitations and directions for future study

The study used a qualitative methodology to gain richer insights into what underpins Chinese consumers' beliefs, perceptions and attitudes towards adopting 3G. It is acknowledged that qualitative research is often criticised for lack of generalisability owing to the use of small, non-representative samples (Miles and Huberman, 1994). However, these limitations can be reduced by clearly identifying the research methods undertaken (Creswell, 1994), as shown in the research methods section of the paper. Moreover, the goal of qualitative research is to understand a phenomenon from the perspective of its research participants, rather than generalising from the sample to the population. Ajzen and Fishbein (1980) argue that beliefs that underpin attitudes and intentions towards a behaviour can be obtained by free elicitation from relevant participants. Thus capturing how important beliefs about an innovation are perceived and communicated by individuals (Chau & Hau, 2002) and interpreting them within that reality (Strauss & Corbin, 1990) provides rich insights for future researchers.

The generalisability of our findings is further strengthened through the TPB theoretical framework used as a guiding structure for a qualitative study. TPB has shown to be a reliable framework for adoption and diffusion research across cultures while also permitting differences to be identified (e.g. Bagozzi et al., 2000; Pavlou and Chai, 2002). Future research could replicate the study to investigate how similar or different the underpinning themes are for Chinese consumers and their intentions to adopt advanced interactive communications technologies in order to extend this area of research.

Additionally, the differences identified among interview groups may only present the variations among indigenous local residents of the three cities, as outlined in the selection criteria used in the study. Therefore, caution needs to be taken if applied to other sample populations in China. For example, they may not be representative of the immigrant population from other provinces or rural regions who now live in these cities. The population

of immigrants to Chinese cities has substantially increased every year since 1980s (Veeck et al., 2007). Moreover, China can be segmented into seven regional markets (Cui and Liu, 2000), but only three of them were selected in this study. Even though we specifically considered the coastal and inland dichotomy, the results to determine adoption intentions for 3G may not be completely applicable in other Chinese regional markets. Researchers interested in intra-cultural studies in large countries where significant regional variations exist can further examine our themes and extend them. Such extensions could include other sampling factors such as the move of rural Chinese into metropolitan cities or first generation city dwellers from parents who migrated from rural areas.

Finally, our findings can be used to inform an extended theoretical model of TPB, which can be tested in a quantitative study to further enhance practitioners' and researchers' understanding of Chinese consumers' adoption behaviours. For example due to the sparse literature available in technology adoption research, research could determine whether *face* acts as a belief influencing attitude or as a normative influence through the subjective norms construct towards current or future communication technologies and service offerings that rely on the 3G platform. Additionally, this factor could be examined through an intra-cultural study to determine if there are regional variations in how it exerts influence in terms of gaining or losing *face*, rather than simply assuming that more isolated regions will catch up with larger cities regarding technology adoption as suggested in Zhu and He (2002).

7. Conclusion

The findings from our study provide richer insights into what underpins Chinese consumers' beliefs, perceptions and attitudes towards adopting 3G mobile technology. It is suggested that Chinese consumers from the three regional markets look forward to the benefits of using 3G technology, such as utilitarian outcomes (facilitate routines and enhance lifestyles), hedonic

outcomes (entertainment), and social outcomes (status gains and status losses). Consistent with Western studies, this study reveals that Chinese consumers perceive normative influence from their interpersonal network. Lastly, the study identified the constraints perceived by Chinese consumers to 3G adoption, including: high cost, low quality, and uninteresting and unpractical services contents

Differences between three groups of regional Chinese consumers regarding 3G acceptance have been discussed. This includes the relative conventional and conservative Wuhan consumers that regard adopting 3G as a means to augment their social image, compared to the Beijing and Shanghai consumers, who are relatively sophisticated and innovative. Beijing consumers placed more importance on the contents of 3G services, while Shanghai consumers paid more attention to the practicality of the 3G mobile technology.

As such, all of these findings contribute to a better understanding of Chinese consumers' mobile communications innovation adoption behaviours. Moreover, they can be used to inform an extended theoretical model of TPB, which can be tested in a quantitative study to further enhance marketers' and researchers' understanding of Chinese consumers' adoption behaviours towards the 3G service as well as other current or future technologies and applications that rely on this platform.

Appendix 1:
Interviewee Demographic Information

Cities	Gender	Age group	Educational level	Monthly income*	ID
Beijing	Male	18-24	Bachelor	2000-3999	B04
	Male	18-24	Masters and above	6000-7999	B02
	Male	25-30	Bachelor	≥8000	B05
	Male	25-30	Bachelor	6000-7999	B07
	Male	25-30	Masters and above	6000-7999	B15
	Male	31-40	Bachelor	≥8000	B06
	Male	31-40	Masters and above	≥8000	B12
	Female	18-24	Undergraduate	≤1999	B09
	Female	18-24	Bachelor	2000-3999	B14
	Female	25-30	Bachelor	4000-5999	B01
	Female	25-30	Bachelor	4000-5999	B08
	Female	25-30	Masters and above	6000-7999	B10
	Female	31-40	Bachelor	6000-7999	B11
	Female	31-40	Diploma	4000-5999	B03
	Female	31-40	Bachelor	6000-7999	B13
Shanghai	Male	18-24	Diploma	2000-3999	S01
	Male	18-24	Bachelor	4000-5999	S03
	Male	25-30	Masters and above	6000-7999	S06
	Male	25-30	Bachelor	6000-7999	S08
	Male	25-30	Bachelor	4000-5999	S11
	Male	31-40	Bachelor	≥8000	S13
	Male	31-40	Bachelor	≥8000	S14
	Male	31-40	Masters and above	6000-7999	S15
	Female	18-24	Undergraduate	≤1999	S02
	Female	18-24	Bachelor	2000-3999	S04
	Female	25-30	Bachelor	4000-5999	S05
	Female	25-30	Diploma	2000-3999	S09
	Female	25-30	Bachelor	4000-5999	S10
	Female	31-40	Bachelor	6000-7999	S07
	Female	31-40	Masters and above	≥8000	S12
Wuhan	Male	18-24	Bachelor	2000-3999	W03
	Male	18-24	Diploma	2000-3999	W10
	Male	25-30	Masters and above	4000-5999	W05
	Male	25-30	Masters and above	6000-7999	W06
	Male	25-30	Bachelor	2000-3999	W11
	Male	31-40	Bachelor	4000-5999	W14
	Male	31-40	Bachelor	≥8000	W15
	Female	18-24	Undergraduate	≤1999	W08
	Female	18-24	Diploma	4000-5999	W09
	Female	25-30	Bachelor	2000-3999	W04
	Female	25-30	Postgraduate	≤1999	W07
	Female	25-30	Bachelor	2000-3999	W12
	Female	31-40	Bachelor	2000-3999	W13

| | Female | 31-40 | Masters and above | 4000-5999 | W01 |
| | Female | 31-40 | Bachelor | 6000-7999 | W02 |

*Chinese Yuan (CHY)

| | Female | 31-40 | Masters and above | 4000-5999 | W01 |
| | Female | 31-40 | Bachelor | 6000-7999 | W02 |

*Chinese Yuan (CHY)

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