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Technology domestication in the Asian homestead: Comparing the experiences of middle class families in China and South Korea

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Abstract
Using technology domestication theory as the analytical framework, this paper discusses the findings of ethnographic interviews with middle class families in China and South Korea, comparing how they incorporate information and communication technologies (ICTs) into their lives. It analyses how family priorities, cultural values and social pressures influence the ways in which ICT use is woven into their lives, in the process invigorating traditional forms and networks of communication like *guanxi* for the Chinese and *Cheong* for the Koreans. It also pays special attention to supervision of ICT use and considers how the societal valorisation of academic excellence influences parental strategies in this regard.

Keywords
technology domestication, ICTs, *guanxi*, *Cheong*, parental supervision

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Technology domestication in the Asian homestead: Comparing the experiences of middle class families in China and South Korea

Using technology domestication theory as the analytical framework, this paper discusses the findings of ethnographic interviews with middle class families in China and South Korea (hereafter Korea), comparing how they incorporate information and communication technologies (ICTs) into their lives. It analyses how family priorities, cultural values and social pressures influence the ways in which ICT use is woven into their lives. It seeks to understand how ICTs are used in intra- and extra-family communication, particularly with extended social groupings such as the *guanxi* (personal relationships) network for the Chinese and *Cheong* (feelings of affection/kinship for family, friends and acquaintances) network for the Koreans. It also pays special attention to the supervision of ICT use in the household and considers how the societal valorisation of academic excellence influences parental strategies in this regard. The paper begins by setting out background information necessary for understanding technology domestication in these two countries – namely a discussion of the pressures and life goals of the Chinese and Korean middle-class, the family values and communication styles inherent within these societies, and technology diffusion patterns in the two countries. The paper then discusses main tenets of technology domestication theory and how it informs the research questions for this paper. In discussing the findings of this study, comparative analyses will be made of technology domestication by families in the two countries. In so doing, the paper seeks to enrich technology domestication theory by applying it to the Asian context, hitherto unobserved by domestication researchers.

The urban middle class in China and Korea –priorities and pressures

An appreciation of the priorities of middle class families in China and Korea, as well as the pressures which they face, will help to contextualise our understanding of their technology domestication. The two countries' recent economic development has seen the growth of the middle class. Affluent and aspirational, the middle class seek to raise their status in society and to be financially and materially well-endowed. Such ambitions are individually driven but also socially shaped (Chua 2000). Hence, the middle class face the pressure of fulfilling their own life goals and meeting societal expectations.

The emergence of the Chinese middle class was accompanied by a rise in consumerism. The 1990s saw significant growth in personal incomes and ready access to material goods in China's urban cities (Lu 2000). Chinese today express their individuality through consumption, ignoring ideological indoctrination by the state (Wei and Pan 1999). As advertising increases and inspires new wants, there is heightened pressure to keep up with one's peers (Gamble 2003). When the Chinese were less affluent, they aspired to possess four status symbols: bicycles, watches, sewing machines and radios (Yan 1994). With growing wealth, the new status symbols or "six big items" (*liu da jian*) evolved into: VCRs, televisions, washing machines, cameras, refrigerators and electric fans. Ten years on, this list is likely to include newer ICTs like mobile phones, computers and digital cameras (Euromonitor 2003). Not surprisingly, the functional and symbolic value of ICTs has made them prime objects of Chinese consumerism, In particular, the mobile phone is a potent status symbol due to its visibility and portability (Goodman 1996). For example, when mobile phones first emerged on the scene in Shanghai, people of higher socio-economic classes were referred to as the "mobile phone-using stratum" (*dageda jieceng*) (Gamble 2003, 157).

The one-child policy has also influenced consumption habits. Most urban Chinese families have only one child due to the successful implementation of the one-child policy, introduced in 1979 (Gu 1990). These only-children determine a considerable proportion of urban families' household purchases (K. Chan and McNeal 2004), estimated at over US$60 billion annually (McNeal and Zhang 2000). About half of the luxury goods purchased in China are bought for the only child or "little emperor" (*xiao huangdi*) (Yan 1994). Luxury children's goods markets have shown significant growth (Zhao and Murdock 1996), and the variety of services claiming to enhance the physical and intellectual strength of young children has also expanded (Anagnost 1997). Salient trends can also be noted amongst young Chinese consumers themselves. Young Chinese who grew up in the 1980s and 90s were born into an era of affluence and have high consumer demands (Li 1998). They are more responsive to advertising and actively acquire branded (*mingpai*) goods, unlike the older generation who tend to be oblivious to advertising (Chao and Myers 1998, Fan and Xiao 1998). Although materialism is officially discouraged in Chinese schools (K. Chan and McNeal 2004), it has been observed that schoolchildren share their experiences of consuming novelty foods (Guo 2000) and this exchange is likely to extend to other

consumer products as well. A good example of Chinese children's consumerism is the craze for the Transformer range of toys (Zhao and Murdock 1996).

Chinese culture has long emphasised the value of education, believed to be critical for one's social mobility and personal development (Hau and Salili 1996; Stevenson and Lee 1996). Chinese families place great importance on education and are prepared to spend a large proportion on their family income to raise their children's educational level (*New Trends in Chinese Marriage and the Family* 1987). Today, education is still of prime importance to Chinese families, especially urban middle class families which can afford expensive schooling (Donald 2002). The one-child policy has also exacerbated the amount of pressure placed on only-children to perform academically. It was noted as early as 1987, that parents of only-children in China tend to pin all their hopes for success on them and to have unrealistically high expectations (*New Trends in Chinese Marriage and the Family* 1987). In striving for academic excellence, children are themselves motivated by a sense of filial devotion towards their parents (Fong 2004). Studies have also shown that Chinese parents' involvement in their children's education is high, manifested in their active supervision of schoolwork and setting standards to be met by their children (Chen, Lee and Stevenson 1996). Some parents also organise additional lessons for their children after school hours, thereby imposing more stress on them (Anagnost 1997). Indeed, cities like Beijing have recently seen an explosion in after-school education ranging from traditional subjects like English and Math to artistic pursuits like painting, dance and piano (Wang and Cui 2004). Heavy investment of time and money into education is motivated by the desire to enter into the most prestigious universities and professions (Rosen 2004)

Korea's Samsung Economic Research Institute defines middle class households as those earning 50 to 150 percent of the median income (Yoon 2007). In 2005, they constituted 59.5 percent of all households. The Korean middle class has also been associated with the rise of consumerism as they seek to embrace an affluent lifestyle, hitherto only privy to the upper class. A 1996 national survey revealed that the Korean middle class is keen on conspicuous consumption, with 44.1% admitting that their excessive expenditure was motivated by the desire to show off their spending power. Other key trends in their consumption include a strong orientation towards recreation and entertainment, as well as the avid pursuit of individualised leisure.

Korean middle class parents, as with their Chinese counterparts, are extremely concerned about their children's academic achievement. They too invest considerable time and financial resources in their children's education, believing that academic achievement will ensure a higher level of prosperity (Chang 2007). Entrance into one of the top universities is considered an integral step towards social and professional advancement and enrolling in a *hakwon* (cram school) is thought to increase one's chances (Cotton 1996). When asked where in their everyday lives they felt they spent excessively, children's education and fees for private lessons ranked highest, constituting nearly a quarter of their excessive spending (Kim 2000).

Family values and communication styles in Chinese and Korean families

Despite the political turmoil and social upheavals which modern China has witnessed, the family remains a robust social entity. Family values are to a large extent, still adhered to (Davis and Harrell 1993; Ju 1996) and communication within the family tends to be both rule- and role-bound: "The hierarchical nature of familial relationships, particularly those between parents and children, dictates the way the family communication is conducted, both verbally and nonverbally." (Ju 1996, 139). Traditionally, children are socialised to be obedient (*tinghua*) and to defer to parental authority (Gao, Ting-Toomey and Gudykunst 1996). While there appears to be growing tolerance towards children's assertiveness, arguably the result of parental indulgence of their only children, young Chinese parents still expect their children to obey their commands (Wu 1996a).

Children in China tend to be closer and more affectionate to their mothers while their fathers play the disciplinarian's role and thus keep a distance from them (Chu 1993). The proverbial 'strict father, kind mother' relationship still appears to hold strong today (Ho 1986, 1987; Zang 2003). Amongst Chinese families today, the father's influence over the children seems to have declined as Chinese youth adore their mothers and tend to confide in them more (Zang 2003). Mothers also have more control over the children and play the critical role of bonding the family (Jankowiak 1993). There has been widespread criticism that China's one-child policy has resulted in a society of spoilt "little emperors" with overindulgent parents. However, research has shown that conversely, parents of only children are so concerned about the "spoiled only child" syndrome that they tend to control them rather strictly (Falbo and Poston Jr 1996; Wu 1996a, 1996b). The concept of "control" (*guan*) has particular

currency in the Chinese family (Wu 1996b). In Chinese tradition, parents are duty bound to control their children and to train them to rein in their impulses (Ho 1986). Parental control is associated not with negative but positive connotations and is regarded as an expression of love and care.

Outside of one's immediate family, "personal relationships" (*guanxi*) is a key societal value which impacts upon individuals' communication with the outside world. *Guanxi* with relatives and friends are integral to social mobility (H. Chan and King 2003; Gamer 2003; Yang 1994). One's relatives, school, residential and business contacts form the core of lifelong *guanxi* which are meant to endure even after these groups have dissolved and face-to-face interaction has ceased (Chu 1993; Goodwin and Tang 1996). It is widely acknowledged that in China today, one is unlikely to achieve much without knowing the right people and pulling the right strings (H. Chan and King 2003). As the average size of families in China has diminished, the importance of such social networks is likely to increase (Goodwin and Tang 1996). Indeed, the skill of developing *guanxi* is considered so important that it may be encouraged even at a young age (Chee 2000). An important corollary of *guanxi* is "personal obligations and affections" (*renqing*), a concept of reciprocity which underpins social relationships (Chu 1993; Goodwin and Tang 1996). The "*renqing* rule" dictates that people should maintain contact with their personal *guanxi* network by the occasional exchange of greetings, gifts and visits.

Korea is often considered a collectivistic society, although young people today are becoming increasingly individualistic (Han 1994; Na 2003). Confucian values are subscribed to in Korea, where rules about children's deference to their parents, the wife's deference to her husband and the family's deference to the nation have served to maintain social order for centuries (Yoon 1994). Koreans are known to be family-oriented and maintaining functional family ties is prioritised highly (Han 1994). Kinship ties with close relations are also fostered, to be tapped into in times of need (Kim 2003). Koreans treasure and strive to maintain *Cheong* - the feelings of affection and 'we-ness' which are shared with family, close friends and long-term acquaintances (Choi 2001).

The modern Korean family tends to be nuclear because apartments in urban areas tend to be small and expensive, and young couples are increasingly desirous of living apart from their parents and raising their own families (MacDonald 1996; Connor 2002). The Korean family remains a hierarchical one, where deference to

parental authority, although less strict and formalised than before, is still expressed by children and expected by parents (MacDonald 1996). Shades of traditional patriarchal communication still persist, "whereby fathers' contact with children is usually mediated by the 'domestic person', the mother" (Yong 2003, 334).

As the position of Korean women improves however, patriarchy is no longer unquestioned and the new family ideology embraces "equality, freedom and democracy", mirroring the shift in the country's political ideals (Yi 2003, 282). Women are therefore less likely to accept the husband's superior position within the household, and it is no longer uncommon for middle class women to have social and economic activities outside the home. Be that as it may, gender roles within the home are still clearly defined – men are expected to go out to society to work while women are expected to do most of the housework and raise the children (Yi 2003). Indeed, it appears that the mother is the *de facto* head of the family as Korean families have shifted from husband-dominated to wife-dominated, and father-centred to child-centred (Connor 2002). Korean mothers are known to be preoccupied with their children's educational achievement as the child's academic success is a barometer of the family's status. In contrast, Korean fathers often complain that their wives focus too much on educational achievement and do not give the children enough time to play. It should be noted however that as more women are working, children do not have as much supervision as before (Connor 2002). On their part, Korean adolescents are known to be achievement oriented and time-pressed (Kim 1994). High school students have classes all day, and many attend *hakwon* courses after school (MacDonald 1996). An overwhelming 90 per cent of high school students in urban areas preparing for university admissions receive private lessons in one or more *hakwon* (Kim 2000).

Technology diffusion in China and Korea

Technology adoption in China is keeping pace with the country's economic development. The government places great emphasis on the economy's information sector (Dai 2003, Meng and Li 2002), as evidenced by the establishment of the Ministry of Information Industry in 1998 (Zhang 1999). Chinese people have followed the government's lead by avidly adopting technology and acquiring infotech skills (Leung 1998). In terms of ICT ownership, affluent urban Chinese households are not dissimilar to those in developed countries. Typically, they own televisions, hi-

fi stereos, VCD/DVD players, computers and telephones. They are also trend-conscious and update their electronic equipment regularly. The competitiveness of the workplace has quickened their pace of life and spurred demand for instantaneous communications (Euromonitor 2003). Ownership of telephones and mobile phones amongst city residents rose significantly from 32.2 and 38.9 percent in 2002 to 49.2 and 80.5 percent in 2006 (Hu 2007). In Beijing and Shanghai, Internet penetration tops the country at 46.6 and 45.8 percent respectively (*Shanghai ranks second in Internet penetration* 2004). This is not surprising given that household computer ownership in the two cities is more than twice the national average (National Bureau of Statistics of China 2004).

Korea, is a world leader in terms of ICT ownership and access. Per capita Internet access in Korea is unsurpassed worldwide. 75.5 per cent of the population aged six and above use the Internet, with weekly usage averaging 13.7 hours (The National Internet Development Agency of Korea, 2007). The top three uses of the Internet are 'Getting information or data' (88.7 per cent of Internet user population), 'Leisure activities such as music, games, movies ' (86.0 per cent) and 'Communication by e-mail, chatting, etc. ' (84.7%). Internet use is highest amongst children and teenagers, but is followed closely by that of young adults. 98.9 per cent of Koreans in their 20's use the Internet, followed closely by 98.7 per cent of those aged six to 19 and 94.6 per cent of those in their 30's. Mobile phone subscriptions have also been growing steadily, reaching 76.08 per 100 inhabitants in 2004 (Ministry of Information and Communications, 2005).

China and Korea are therefore countries in which information technology (IT) is assuming growing importance in light of its contribution to economic growth and the increasing ubiquity of IT in daily life.

Technology domestication by families – an overview of the literature

The conceptual framework which my study will adopt is technology domestication theory (Silverstone, Hirsch and Morley 1992). Introduced slightly over a decade ago, this framework was proposed to counter technologically-deterministic perspectives of technology adoption such as diffusion studies (Rogers 2003). Hence, some proponents argue that it can be situated within the sociology of technology (Berker, Hartmann, Punie & Ward 2006). Within the discipline of media and communications, it can be regarded as a form of audience reception studies which

aims to avoid the determinism of the media text by shifting emphasis to the overall context of media consumption (Berker et. al. 2006). This approach resonates with the focus within STS studies on the materiality and agency of technological artefacts (Strum and Latour 1999), the political-economic landscape within which technology adoption occurs (MacKenzie and Wajcman 1999), as well as the interpretative flexibility which people exercise in their consumption of technology (Kline and Pinch 1999).

Technology domestication theory argues that when users engage with technology, four processes occur - appropriation, objectification, incorporation and conversion. Within the domestic landscape, ICTs provide communication links between households and amongst individual household members. They are incorporated and redefined in accordance with the household's own values and interests, in a dynamic interaction between social practices and technological devices - a bidirectional process of mutual taming (Silverstone, Hirsch and Morley 1992). Such interaction determines the nature and patterns of technology use that eventually result in the social transformation of the household and an alteration of the technology's trajectory. Four processes take place when a technology is introduced into a household, namely 'appropriation', 'objectification', 'incorporation' and 'conversion' (Silverstone, Hirsch and Morley 1992). While objectification and incorporation occur within the internal structure of the household, appropriation and conversion extend the boundaries of the household into the outside world. Through appropriation, objects are taken possession of by an individual or household and meanings are ascribed to them. Objectification is expressed in the usage and display of objects in the home environment and reveals the values of those who feel comfortable with or who identify with these objects. Incorporation refers to the ways in which objects are integrated into the daily rituals of the household and deployed by the individuals within. Conversion in turn connects the household's moral economy with the public sphere. ICTs exist as both objects and facilitators of conversion (and conversation).

All these processes take place against the backdrop of the moral economy of the household. Silverstone et al referred to it as 'an economy of meanings and a meaningful economy' (1992: 18) wherein the household is an economic unit in its own right, ordering its economic and social activities according to a set of shared values and beliefs. Therefore, through the production and consumption activities of

household members, the household becomes a part of the public economy. These economic activities within the household and the larger public economy are in turn influenced by the morals undergirding the family.

Domestication theory has been applied to the study of different types of family contexts in Europe and North America including nuclear families (e.g. Hirsch 1992) and single parent households (e.g. Haddon & Silverstone 1995), shedding light on parent-child relationships (e.g. Pasquier 2001) and gender roles (e.g. Frissen 1997) vis-à-vis ICTs. Particular age groups have also been the focus of research attention, namely children (e.g. Livingstone 2002), young adults (e.g. Hartmann 2005) and the elderly (e.g. Haddon and Silverstone 1996). With regard to the technological devices/services studied, some studies took an encompassing approach of including all technologies within the home while others focused on a single technological device such as the computer (e.g. Aune 1996) or the Internet (e.g. Bakardjieva 2005). Within Asia, studies on the role of technology in the household have been conducted although not necessarily informed by the domestication framework, such as in China (Lull 1991 is a notable example), Japan (e.g. Kanayama 2003 and Takahashi 2008), Korea (e.g. Kim 2006 and Yoon 2003) and Singapore (e.g. Lim and Tan 2003). In light of the groundwork that has already been laid by extant domestication literature and other studies of technology in Asian family contexts, this thesis seeks to address the following research questions:

1. How are ICTs incorporated into the Chinese and Korean homestead and how is this process influenced by family priorities, cultural values and social pressures?
2. How does the use of these ICTs influence the process of conversion within Chinese and Korean families and amongst their networks of friends and relations?
3. How do Chinese and Korean family values and parenting styles influence their supervision of children's ICT use?

By answering these questions, this study seeks to enrich domestication theory by applying it to the Asian context where the concept of the moral economy may have particular resonance.

Methodology

Given my interest in obtaining in-depth perspectives on technology domestication by Chinese and Korean families, a qualitative research method was selected over a quantitative one. The value of using qualitative research methods for studying family interaction has been acknowledged (Handel 1992). In particular, qualitative research involving in-home interviews has been used effectively in the study of media usage in families. See for example Morley (1992) and Ling and Thrane (2001).

The ethnographic semi-structured interview was adopted as the research method for this study, enabling the interviewer to probe deeper when the interviewees introduce a point of interest while still keeping the discussion within the topic of interest (Smith 1995). This study chose to focus on urban, middle-class families because such families are able to afford home access to most domestic technological devices. They can thus provide insights into the possible relationships which families can have with the full spectrum of domestic technologies available in these countries. The two Chinese cities chosen for the study were Beijing and Shanghai. Economically, Shanghai is at the forefront, with a local GDP of 600 billion RMB, and Beijing coming in a distant second with 350 billion RMB (Shanghai ranks 1st among metropolitan economic giants 2004). Their ICT penetration levels are the highest in the country. While a study of ICT adoption in these two cities is therefore not representative of the country as a whole, it can be indicative of general trends in technology adoption by affluent, urban Chinese households. As for Korea, the capital city Seoul was selected as almost one quarter of the country's entire population lives in Seoul and it is also where the Korean government concentrates most of its ICT infrastructure improvement efforts (Seoul Metropolitan Government 2007). With these three cities, a greater variety of east Asian experiences in incorporating technology into the homestead can then be collected and analysed.

For Beijing and Shanghai, ten families were interviewed in each city in 2004 while twenty families were interviewed in Seoul in 2006, making it a total of 40 families. One parent and one child from each family was interviewed, making it 80 interviews in total. The parents and children were interviewed separately so that they would not mutually influence each others' responses. For each city, some families

would first be identified through the researcher's personal contacts and subsequent waves snowballed from referrals of earlier waves. Given their busy schedules, it was impractical to interview both parents. Instead, families were given the choice of which parent would participate. For Beijing and Shanghai, only one interview involved the father while in Seoul, only two fathers participated. The decision was taken to interview only one child per household due to resource constraints and also taking into account the fact that recruiting families was not easy since the interviews were time-consuming and the families' schedules, tight. It was for these very reasons that interviews were conducted (complemented by taking observational notes), rather than observations, for which we would require significantly larger incentives to recruit participants. Interviews typically lasted 60-90 minutes and were audio recorded before being transcribed.

The interview questions focused on the family's daily ICT use, mutual understanding of each other's ICT usage and parental influence on children's media usage. The questions were designed to be open-ended so that interviewees could develop their own ideas and the interviewer had the flexibility to probe deeper when interviewees introduced novel ideas or points of interest. The "meaning condensation" approach was used to analyse the interview transcripts (Kvale 1996). Large amounts of interview text were compressed into brief statements representing the various themes raised by the respondents. These various themes were then classified under the headings of 'appropriation', 'objectification', 'incorporation' and 'conversion' (Silverstone, Hirsch and Morley 1992, 21-26) and 'necessity' - the degree to which families find the technologies indispensable, 'control' - struggles within the household to manage access and use of technologies , 'functionality' – the uses to which the family puts the technological devices - and 'sociality/privacy' – the extent to which use of technological devices facilitate social interaction or allows for the creation of personal, private space (Livingstone 1992, 117-123).

The families studied were essentially media-rich households which enjoyed unlimited access to a wide range of ICTs. In Beijing and Shanghai, all the families interviewed owned televisions, mobile phones, hi-fi stereos and VCD/DVD players. With the exception of a few, most families owned computers, digital cameras and portable music devices. In Seoul, all the households interviewed owned televisions, broadband Internet-enabled computers, mobile phones, VCD/DVD players, hi-fi stereo systems and MP3 players. Digital cameras were owned by all but a small

minority of households. Dedicated computer games machines did not seem to be *de rigeur*, with only a minority of the households having purchased machines like Playstation and Xbox. The Korean households therefore tended to have a wider variety and greater number of ICTs, and were also more likely to have broadband Internet connections. While this may be reflective of technological trends in the two countries, it should also be noted that the Beijing and Shanghai interviews were conducted two years before the Seoul interviews. Hence, the media ownership situation across the three cities may not be directly comparable in view of the two year gap.

Technology incorporation, appropriation and objectification

The importance of ICTs to family life in the two countries was clearly evident. ICTs were highly domesticated, deployed in the performance of mundane, everyday routines, both ordering and being ordered by these quotidian rhythms. (At this juncture, it should be noted that the focus of my study was on ICTs as technological artefacts and how they were used, rather than on the content which they conveyed.)

For the Chinese families, the day would start with watching or listening to news bulletins on the radio or television. Throughout the day, adults would use the mobile phone to keep in touch with friends, family and colleagues while the computer was used mainly for work. Television was used for relaxation, especially during mealtimes when it was less likely to disrupt the children's schoolwork. As for the children, mobile phones and MP3 players were used when on the move but not in school where such items were prohibited. At home, the use of ICTs for educational purposes was encouraged by parents although some recreational use was permitted. Typically, primary schoolchildren would practise English on their *fuduji*[i] or use computers for schoolwork, usually with parental assistance. Television viewing, mainly of cartoons and news programmes, and playing computer games were also popular activities. Older children surfed the net for entertainment news or researched assignments, played online games and chatted with friends on "qq" (instant messaging). Other personalised media use included listening to music on portable devices, checking dictionary definitions on their PDAs, practising English on their *fuduji*, SMSing and playing games on their mobile phones.

For the Korean families, ICTs were an indispensable part of the families' daily routines. The mobile phone was the ever-present alarm clock, setting the families off

to the right start. Thereafter, ICT use in the different households ranged from listening to the radio or watching television for news and weather updates before setting off to work or to school. Some stay-at-home mums would use the Internet to shop online, read the news or check on the stock market. Working adults would typically begin their workday with a quick glance through the online newspaper and checking email messages. Children who did not have to attend after-school classes upon returning from school would watch television to relax before commencing with homework.

Throughout the day, mobile media was used by both adults and children for communication and recreation. Adults would predominantly use their mobile phones to SMS or make phone calls to keep in touch with their friends. The mobile phone also served as a surveillance device throughout the day, when parents would call their children's mobile phones to verify that they were either on their way to school, heading for cram classes or making their way home. For the children, the mobile phone was crucial for communicating with friends via SMS or voice calls, but they were also more likely to use their mobile phones for recreational purposes. These included listening to MP3 tracks on their mobile phones or taking photo-vignettes of their day for sharing on their homepages. Once at home, children would use the home computer to do online homework, research assignments, surf for information, play games, chat with their friends on Buddy-Buddy messenger, or update their CyWorld homepages. Evenings in many households centred around shared television viewing, although the duration was limited if the children had homework or impending examinations.

Clearly, for both Chinese and Korean families, ICTs played key roles in providing information and entertainment, and in facilitating communication and transactions. They were incorporated into daily routines and appropriated according to the needs and priorities of the families. However, where the Chinese and Korean families differed was in the level of sophistication with which they used ICTs. It was clear that given the high level of broadband penetration and saturated mobile phone market, accompanied by the phenomenal growth of Korea's online market of online services, Korean consumers are able to engage in a wider range of more complex online activities than their Chinese counterparts. The Korean adults interviewed were much more likely to engage in online shopping and share trading than the Chinese ones. The Korean children in particular did most of their homework online as both schools and cram schools have their own servers and often proprietary e-learning

software through which they assign online homework to students. In contrast, the Chinese students tended to use the Internet as an information source from which they obtained reference materials for school assignments.

On a related note, another way in which the Chinese and Korean families differed in their domestication of ICTs could be noted in the phenomenon of 'technological seepage' which was more salient in China than in Korea. Technological seepage refers to situations where technologies which are meant for work are introduced into the home, and inadvertently or otherwise, affect the technological culture of the household (Haddon 2004). Amongst some Chinese families, especially those which had not acquired home computers, children's exposure to computers was through the laptops which parents occasionally brought home from the workplace. This process of seepage therefore ensured that even if the family did not own a computer, that the child was not disadvantaged and could still become *au fait* with the technology within the home environment. Indeed, the use of workplace devices could serve as a process of experimentation for these families, to see if they needed or felt able to incorporate such gadgets into their lives. Seepage was less salient in the Korean context as middle-class families typically owned an entire repertoire of devices that was not markedly inferior to that of the workplace.

As for the objectification of ICTs, it was not particularly evident in either the Chinese or Korean families interviewed. Most interviewees were somewhat blasé about the devices which they owned, viewing them as necessities rather than as status symbols. The location of ICTs within the home were influenced more by practical reasons such as proximity to electrical power supply points, space constraints and ease of parental supervision rather than a desire to flaunt these acquisitions.

Conversion, *guanxi*, *Cheong* and the moral economy

The ubiquity and portability of ICTs in the families' lives made them key tools for conversion and conversation. Amongst family members, the micro-coordination of daily schedules was made much more convenient with landline phones, mobile phones, SMS and email. Interestingly, despite the increased use of mediated communication, the quality of family interaction was also enhanced by the use of ICTs. In China and Korea, some measure of formality still persists in the way family members communicate with each other. Amongst the Chinese and Korean families

studied, a father-child distance was still palpable and technologically-mediated communication often helped to bridge that gap. Interviewees in the three cities recounted how ICT-mediated content served as a good ice-breaker and conversation topic, and how ICT-mediated communication via SMS and email had aided in the resolution of disputes and arguments. ICTs also provided channels for more playful and uninhibited communication that may have been difficult or awkward to initiate face-to-face:

> *"ICTs promote interaction amongst us, especially the mobile phone which has really strengthened the dialogue between the two of us (she and her husband) because we can SMS each other. Sometimes there are situations where we don't say anything face-to-face, but which we communicate through SMS. Like if it's my birthday, neither of us will mention it face-to-face but later, he'll SMS me. Sometimes we'll argue and he'll apologise to me via SMS. I find this function of mobile phones really useful – what you can't say face-to-face, you can say via SMS."* Mother, 32, Teacher, Family 9, Shanghai

> *"SMS is very good especially when we have conflicts and it's awkward to talk face-to-face, or just to wish them good luck for their exams."* Mother, 44, Homemaker, Family 4, Seoul

In this regard, as communication in Chinese and Korean families tends to be role- and rule-bound, ICTs played a crucial role in helping to maintain the power relations underlying the moral economy of the household. Even if parents had to apologise to their children, their positions of authority remained undiminished since ICTs enabled them to apologise in a mediated rather than direct fashion. The 'loss of face' that might accompany a face-to-face apology was ameliorated if not avoided altogether. Spouses also found their communication options increased and enhanced as matters which were too awkward to broach in person now found their voice in mediated communication channels such as email or SMS. The household's moral economy thus had a supplementary 'social currency' which family members expended with care.

However, one distinction between the Chinese and Korean experience was the dominance of one-child families in the Chinese cities. In these one-child families, there was the notable absence of sibling interaction, either harmonious or discordant,

which is common in larger families. Sibling competition for scarce resources such as shared ICTs and mutual sibling instruction in the use of ICTs were lacking. Sibling rivalry for parental attention was also nonexistent. Instead, the parents interviewed could focus their energies on their one child, and these only-children in turn had no companions in the household other than their parents. In this regard, ICTs play a significant role in fostering mutual companionship between parents and their only-child(ren):

> *"I usually talk to my mom about computer programs that I use. Sometimes I tell her about phone messages I received. Sometimes whenever I download nice music, I tell my mom to listen too."* Girl, 15, Family 18, Seoul

> *"I feel that these ICTs encourage interaction amongst us and extend the amount of time we spend together. We all get together to watch television and chat. Otherwise, he(my son) will just read his books and ignore us. "* Mother, 44, Accountant, Family 8, Beijing

Beyond the confines of the household, ICTs were of course crucial for communication between the family and the rest of the world. In this regard, the Chinese concept of *guanxi* and the Korean notion of *Cheong* are broadly analogous, referring to one's network of relations, friends, contacts and acquaintances.[ii] ICTs were therefore used to connect with the outside world, facilitating individuals' social advancement within their network of contacts (Gamble 2003). Many interviewees actively used ICTs to establish or maintain *guanxi*, perhaps in a conscious or subconscious observance of the "*renqing* rule". In China, exchanging SMSes, chatting online with friends via 'qq' and emailing digital photos were common ways of keeping in touch. Several interviewees enthused about the convenience of SMS greetings and one interviewee strove to use the service judiciously so as to preserve its novelty value:

> *"If it's a birthday, I'll send a salutation. Or if it's a special holiday. But I don't do this frequently. If I did, it would become commonplace! "* Mother, 39, Manager, Family 1, Beijing

Amongst the Koreans interviewed, especially the young, maintaining *Cheong* involved the use of the entire gamut of ICTs in their lives, with different media used

to maintain contact with separate groups of friends and acquaintances. This strategic use of ICTs facilitated the maintenance of an extensive *Cheong* network including friends from different stages of their lives:

> *"With my classmates, we know each other well so I offer them my Cyworld homepage address and so we can chat via Cyworld and also mobile phone calls and home phone as well…I know them well so we SMS and call each other via mobile phone or home phones… and also my friends from middle school, I keep in touch with them via Cyworld and email and mobile phone as well. And there are also acquaintances who are older than me, like some men who are in the army where they are not allowed to send SMS so I send handwritten letters to them or maybe make calls."* Girl, 18, Family 2, Seoul

As Yoon (2003) argues, rather than undermining traditional forms and styles of communication, ICT-facilitated communication reinterprets and energises them, a process he terms "retraditionalisation".

ICTs and parental supervision

Given the valorisation of academic excellence and social mobility within the moral economies of Chinese and Korean households, parental interest to control diversions from academic pursuits was strong. Parents often felt the need to curtail the use ICTs as they were the main conduits of fun and entertainment in the household. This task fell on the shoulders of the mothers who were especially involved in child-rearing. Both Chinese and Korean mothers typically played a crucial role in technology domestication and home supervision of technology use because they ran the household and were their children's primary caregivers. The dominance of ICTs in their lives, and the fact that ICTs held such allure for their children but were also indispensable spurred the mothers to be more vigilant in their supervision. This involved deciding what equipment should be purchased and actual supervision of ICT use. This role was particularly challenging given that many of them admitted to having poorer ICT knowledge and skills than their children and husbands. Some mothers lamented that their deficiency prevented them from keeping up with their children and rendering effective supervision. There were also disagreements between fathers and mothers about the type and extent of ICT use in the house as mothers tended to restrict ICT use while fathers would advocate greater ICT exposure for the

child. Mothers then had to strike the balance between controlling excessive ICT use with ensuring that their children had requisite ICT access so that they were not 'left behind', that they were conversant in the pop culture that sustained peer interaction, and that they had sufficient rest and relaxation through enjoying ICT mediated content:

> *"If we do not control her television viewing, she (my daughter) will just continue watching. Children have no self-restraint…As for computer games, I feel that playing for a little while relaxes her and so I let her play."* Mother, 39, Teacher, Family 9, Shanghai

> *"Dad is very strict. He doesn't approve of them looking for entertainment news, like finding out the latest hits. He prefers that they listen to gospel and English programmes. But the kids want to listen to Korean hits. But I understand so I let my daughter go ahead. So I told my kids not to do such things in front of Dad.",* Mother, 42, Pharmacist, Family 14, Seoul

Despite feeling the pressure of having to keep up with technology trends so as to understand and supervise their children's media use, the Chinese and Korean mothers interviewed were almost always philosophical and stoic about the importance of ICT knowledge in their own lives and those of their children:

> *"If you want to live a life on this earth, you have to accept the technology no matter what it is. If new technology appears, my children should know and accept them."* Mother, 46, Homemaker, Family 20, Seoul

This comment reflects the perception amongst today's parents that knowledge of technology is crucial not just for social advancement but for sheer survival and indicates their strong desire for their children to be comfortable and adept at using technology.

In what is possibly indicative of the dominant role that ICTs play in Korean youths' academic and social lives, Korean mothers were particularly concerned about the adverse impact which technology was having on their children's on their children's intellectual abilities. Some mothers were concerned that because of their over-reliance on technology, children were losing important skills such as writing and reading:

> *"My children are using lots of computers… My second daughter has to do all sorts of online homework. I think it's really hard to change this pattern. I would like my daughter to turn off the computer and do less computer homework and focus more on writing. I feel that children are too dependent on technology nowadays".* Mother, 44, Homemaker, Family 5, Seoul

In the use of newer technologies, a perceived hierarchy of competencies could also be noted. For example, the crude application of software was not commended but discouraged as it was not deemed to be sufficiently challenging or able to hone the child's computing skills:

> *"Designing her own homepage is good for my daughter to learn how to use the computer. My husband encourages her to make her own homepage but not in Cyworld which provides a mini-homepage for nothing. But children don't have to struggle to understand how to use the computer because the homepage is ready-made. So it doesn't train you to use the computer. So when my daughter wanted to make me a Cyworld homepage, I scolded her because 'that's not what daddy and mummy want you to do. So why don't you make homepage by yourself without the help of Cyworld?'."* Mother, 39, Teacher, Family 6, Seoul

Another indication of the nature of parental supervision of ICT use in the two countries was the notable absence of 'bedroom culture'(Bovill and Livingstone 2001, 179), where children's bedrooms are well-equipped media havens with their own televisions, computers, mobile phones and games machines. Bedroom culture has been identified as one of the challenges to parental guidance of children's technology use, and a possible impediment to greater interaction within the family as they facilitate the practice of "living together separately"(Livingstone 2007). However, amongst the Chinese and Korean families studied, bedroom culture was hardly discernible. Across the three cities, apart from personally-owned ICTs like mobile phones, portable music devices and *fuduji* being placed in the child's room, all other ICTs were placed in communal areas like living rooms and in studies or in parents' bedrooms.

< Insert two pictures right about here>

This was due to a combination of reasons including the small size of apartments, parental interest to restrict children's media use and the perception that children did not require computers or televisions of their own:

> *"Originally the computer was in my children's room but I realised that I couldn't supervise what the kids were doing and how long the children used the computer for. So eventually I put it out here so she could supervise."* Mother, 39, Homemaker, Family 8, Seoul

> *"I don't really impose restrictions on what sort of Internet content she can access. When I ask her (my daughter) who she is chatting with online and what they are chatting about, she will let me have a look and it's usually nothing much. Anyway, the computer is placed in my bedroom. So I can glance at it now and then."* Mother, 44, Shop owner, Family 3, Shanghai

Conclusion

This study has sought to compare the experiences of Chinese and Korean middle class families with media-rich homes in three Asian cities. The wide variety of ICTs adopted by these families lend us insights into how people incorporate a range of technological devices and services into their everyday routines, how they deploy them in their social and familial interaction, and how their ICT use is influenced by and reflective of their cultural norms, social pressures and life goals. It is evident that in the media-rich middle-class households which were studied, ICTs have been woven into their daily lives, playing key roles in delivering information and entertainment, and in facilitating communication and transactions. Indeed, ICTs have become an indelible part of the domestic landscape, to the point that they were not objectified but regarded as indispensable functional items.

The comparison of Chinese and Korean experiences also offered some insights. In particular, the high level of broadband penetration, sophistication of Korean online services and the intense use of ICTs in education provide a glimpse into ICT domestication by families in highly mediatised societies. While the lives of these Korean families were enriched by the choice and convenience which mediated communication and services offered them, the parents experienced anxiety about the impact of ICTs on the development of their children's cognitive skills.

Arguably, the moral economy of the household vis-à-vis ICTs is a concept which is especially germane to the Asian context, where family values have strong historical and social significance as seen in the preceding sections. And particularly for these middle class families in China and Korea, the strong societal pressures for them to be upwardly mobile and for their children to excel academically influence the nature of their households' moral economies.

With the entry of ICTs, interaction within the family could be carried out face-to-face or through mediated communication channels. The latter boosted the moral economy of the household with a supplementary 'social currency' that family members could use when trying to communicate awkward matters or to resolve conflicts. In the Chinese and Korean family context where communication tends to be rule- and role-bound, mediated communication helped to avert the loss of face, thereby maintaining power relations within the household. Outside of the household, ICTs have energised and reinvigorated larger social networks such as *guanxi* and *Cheong*, contributing an additional platform through which these social relationships can be managed. Finally, the strong societal emphasis on academic excellence had significant impact on parental supervision of ICT use. Parents were very careful to limit children's use of ICTs for fear of diversion from studies. Be that as it may, they balanced these restrictions with giving the children requisite exposure to ICTs so as not to be 'left behind', and allowing them to use ICTs for relaxation and keeping up with peer and pop culture.

Domestication research enables us to assess the impact, both positive and negative, which ICTs are having on family life. As East Asian countries such as China and Korea are embracing ICTs in their quest for economic development, it is important to appreciate these impacts so that public policy initiatives to help families manage the entry of technologies into their lives can be introduced. At the same time, this study has made a small step towards enriching domestication theory by applying it to Asian middle-class families, hitherto unobserved by domestication researchers.

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[i] Manufactured in China for the local market, these machines enable users to listen to accurate pronunciations of English words and to record and review their own pronunciations. See for example the website of a popular *fuduji* manufacturer, Guangdong Bu Bu Gao Electronic Manufacturing Private Limited at http://www.gdbbk.com/.

[ii] While similar, there are important distinctions between the two concepts. See Allwood and Berry (2006).