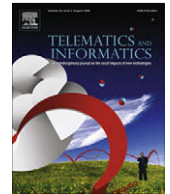




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The influence of social and cultural factors on mothers' domestication of household ICTs – Experiences of Chinese and Korean women

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ABSTRACT

ICTs such as television, the Internet and mobile phones are assuming a growing presence within the modern homestead and are having an indelible impact on family dynamics and parenting. While gender studies have sought to understand ICT domestication from the perspective of mothers, the influence of social and cultural factors on the adoption and appropriation of ICTs has not been as widely studied. So as to better explicate the influence of socio-cultural factors on mothers' domestication of ICTs, this article studies the experiences of mothers in China and South Korea and compares its findings against studies of ICT domestication by mothers in other countries. Based on ethnographic interviews with mothers in media-rich families in Beijing, Shanghai and Seoul, the article explores how mothers incorporate ICTs into their household routines and how they utilise ICTs as they fulfil their maternal duties of managing the home, coordinating schedules, fostering family interaction and supervising their children. It also pays particular attention to how they oversee their children's ICT use. The article finds that cultural conceptions of motherhood and maternal responsibility, the premium placed on academic achievement by children, as well as the two societies' highly positive outlook on technology, greatly influence how Chinese and Korean mothers use and supervise their children's use of ICTs. It also finds that the mothers are creative in deploying ICTs in coordinating schedules with, disciplining and monitoring their children, but also find the perpetual mothering which is enabled by always-on ICT-mediated connections to be burdensome and stressful.

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1. Introduction

As media such as television, radio, personal computers, the Internet and mobile phones assume a growing presence within the modern homestead, technology domestication studies have provided myriad insights into the impact of information and communication technologies (ICTs) on families. Building on this productive body of work, this article studies household ICT domestication from the perspective of mothers, while informed by a gender studies approach. Focusing on mothers in middle-class, media-rich households in China and South Korea (hereafter Korea), this article explores how mothers incorporate ICTs into their households and daily routines, and how they manage the consequences of this incorporation. Specifically, it seeks to understand the role which mothers play in the domestication of household ICTs, their use of ICTs in parenting, their attitudes towards ICTs and their strategies for managing their own and their families' ICT use. The socio-cultural factors which impinge on these mothers and their families will also be considered to flesh out and contextualise the findings.

The article will begin with a review of the salient findings from gender studies of technology adoption, as well as research on technology domestication by families with children. It will also present background information on family values,

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conceptions of motherhood and parenting in Chinese and Korean society. It will then analyse the interview findings to identify key themes relating to mothers and household ICT domestication.

1.1. Women and the adoption of household technology

Scholars have widely critiqued the utopian claims of producers and marketers that domestic technologies engender equality between men and women (Berg, 1994; MacKenzie and Wacjman, 2003; Silva, 2000). In line with such critiques, literature on gender and household ICTs has sought to understand gender differences in technology appropriation in the home and the uses and gratifications derived, as well as the gender politics underlying these differences. A subset of this literature focuses specifically on mothers, and their use of ICTs in their household and parenting duties. This body of work is dominated by three research nodes: mothers' roles in the acquisition of ICTs for the home, the characteristics of mothers' household technology use and mothers' supervision of their children's ICT use.

Studies of mothers in various contexts have scrutinised the influence which mothers have on the purchase of ICTs for use within the home, focusing primarily on computers. With growing societal pressures and widespread adoption of ICTs by schools in developing and developed countries alike, computers are no longer seen as luxuries but as essential commodities that will help individuals scale greater heights in school or at work. For example, it was found that Dutch mothers seek to overcome their inhibitions about computers and the Internet because they regard them as indispensable tools for helping their children to excel in school (Hynes and Rommes, 2006). Similarly, Australian mothers find the Internet a boon when helping their children with their homework (Singh, 2001). Indeed, parents who want their children to excel and prosper associate ICT competency with their children's future success and such parents are the greatest drivers of ICT purchases (Clark et al., 2005). Notably though, although mothers may recognise the value of ICTs in the home, they may not necessarily wield the most influence when it comes to acquiring such devices. In some contexts, traditional family role structures persist when it comes to ICT acquisition. In Korea for instance, men still dominate when it comes to decisions on products for general family use such as electronic goods, computers and automobiles (Na et al., 1998, 2003).

The nature of mothers' household ICT use and the extent of their involvement in supervising their children's ICT use have been found to be greatly influenced by the gendered differentiation of household tasks. In spite of growing opportunities for women around the world to get paid employment, they are still principally responsible for home and childcare and consequently, have less personal time to expend on household technologies such as computers and television. Yet when it comes to supervising their children's ICT use, mothers tend to be more involved than fathers. This observation has been made of mothers in *inter alia*, Australia (Singh, 2001), India (Anderson and Shrum, 2007), Korea (Na, 2003) and the US (Dholakia, 2006; Rakow and Navarro, 1993). Indeed, the pressure on mothers to bear the bulk of the household burden is a function of societal expectations and cultural conventions. In the US for example, women still feel compelled to conform to a middle-class gender ideology which stresses that mothers must be the children's primary caregivers even though they prefer to share household and child-minding responsibilities equally with their husbands (Rakow and Navarro, 1993). Similarly, despite the modernization of Israeli society and women's desire to have their husbands shoulder more household responsibilities, existing gender roles remain largely unchanged because Israeli men have traditional notions of what constitute masculine and feminine tasks (Kulik, 2004). In Japan, the small number of women holding corporate management positions has been ascribed to the onerous household and parenting tasks imposed on them (Miyoko and Yutaka, 2008). In the Netherlands too, although women are spending significantly more time on paid labour, their time allocated to "caring tasks" (p. 65) has not decreased substantially (Frissen, 2000).

Given their household responsibilities and consequent paucity of free time, mothers tend to have a strong practical orientation in their use of ICTs and unlike men, are less inclined towards recreational uses. For example, Australian women's Internet usage was distinctly centred on technology-mediated work obligations as compared to their male counterparts who tended to be motivated by play (Singh, 2001). Similarly, American men are more likely to surf the Internet "for fun" while American women predominantly go online to search for health and travel information for themselves and their families (Dholakia, 2006). This practical orientation is also manifested in mothers' use of ICTs for managing relationships within and outside of the home. Mothers in the US use the mobile phone to maintain family relationships, to be constantly available to their children, and for working women, to bridge their domestic and work worlds (Rakow and Navarro, 1993). A veritable "electronic extension of their motherly bodies" (p. 32), the mobile phone allows working women to coordinate the family's schedules, thus enhancing their organizational control (Edley, 2001). Indeed, a growing number of Japanese mothers with elementary school children believe that mobile phones are essential for their charges because they feel that it enhances their safety and makes coordinating their children's busy schedules much more convenient (Matsuda, 2008). Similarly, most of the calls which British children make on their mobile phones involved talking to family and friends, informing their parents of their whereabouts, coordinating schedules with them and seeking their help during emergencies (Davie et al., 2004). Such communication patterns between children and their parents have led commentators to ruefully label the mobile phone an 'electronic umbilical cord' (McCaffrey, 2007). Interestingly, one study found Australian mothers resisting such dependency by deliberately leaving their mobile phones at home when their spouses were minding the children (Bell, 2006).

With regard to supervising their children's ICT use, mothers exert significant influence over where and how ICTs are placed within the home, making considered decisions about where they can best exercise supervision (e.g., Flynn, 2003; Lemor, 2006). An Australian study found that mothers had a bigger role than fathers in deciding where game consoles were to be positioned at home because they were responsible for policing player activity and managing console access (Flynn,

2003). Other studies also indicate that compared to fathers, mothers are usually more involved in the regulation of Internet use, more concerned about the equal allocation of computer time amongst different family members and more active in setting rules for media usage (Pasquier, 2001; Ribak, 2001). As for supervision of mobile phone use, Ito (2005) found that Japanese mothers were discomfited and curious about their children's private mobile phone communications and strictly prohibited their children from using the mobile phone when eating or studying.

Although scholars such as Bell (2006), Ito (2005), Matsuda (2008), and Na (2003) have opened promising lines of inquiry concerning technology domestication in the Asian milieu, research on how technology is deployed by Asian mothers in their parenting and household duties is limited. Furthermore, while prior research has paid considerable attention to the lifestyle constraints of mothers in their technology adoption, perhaps more light needs to be shed on how cultural conceptions of motherhood and of household technologies influence the adoption and appropriation of technology. As McLelland argues (2007), technologies signify unique particularities in different geographical locations and amongst diverse social groups, and he thus decries the lack of investigation into specific socio-economic contexts of technology adoption in the Asia Pacific. In light of the proliferation of ICTs in China and Korea, and the importance of mothers in these two cultures' family structures, a study of mothers' technology use in these two countries will provide socially and geographically contextualised insights into the social impact of household technology. Hence, this study investigates the following:

- (1) What roles do Chinese and Korean mothers play in domesticating ICTs in the household?
- (2) How do Chinese and Korean mothers utilise ICTs in the execution of their maternal duties?
- (3) How are the two prior processes influenced by socio-cultural factors in Chinese and Korean society?

For a better appreciation of salient socio-cultural factors present in Chinese and Korean society, the next section will discuss the family dynamics, cultural values and social pressures confronting families and specifically, mothers in the two countries.

1.2. Motherhood and parenting 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 mothers and children, dictates the way the family communication is conducted, both verbally and nonverbally." (Ju, 1996, p. 139). Traditionally, children are socialised to be obedient (*tinghua*) and to defer to parental authority (Gao et al., 1996). While there appears to be growing tolerance towards children's assertiveness, arguably the result of parental indulgence of their only children, young Chinese mothers still expect their children to obey their commands (Wu, 1996a). Children in China tend to be closer and more affectionate with 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 spoiled "little emperors" with overindulgent mothers. However, research has shown that conversely, mothers of only children are so concerned about the "spoiled only child" syndrome that they tend to control them rather strictly (Falbo and Poston, 1996; Wu, 1996a,b). The concept of "control" (*guan*) has particular currency in the Chinese family (Wu, 1996b). In Chinese tradition, mothers 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.

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 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). 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 et al., 1996). Some parents also arrange 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 such as English and Math to artistic pursuits like painting, dance and piano (Wang and Cui, 2004).

Korea is often considered a collectivistic society, although young people today are becoming increasingly individualistic (Han and Ahn, 1994; Na, 2003). Confucian values are subscribed to in Korea, where rules about children's deference to their mothers, 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 and Ahn, 1994). 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 mothers (MacDonald, 1996). Shades of traditional patriarchal communication still persist, “whereby fathers’ contact with children is usually mediated by the ‘domestic person’, the mother” (Yoon, 2003, p. 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, p. 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 of 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 parents regard selfless devotion to and sacrifice for their children as their foremost responsibility (Kim et al., 2005). Korean women in particular tend to regard motherhood as their single most significant role in life (Kim and Choi, 1994). Korean parenting emphasises nurture and discipline, involving even the use of corporal punishment (Kim et al., 1997). 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 and the mother’s parenting ability (Kim et al., 2005). 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. Korean adolescents are themselves 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% of high school students in urban areas preparing for university admissions receive private lessons in one or more *hakwon* (Kim, 2000). So stressful are the university admissions that preparing for and taking the examinations has been referred to as Korean students’ ‘examination hell’, and are cited as a cause for depression or even suicide in Korean adolescents (Lee, 2003).

1.3. Technology adoption 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 at 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% in 2002 to 49.2% and 80.5% in 2006 (Hu, 2007). In Beijing and Shanghai, Internet penetration tops the country at 28% and 26.6%, respectively, well above the national average of 6.2% (Shanghai Ranks Second in Internet Penetration, 2007).

Although China is aggressively building up its IT infrastructure, it is a relatively late adopter when compared to Korea – a world leader in terms of ICT ownership and broadband penetration. A high disposal income, coupled with the intense work ethic of Koreans which resulted in the “Bballi Bballi” (“hurry hurry”) mentality, are some social factors that drive ICT adoption (Forge and Bohlin, 2008). About 75.5% of the population aged six and above use the Internet, with weekly usage averaging 13.7 h (National Internet Development Agency of Korea, 2007). The top three uses of the Internet are ‘getting information or data’ (88.7% of Internet user population), ‘leisure activities such as music, games and movies’ (86%) and ‘communication by email, chatting, etc.’ (84.7%). Internet use is highest amongst children and teenagers, but is followed closely by that of young adults. About 98.9% of Koreans in their 20s use the Internet, followed closely by 98.7% of those aged six to 19% and 94.6% of those in their 30s. 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.

While the two countries share many similarities, there are notable differences between them. Korea has a predominantly urban population (81%) which has ready access to IT infrastructure and services (CIA, 2009b). In contrast, China has a distinct rural–urban divide, with only 43% of the population residing in urban areas (CIA, 2009a). Even within China’s urban areas, Internet access is enjoyed by only a minority of the population as mentioned earlier. Koreans are also more affluent, with a per capita GDP of US\$26,000 (CIA, 2009b), or more than four times that of China’s per capita GDP of US\$6000 (CIA, 2009a) and are thus able to engage in greater discretionary spending than their Chinese counterparts.

2. Methodology

For this study, a qualitative research method was selected over a quantitative one considering that its aim was to gain an understanding of technology domestication by Chinese and Korean families. Family interaction has been productively studied through qualitative research methods (Handel, 1992). Indeed, qualitative research involving in-home interviews has been used effectively in the study of media usage in families (e.g., Morley, 1992; Ling and Thrane, 2001). The ethnographic semi-structured interview was used 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 First 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, 10 families were interviewed in each city in 2004 while 20 families were interviewed in Seoul in 2006, making it a total of 40 families.¹ One parent and one child from each family were 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 snow-balled 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. A total of 37 mothers was interviewed. The decision was taken to interview only one child per household due to time and resource constraints. It also took 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 and photographs), rather than observations, for which we would require significantly larger incentives to recruit participants. Interviews typically lasted 60–90 min and were audio recorded before being transcribed. The interviews in China were conducted in Mandarin by a research assistant who is a native Chinese speaker. They were transcribed into Chinese and then analysed by author A, with only quotes reproduced here translated into English. The interviews in Seoul were conducted by author Lim with simultaneous translation by a research assistant who was a native Korean speaker. Verbatim English transcripts were prepared and analysed by author Lim. Simultaneous translation enabled the author to clarify any doubts and to ask follow-up questions on-the-spot, *during* rather than after the interview. In all three cities, photographs of the families' homes, their technological devices and the physical settings in which they were located, were taken with the interviewees' consent.

The interview questions were designed using the framework of technology domestication theory (Silverstone et al., 1992) which had originally been developed to better comprehend consumer adoption of technology, while countering technologically-deterministic perspectives of technology adoption. Domestication theory has been applied to the study of technology adoption by nuclear families (e.g., Hirsch, 1992) and single parent households (e.g., Haddon and Silverstone, 1995), and to examine parent–child relationships (e.g., Pasquier, 2001) and gender roles (e.g., Frissen, 1997) vis-à-vis ICTs. Domestication theory regards the household as a “moral economy” (Silverstone et al., 1992, p. 17) wherein the household is an economic unit in its own right, basing its economic and social activities on the values and beliefs which its members share. When a technology is introduced into the household, the processes of ‘appropriation’, ‘objectification’, ‘incorporation’ and ‘conversion’ occur (pp. 21–26). Through appropriation, individuals or households take possession of objects and ascribe meanings to them. Objectification is expressed in the usage and display of objects in the home environment, thus signalling the value of those who identify with these objects. Incorporation refers to the ways in which objects are used and integrated into the household's daily rituals. Conversion then links the household's moral economy with the outside world. ICTs exist as both objects and facilitators of conversion (and conversation) within the household. Livingstone (1992) proposed four additional constructs for understanding the use of technologies in the family: ‘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 (pp. 117–123). With these meta-themes as a guide, the interview questions focused on the families' daily ICT use (appropriation, objectification, incorporation, necessity, functionality), mutual understanding of each other's ICT usage (conversion, sociality/privacy) and parental influence on children's media usage (control).² The questions were designed to be open-ended so that interviewees could

¹ The findings were first analysed in 2007 using the technology domestication framework, from which various sub-themes emerged from the coding process including parent–child communication, parents' supervisory roles and social advancement. Feedback which author Lim received from conference presentations of the findings in 2007 and 2008 suggested particular interest in the mothers' roles in the technology domestication process. In light of the salience of the maternal role in the interview findings and the clear definition of gender roles in Chinese and Korean society, the authors were motivated to write this article with mothers as the principal focus.

² Examples of questions under each meta-theme include: (i) appropriation, e.g., what do you use each of your different ICTs for? (ii) objectification, e.g., where in the house is each of these ICTs that you own located? (iii) incorporation, e.g., on a typical day, can you recount the different ICTs that you use from the moment you wake up until you go to bed? (iv) conversion, e.g., do you talk to your children about the television programmes that they watch or the Internet sites which they visit? (v) necessity, e.g., how would you feel if any of these ICTs were to disappear from your life? (vi) functionality, e.g., which ICTs do you typically use to communicate with your immediate family, extended family, friends and work-related contacts? (vii) sociality/privacy, e.g., how has the use of ICTs influenced communication within the family? and (viii) control, e.g., have you set any guidelines for your children's use of these ICTs?

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 meta-themes and sub-themes which emerged from the coding process. The sub-themes included parent–child communication, parents’ supervisory roles, parent–child role reversal, social advancement, children’s academic pressures, etc. As the goal of this article is to highlight the mothers’ perceptions and experiences, it will include only quotations from the interviews with the mothers. Hence, quotations from children’s interviews will not be presented but information obtained from the children will be discussed where relevant.

The families studied were media-rich households which, as family units, enjoyed unlimited access to a wide range of ICTs. However, it should be noted that ICT access was not evenly distributed amongst family members as ICT access varied with each technology and across different periods of the day or week, and was also dependent on the ICT skills of each family member. 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 rigueur*, 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.

3. Findings and discussion

3.1. Mothers’ roles in household technology domestication

As with their counterparts in other countries, Chinese and Korean mothers played a significant role in technology domestication because they typically ran the household, were their children’s primary caregivers and were thus heavily involved in raising and nurturing them. Principally, they had influence over product acquisition, albeit limited, and supervised the children’s ICT use. Notably, several social and cultural factors that were particularly salient in the Chinese and Korean contexts influenced how they performed each of these roles. These factors were namely cultural conceptions of motherhood and societal ‘standards’ of good parenting, the premium placed on children’s academic achievement, as well as the two societies’ highly positive outlook on technology.

Consistent with Chinese and Korean society’s conceptions of mothers as the prime *and* primary caregivers for their children (Jankowiak, 1993; Kim et al., 2005), mothers in the two countries felt a strong sense of duty and moral obligation with regard to their children’s overall development. This was encapsulated in the statement of a 39-year-old Korean mother (Family 6), “*Everything my child does is my fault or my responsibility.*” This same sensibility, coupled with the palpable pressure of the children’s academic achievement, led the mothers to put their children’s priorities ahead of their own and underlies many mothers’ attitudes towards and use of ICTs. Hence, besides having the practical orientation towards technology which mothers in other countries share (e.g., Dholakia, 2006; Singh, 2001), many Chinese and Korean mothers were typically self-sacrificial when it came to ICT use, foregoing their own needs or desires for fear of compromising on their children’s needs:

“Every day I use the Internet for about 2 h, usually before my daughter returns home, because if I use it when she has returned home, she could be tempted to use it. So I stop myself.” Mother, 49, Homemaker, Family 2, Seoul.

These acts of self-restraint by the mothers with regard to their ICT use echoes Kim’s (2006) finding that Korean mothers structured their daily lives around their children’s educational activities rather than according to their own television viewing preferences. With the burdens of responsibility and self-sacrifice that accompanied the mothers’ domestication of household ICTs, mothers were understandably ambivalent about these technologies, finding them useful but also stress-inducing. Be that as it may, many Chinese and Korean mothers displayed stoicism and acceptance of the fact that ICTs were an inevitable part of their own and their children’s lives, as well as a recognition of the growing importance of IT in their society:

“Well these days if you don’t have a computer, then how do you get information? It’s so essential like newspapers or television.” Mother, 39, Homemaker, Family 7, Seoul.

“How can we avoid technology? Our children will use them in so many ways in the future.” Mother, 41, Account, Family 4, Beijing.

Fundamentally, given the important role which information technology has played in propelling the Chinese and Korean economies forward, all the mothers interviewed acknowledged that ICTs were critical for an individual’s advancement in society. Furthermore, they all expressed a desire for their children to be comfortable with and adept at using technology, even if they were not so themselves.

Chinese and Korean mothers were much more involved with the supervision of their children's ICT use than the fathers were, thus resonating with the experiences of mothers in for example, Australia (Flynn, 2003), Europe (Pasquier, 2001) and Israel (Ribak, 2001). Notably though, both Chinese and Korean mothers' supervisory styles reflected the cultural predisposition towards controlling their children and reining in their impulses by way of authoritative parenting (Kim et al., 2005; Wu, 1996b). Hence, they employed largely 'restrictive mediation' techniques (Eastin et al., 2006, p. 486) such as setting time limits on ICT use, denying children access to particular devices and limiting exposure to particular genres of media content. Television viewing was usually controlled by imposing limits on the amount of time which children could watch television for, as well as stipulating which programmes they could view. Chinese and Korean mothers, like their American (Clark et al., 2005), Australian (Singh, 2001) and Dutch (Hynes and Rommes, 2006) counterparts, recognised and appreciated the educational value of ICTs. However, especially in light of both Chinese and Korean society's strong emphasis on children's academic achievement, the relatively intense deployment of IT in education and the importance of IT in the two countries' economic development, Chinese and Korean mothers were acutely conscious about maximising their children's exposure to IT by emphasising educational uses and minimising more frivolous applications:

"We don't allow her to send SMS during lessons. As for television, when school is in session, we allow her to watch the news but she can only watch entertainment programmes on weekends or during school holidays. She can go online to do research for school assignments and sometimes to download pictures but she's not allowed to chat online." Mother, 48, Doctor, Family 2, Shanghai.

These mothers thus had to meet societal expectations of 'good parenting' vis-à-vis regulating their children's ICT use, while bearing the burden of their children's academic achievement.

At the same time though, the mothers were also sensitive enough to their children's multifarious needs vis-à-vis ICTs to recognise that the restrictions on ICT use could not be overly constraining. Instead, they strove to ensure that their children were well-exposed to ICTs so that they did not lag behind their peers, were attuned to pop and peer culture, and that they had outlets for easing their academic pressure, with the last goal being particularly important in view of the anxieties surrounding the scholastic performance of children in the two countries:

"My kids are not using ICTs as much as other kids so I'm worried that they will be left behind." Mother, 40, Teacher, Family 9, Seoul.

"At my children's age, if they don't watch soap operas, they are a bit shut out from their friends so I do let my daughter watch them." Mother, 49, Homemaker, Family 3, Seoul.

"As long as it does not affect their studies, children can relax by watching television and listening to the hi-fi." Mother, 39 years old, Manager, Family 1, Beijing.

In this regard, mothers found supervising computer and Internet use the most challenging as both Chinese and Korean students use IT for academic as well as recreational purposes. Hence, they had to facilitate the former, while preventing their children from going overboard on the latter. In light of intensifying societal concerns about Internet and gaming addiction cases in the two countries (Wang, 2006; Woyke, 2009), Chinese and Korean mothers are extremely concerned about excessive computer and Internet usage. Supervisory strategies for computer and Internet usage differed for working mothers who used ICTs at their workplace and were therefore more IT-savvy, and homemakers who were less well-exposed to IT. While the former had greater expertise to supervise the children's ICT use, the latter had more opportunities to impose direct supervision. Working mothers thus devised strategies for remote supervision, e.g., setting passwords for time-controlled computer access, installing Internet content filters, locking up Internet cables, etc., while stay-at-home mothers set time limits or directly observed their children's computer use, made easier through their having placed computers in communal areas in the first place. Some stay-at-home mothers were motivated to learn more about IT so that they could exercise more effective supervision. They assiduously sought to keep up with IT trends through media reports, consulting friends and enrolling in IT courses. Nonetheless, some mothers admitted that supervising their children's ICT use was challenging as they felt that their IT knowledge and skills tended to be poorer than those of their children and husbands. As for mobile phone use, the mothers interviewed used strategies such as confiscation, setting prohibitions for their use, e.g., not while doing homework or preparing for exams, and most commonly, signing their children onto mobile phone price plans or prepaid cards that permitted only limited use.

While mothers were primarily responsible for supervising their children's ICT use, fathers did occasionally weigh in on the issue, thus leading to some discord. In a few cases, the fathers found the mothers' restrictions on the children's ICT use too tight. For Family 7 in Seoul for example, the father would bring the son to play computer games together in the PC-bang (LAN game centre) – a practice which the mother was extremely averse to. Similarly, for Family 9 in Beijing, the mother tended to curb her son's computer game playing while the father wanted her to be more lenient as he believed that such play was healthy. In such circumstances, mothers had to negotiate between the children's needs and demands, the fathers' expectations and their own perceptions of what was good for their children vis-à-vis the children's technology use.

3.2. Mothers' use of ICTs in maternal duties

The mothers interviewed actively used technology in their maternal duties, deploying them in the coordination of schedules, the surveillance and discipline of their children and for managing family interaction and fostering family ties.

Akin to the practices of mothers in other parts of the world, Chinese and Korean mothers avidly used ICTs to coordinate schedules amongst family members. Beyond mere coordination however, the protective instincts of Chinese and Korean mothers could be noted in how ICTs were actively used in 'mothering', and to extend the domain of maternal supervision and care beyond the physical constraints of home. The mothers interviewed sought to keep tabs on their children's whereabouts by giving children their own mobile phones or letting them have temporary use of another family member's mobile phone when they were out, consistent with Matsuda (2008) and Davie et al. (2004). However, it was also acknowledged that this ability to monitor their children when they were outside of the domestic sphere was not without its downsides. While mobile phones were seen to be a boon, assuring the mothers that their children were safe, the ease of constant contact and the anxiety they experienced when that contact was disrupted was unnerving for some:

"At first, I thought having the mobile phone would be so convenient because you can always contact each other. But when the mobile phone signal is weak and you can't get through to them (your children), you feel so anxious. Before we had the mobile phone and we weren't able to contact them, we just didn't think about it. But with the mobile phone, sometimes they're not contactable, the phone is turned off or you're not in a networked area. . . it stresses me to death!" Mother, 39, Manager, Family 1, Beijing.

Hence, consistent with other studies such as Bell (2006) and McCaffrey (2007), the mother-child connectivity enabled by ICTs was not always welcomed by mothers but aroused equivocal feelings because perpetual contact translated into a state of perpetual concern for their children's well-being.

For Korean mothers, in particular, there was surveillance of another sort. Some of them used and *misused* their children's online dairies, blogs and SMSes to gain insights into the otherwise inaccessible, private aspects of their children's lives. Half of the Korean mothers interviewed admitted to secretly viewing text messages on their children's mobile phones so that they had a better understanding of their social circles. As one mother put it:

"Before she had her own mobile phone, I took her to the cram school everyday and I paid attention to who her friends were. When she was in elementary school, I was the parents' representative so I knew all her school teachers and friends. Then after she got the mobile phone, I don't know any of her friends so sometimes I have to check her mobile phone secretly." Mother, 52, Homemaker, Family 19, Seoul.

Another Korean mother also admitted that she secretly read her son's online diary, much to the disapproval of her husband:

"My younger son likes to use the computer a lot and in CyWorld you can write your diary and upload your photos and you can expose your daily life via the CyWorld homepage. . . I viewed his diary secretly – he doesn't know that I am looking as I usually access it from the office. . . Sometimes I'm surprised by the different side of him. Essentially I wanted to check if he had a girlfriend, especially at this age where such problems are common. . . [but] my husband told me that I am invading his privacy so I don't do it anymore." Mother, 50, Pharmacist, Family 1, Seoul.

Thus, while ICTs such as mobile phones and the Internet can offer mothers unprecedented opportunities for "mothering" and monitoring their children, they can be accompanied by unwanted pressure and even ethical dilemmas.

Beyond surveillance, the mothers interviewed were highly strategic in their use of ICTs to facilitate family interaction, and in particular to settle awkward issues within the family. ICTs also played a key role in parent-child communication by facilitating mutual understanding and bond-building amongst family members. Some mothers made concerted efforts to view particular television programmes with their children so that they would understand the latter's pop culture influences. Shared computer use was another activity which some mothers undertook with their children to foster interaction.

"I let my child teach me how to use the computer. I think it's quite good because he sees himself as the teacher. After all, he does learn about computers in school. Children learn fast and in this way, I learn along with him. Actually, I don't think computer games are necessarily bad either. They can stimulate his interest in information technology, and improve his reaction time. When I play with him, I can never win." Mother, 39, Freelancer, Family 4, Shanghai.

As for conflict resolution, the use of SMS and email to resolve disagreements within the family or to initiate conversation after an argument was mentioned by several mothers as a boon offered by ICTs. The experience of Family 2 in Seoul is a good case in point:

"I feel that ICTs have a very positive influence on my family's communication. If there's a misunderstanding between my husband and our daughters, they can use SMS to resolve it if it is too awkward to talk face-to-face. Once, my husband was very unhappy that our daughter had a male friend. He thought it was a romantic relationship and he didn't like it and scolded her. My daughter wanted to explain but he refused to listen. So I sent an SMS to him saying 'maybe you need to understand your daughter better'. So one day my husband went into our daughter's room and said, 'I know there is a problem between us' and eventually the problem was solved." Mother, 49, Homemaker, Family 2, Seoul.

In this fascinating example of how ICTs had become enmeshed in the moral economy of the household, the mother's use of SMS allowed her to clarify matters with the father privately, without him losing face or authority in front of their children. The awkwardness which she would herself experience in coaxing her husband was also alleviated by the use of SMS, thereby preserving the hierarchy and power relations within the household. The mother, as *de facto* head of the household, was desirous of maintaining peace and harmony within the family, and used SMS to good effect in this situation. In this particular case, it would appear that ICT-mediated communication actually helped to erode some communication barriers which are symptomatic of Korean society's hierarchical nature, clearly-identified gender roles and rules governing parent-child communication.

Of course, just as ICTs were seen as key tools for mediating conversation and resolving conflicts within the household, they were also likely to be fingered as the cause of communication rifts amongst family members. At the most basic level, individualized ICT use was often implicated (by both mothers and children) as the impediment to meaningful family interaction:

"I think ICTs have reduced our communication. . . when my children come home, they do their own things. Like they use the computer for hours in the computer room and then they go to sleep. If there are no machines in our house, they would have more time to talk to me." Mother, 46, Homemaker, Family 20, Seoul.

In some households, concerns about the negative impact of ICTs on family interaction were sufficiently strong for the mothers to prohibit their children from even bringing their mobile phones to the dinner table, thus resonating with the findings of Ito (2005). Some mothers would also insist that the television be turned off so as to encourage conversation.

Many mothers would also use ICTs as disciplinary devices because they were well aware of the allure which television, computers and electronic games held for their children, and were astute in using them as a valuable parenting resource. Hence, they used ICT access as an incentive for good behaviour by their children. For example, new mobile phones were dangled as rewards for improved grades or permission to play computer games would be granted if homework had been duly completed. In such circumstances, ICTs became viable commodities in the moral economy of the household.

4. Conclusion

This study found that consistent with their counterparts in other countries, Chinese and Korean mothers played a significant role in technology domestication because they typically ran the household, were their children's primary caregivers and were thus heavily involved in raising and nurturing them. Principally, they had some influence over product acquisition and were mainly responsible for supervising the children's ICT use. Notably however, cultural conceptions of motherhood and maternal responsibility, the premium placed on academic achievement by children, as well as the two societies' highly positive outlook on technology greatly influence how Chinese and Korean mothers use and supervise their children's use of ICTs. They were self-sacrificial in their own ICT use and put their children's needs ahead of their own. They also developed supervisory strategies which facilitated IT exposure for their children, but not to the point that it adversely affected their academic performance. ICTs also played a bonding role between mothers and their children as they shared media content which helped to enhance mutual understanding. With regard to their maternal duties, Chinese and Korean mothers creatively used ICTs in coordinating schedules with, disciplining and monitoring their children, but also found the perpetual mothering burdensome and stress-inducing. This study also uncovered an interesting dynamic concerning the relational aspects of ICT use at home. Given the two societies' patriarchal family structures and the fathers' distant relationships with their children, some mothers used ICTs as mediating tools to enhance father-child relationships.

The findings emerging from this study thus resonate with prior research which demonstrate how technology domestication is tied to gender roles. In studying Chinese and Korean mothers and their socio-cultural contexts however, this study has gone beyond extant research by inflecting gender studies of technology domestication with a deeper appreciation of the influence of social and cultural factors. Answering McLelland's (2007) call to consider the effects of geographical locations and social groups on the signification of technologies, the findings from this study reaffirm the value of greater contextualisation in studies of ICT domestication.

This study's findings also suggest the strengths and limitations of domestication theory when applied to Asian settings and the ever-changing media environment. The concept of the moral economy of the household was particularly useful in drawing attention to the pronounced family values and societal pressures which underscore household technology adoption in the Asian context. The four original processes of technology domestication – appropriation, objectification, incorporation and conversion (Silverstone et al., 1992), supplemented with an additional four concepts – necessity, control, functionality, sociality/privacy (Livingstone, 1992) – helped to focus the research on the multiple roles which household technologies can play, and particular aspects of family dynamics and gender roles which influence technology adoption. However, the findings also suggest that the domestication framework does not adequately take into account the difficulties which consumers encounter in their adoption of technology. Instead, the domestication framework would be greatly enhanced with an additional concept – 'challenges' – which considers the potential disruptions which technology can pose, as well as the obstacles which consumers face when they appropriate, incorporate and seek to control technology. As the experiences of the mothers in this study indicate, technology domestication can indeed present challenges on these fronts.

This study has several limitations which its authors will endeavour to overcome in future research. First, fathers were under-represented in the interview sample. However, taking into consideration Chinese and Korean fathers' long absence from their homes due to their work commitments and cultural demands on fathers to socialise after work (especially in the case of Korea), the under-representation of male informants was likely to have been a reflection of socio-cultural trends in the two countries. Second, this study's emphasis was on media devices and platforms rather than on media content itself. A deeper analysis of the latter would be able to shed even more light on ICT use by these families. For future research, this study can be replicated in other Asian countries such as Singapore where the social and cultural contexts differ and where a growing number of women are entering the workforce as wage rates and educational levels rise (Cheo and Quah, 2005). Finally, we would like to consider some changes that may have transpired from the time the fieldwork was conducted. In China, Internet and mobile phone penetration has increased significantly since 2004 and this has contributed to a growth in the range of services which are available and conducted electronically, be it for transactions, information, entertainment or education (Schwankert, 2008). Hence, middle-class Chinese families' Internet and mobile phone usage is likely to be more intense than before. As for Korea, the post-fieldwork changes are likely to be less dramatic as the families interviewed were already privy to a full slate of advanced technologies and high broadband speeds. Any changes since then would be merely incremental given the near-saturation of broadband adoption (One Broadband Internet Connection Per Household, 2008). As for the issue of academic pressure, the two countries have not witnessed any major revisions to their educational systems and consequently, the academic pressure on students and their parents is unlikely to have eased.

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