

# The Electronic Spinning of Social Relationship in Ubiquitous-Japan: Reshaping Socio-Spatial Relationship with GPS Location Technology Mobile Phone?

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Using updated surveys from the government and telecommunication providers, academic studies and journalistic reports, this paper examines how Japanese society evolves due to widespread integration of mobile communication into the lives of ordinary people, focusing on children and elderly. Examining the ever-upgrading of location-navigation technology in a competitive market of expansionary value-added communication services, it highlights the intensification of inter-personal relationship and the temporal-spatial anchorage of the seemingly borderless communication.

**Key Words :** Aging Society, Information Society, Mobile Communication, GPS Location Technology, Social Relationship

## 1. Navigation Technology in Fine-Locating Mobile Communication

Mobile communication seems to promise location-less and flexible ways of contacts: real time, round-the-clock, anytime and anywhere, making the geo-spatial conditions as seemingly irrelevant. But the latest market trend in Japan suggests that mobile phone users are demanding for (and the suppliers provide) more and more geo-spatial services, like Global-Positioning-System (GPS) empowered location-finders and navigators. All these indicate that the seamless and ubiquitous communicative networks are reshaping the way of social engagements - where, when, how and with whom? We will show the idiosyncrasies of Japanese society in engaging mobile communication.

### 1.1 Introduction

With the third generation (3G) mobile technology, mobile communication seems to promise borderless and flexible ways of contacts: real time, round-the-clock, anytime and anywhere, making the geo-spatial conditions as seemingly irrelevant. Yet, recent mobile communication studies readdress the importance of spatial dimension, in terms of location,

position and place in real life. For instance, Fortunati (2005, p.36) highlights the regulation principle of the new media is space - the identity and culture of the fictitious place, while Hutchby and Barnett (2005, pp.162-167) show the importance of "where" and "the locational relevance" of the communicators when the caller-called identity management. For Japan, Ito, et al. (2005) find the mobile phone is used for intensive territorial-bound social networking, and Kamibeppu and Sugiura (2005), Okada (2005) and Miyaki (2005) note the mobile phone's role in friendship-building among co-located students. This paper examines these attributes with particular reference to socio-spatial aspects of mobile phone use in Japan.

After outlining the location-navigation technology applications in mobile communication at the introduction, Part 2 of the paper examines the use of the technology in inter-personal social networking, parental care of children in particular, and argues that, far from the totally borderless and unbound regime of communication, the mobility and flexibility of mobile communication has a geo-spatial fixed anchorage. Part 3 discusses the likely shaping of socio-spatial sense by mobile communication, followed by an examination of the relationship between mobile communication and active aging

in Japan. The paper ends with critical remarks on location-specific social engagement of people with mobile communication in everyday life.

### 1.2 Locating Mobile Communication in Competitive Market

Like the Internet and emerging cyberspace, mobile communication is new but not free! Its human ecology is much shaped by market forces, under the guidance of the state (benevolent?) project to pursuit for further modernization (Beck et al. 2003; Castells 1996; Dirlick 2003; Murdock, 2004). Japan is no exception on the developmental course to making itself an information society. With economic liberalization initiatives in telecommunication market, competitions in terms of pricing and services among three major mobile phone companies, NTT DoCoMo, KDDI and Vodafone, are intensifying recently. As further deregulatory initiatives in place, mobile communication market becomes more dynamics and competitive.

The competition is not just in terms of pricing, but also for products, service and quality. For instance, au-KDDI's mobile phone service has successfully challenged NTT DoCoMo and the latter lost its status as the No.1 mobile phone company in Japan in terms of the net increases in subscribers in 2003/4. New service of au-KDDI includes international data roaming linking Japan and South Korea. In response, NTT DoCoMo is developing similar international data roaming service to cover other parts of the world. For competition, Vodafone, the late comer which taking over the J-Phone network, has launched services to for customers exchanging e-mail with photo and video data with overseas users who have compatible handsets on participating networks. It is the first time such a service has been offered in Japan: customers in Japan can send multimedia messages overseas by directly entering phone numbers with the Global Mail prefix and a country code.

The obvious social consequences resulting from the competitive telecommunication market are the dynamism of mobile communication within and beyond Japan, the substantial growth of the value-added services which are responsive to social needs, and the maximization of mobile communicative processes with voice, audio-visual, and text and multimedia exchanges (Ito, et al. 2005; MIC 2005). These communication processes have been reshaping the contours of social relationship and behavioural repertoire of Japanese in many ways. Sections below will highlight this point.

### 1.3 From "Machines that becoming Us" to "Orienteering Mobile Communication"

Mobile communication has been moving towards 3G system, as shown by substantial increase of shipment of 3G products with a yearly growth of 45.3% to 2.84 million units in July 2005. The full embracement of 3G mobile technology is also in line with the exponential development in e-commerce. According to a joint survey conducted by NTT Data Institute of Management Consulting Inc. and the Next Generation Electronic Commerce Promotion Council of Japan, the e-commerce markets for business-to-business and business-to-consumers have grown 33% and 22% respectively (*The Japan Times*, 14.September 2005 and 29.June 2005). All these indicate the development towards Japanese government policy making of ubiquitous Japan (the so-called *u-Japan* project for making Japan a truly information society).

On mobile communicative bondage, recent ethnographic and observational studies on mobile phone confirm James Katz's characterization of the relationship between users and mobile phone that '*Machines that Become Us*.' From the user's point of view, there is the functional necessity of, sense of belonging and the personalization of mobile digital gadgets (Ito, et al, 2005, Katz, Ed. 2004, Ling, 2004).

The personalization of mobile communication gadgets hence is enabled by the ever-upgrading and multi-functioning mobile phone. This can be shown by GPS location based navigation tools embedded in mobile phone, the so-called: SAFE Navi of the au-KDDI available in Japan. Its multi-function can track the where about and movements of the phone (e.g., mobile phone model *G'zOne*), according to au-KDDI advertisement:

- Area - Directional - Track Notification  
This function sends E-mail to parents to let them know that their child is following the usual route home or is in his or her usual place. The child's location is automatically notified to you when he or she arrives at a designated area, making pick-up even easier. Also, parents are notified if the child strays from his or her usual route, giving greater comfort to parents.
- Location - Place Confirmation  
If users concerned about their child coming home late or getting lost, they can easily and quickly find out where he or she is. This function gives busy parents peace of mind by letting them check their children's location anytime, anywhere.

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In addition, the built-in GPS mobile phone is not just trendy but also provides life-saving for outdoor survival purpose; it enables users to locate themselves. The mobile phone features an "electronic compass" function equipped with a directional sensor. The sub-LCD displays the direction you are facing with one touch. The direction is also shown on EZ Navi Walk maps according to the direction you are facing. The electronic compass also makes heading-up display possible. Voice route guidance offers a full-scale navigation system for pedestrians like that of car navigation. And the navigation is integrated with barcode reading to allow easy setting of destinations and other information. In addition, it can also be used as a world time clock by setting users preferred location.

One obvious consequence of the wide adoption of location-navigation technology with mobile communication is the rediscovery of one's location, position and sense of place; this new socio-spatial sense will enable communicators to be in contact not just in communicative terms, but also in real spatial terms of where and to/and from which direction. Recent survey found that the location-navigation offers (like map and spatial information) for mobile phone internet users rank the second and fifth position for the paid and free mobile information service respectively (MIC 2005). In short, the location-navigation servicing for mobile communication contributes the process of further integration of mobile communication into everyday life.

## 2. Fine-Locating Mobile Communication - Reinforcing Social Relationship

Demographically, Japan has become a low birth-rate, rapidly aging society (in 2005, its total fertility rate was 1.29; more than 20% of the population was 65 or older). This profile exists side-by-side with the government's promotion of the so-called *ubiquitous -Japan* project to make Japan a truly information society. The following sections examine links between mobile communication and the two ends of the population, namely, the children and the elderly. This examination draws inspiration from Ruth Benedict's characterization of Japanese traditional life course, namely that the stages of childhood and elderly are privileged with the greatest freedom, or more aptly, least responsibility (Benedict, 1959; White, 2002: pp.154-179).

With mobile phone, the rediscovery of oneself in real spatial with GPS coordinates / vector / direction is juxtaposing the (re-)presentation of oneself in public space - this enables mobile communication to

be action, orientation and spatial specific, as social activities can be coordinated over (cyber-)spaces with verbal and multi-media communication (Helen, 2005; Mackenzie, 2005). The following section will delineate how this new technology enables the reinforcement of the existing familial bondage and social relationship.

### 2.1 Mobile Calling for Safety: Where are You Now?

One of the default, though implicitly exchanged, query and hint in mobile communication is "where are you now?" (Hutchby and Barnett, 2005). The location specific mutual understanding between the communicating agents has strong implication for behavioral repertoire throughout the communication period, as different situation, location and place will shape, condition or redefine the boundary and limits of not just the likely conversational content and discourse, but also the behavioral reciprocity between the communication agents. Here, the most obvious example is the mobile phone (non-)usage in Japanese mass transits and the annoyance for non-user but at the site/place during mobile phone use (Okabe and Ito, 2005; Monk et al. 2004). In general, commuters' mobile phone talking is discouraged by public transport regulation, and sanctioned by the socially constructed view as bad manner.

Furthermore, the question of "Where are You Now?" is not just a pre-conditioning (readiness) for (next-step) socio-behavioral reciprocity, rather it also concerns with the very basic human security issue. Here, the mobile phone can be a life saving tool for those vulnerable people who are at risk - and in fact, the precautionary aspect for personal safety with special reference to mobile communicative advice is well sought recently in Japanese society. In particular, location-navigational services are in great demand from mobile phone users.

Crime against juniors is reportedly more frequent in Japan: the most tragic cases of the child- kidnap-murder by a stranger on their way back from schooling in Nara on 17.November 2004 and the recent one that a 7-year-old girl murdered in Hiroshima City, 22.November 2005. To ensure children safety, it is more than obvious that parental use of mobile phone to check frequently the where about of the kids.

In late 2004, the Kinki Bureau of Telecommunications of the Ministry of Internal Affairs and Communications (MIC) has piloted a system that records the school arrival and departure times by Radio-Frequency-Identification (RFID) tags to notify parents of this information by e-mail

or text message unto mobile phone, under the cooperation of an elementary school in Wakayama Prefecture (Figure 1). It was well participated: over 81% of the participants checked daily the school children arrival and departure notification. The questionnaire survey for the pilot test indicated that majority (over 81%) felt more reassured throughout the program and expressed the need for such service (MIC 2005).

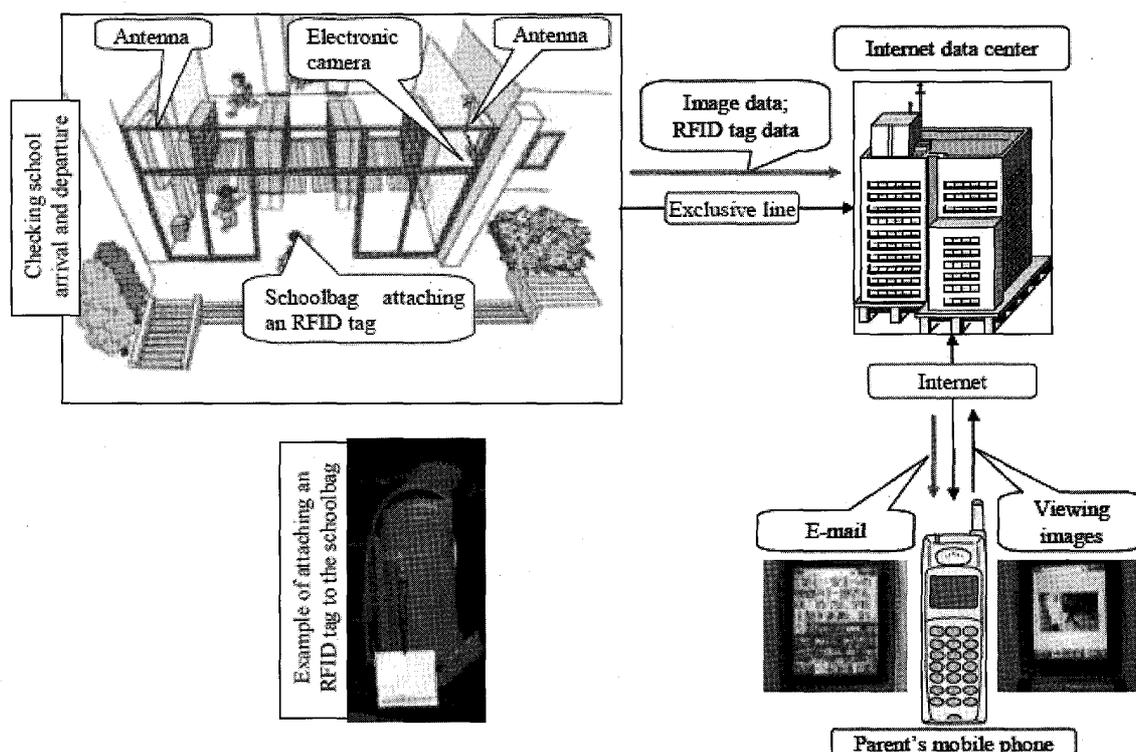
In response to the crime against the juniors, Japanese government has recently adopted a new policy initiative in December 2005 to further implement the maximal use of mobile phone for children protection. In particular, there will be further expansion of the above mentioned successful pilot plan: beyond the positioning of sensor for the RFID tag at the entrance and exit points of the school, the further development of the plan for using mobile phone for school children safety is likely that there will be more location check-points for the tailor-made routing, say, from home to school or following a definite path/track, adapted to individual differential parent-children needs. Hence, there will be a network of surveillance for school children.

The mobile communicative connectivity should be noted here. Despite the low rate of children

ownership of mobile phone (estimated with range from 10% to 20%), mobile communications with/by children are around three times higher (up to 70%), and most of them are under parental auspice (MIC 2005, Miyaki 2005). Parental support for children's adoption of mobile phone is important; this is particularly the case when mobile phone can be a personal survival tool for safety. The location-navigation technology built-in mobile phone will reinforce the socio-familial connectivity.

Social concerns over school children safety to/from school turn into new demand, hence a marketable, for mobile communication service. Recently, NTT DoCoMo, the largest mobile phone network in Japan, has unveiled a new mobile phone model, to be released in March 2006 priced between 20,000 to 30,000 yen, which has an alarm of about 100dB and an automatic emergency calling function to three pre-registered numbers to keep children safe. For parents and guardians who sign up for the "ima-doco" search ("Where are you now?") location service, with monthly payment of 210 yen, they can set their phones to automatically receive e-mail messages, updated at regular intervals, that track a child's location, in addition to have notification when the handset is turned off (*The Japan Times*:

**Fig. 1: Mobile Phone Network for School Children Safety**  
Use of Mobile Communication and RFID for Safety of School Children



( Source: MIC 2005 )

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26 Nov. 2005, online edition). The new service is more tailor-made in response to increasing number of (potential) crime victim groups, not just children but also women in particular. In short, mobile phone with built-in location-navigation technology enables a sense of security; allowing people to move around in the inhuman urban space.

At this particular conjuncture, mobile calling and its derivatives of geo-location as expressed at the socio-spatial question of "Where are You Now?" becomes the overture for parent-child mobile communication in Japan. This is indeed an expression of parental concern.

But the same question might be sensed by children as a form of extended control over their experimentation for individual's identity building. In other words, mobile phone is situated between the wishes for parental caring (electronic lash or surveillance?) over children and the increasingly independence of the growing up children (Haddon, 2004, p.39; Ling, 2004).

Obviously, this socio-spatial anchorage for mobile communication is a short-cut with high-tech to reinforcing parental concern, care and surveillance over children. For this, location-navigation technology embedded mobile communication is undoubtedly reinforcing not just socio-familial relationship between children and parents, women with their significant others, but also ensuring the individual's sense of safety against the risk of encountering unwelcoming strangers.

## 2.2 Reinforcing Socio-Spatial Nexus: From Familial Care to Community Support

Using mobile phone technology to disseminating community news becomes a new venture in Japan. This is particularly the case for the selective targeting for sourcing and dissemination of news and intelligence for protecting the potential victims of crime. Amid reports of rising sex-and-violence incidents against children nationwide, recent joint initiatives by schools, local police and parents in Hamakita city address the concern over the safety of children. Based upon local people's mobile phone reportage, local police sends out real time security alerts to the pre-registered schools, parents and teachers, warning where and when suspicious strangers and/or any incident for children safety are reported in the area. Similar schemes have been implanted in other localities in Japan, like in Ikeda, Osaka Prefecture, Tokyo's Arakawa Ward and elsewhere area (*Asahi Shimbun*, 22.November 2005). The initiative attempts to provide a safe landscape

for local residents and their juniors.

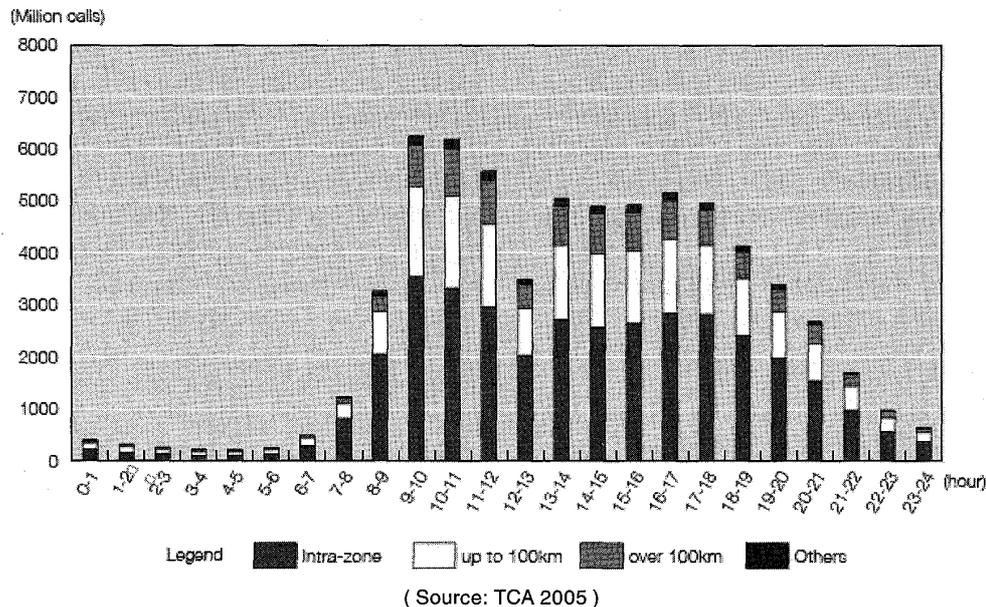
Our previous delineation of the high-tech solution to personal safety concern seems to suggest that crime against children and women is prevalent in Japan, but it is not the case, as Japanese local communities are still a very safe place, from comparative crime statistics and from real life experience. In actuality, the most distinguishable aspect of Japanese society is the collectively search for a high degree of certainty and safety, towards the risk avoidance and coping, behavioural repertoire. In other words, the offering of high-tech solution of using mobile phone is one of the many ways to ensure personal (children) safety - critics might argue that it is much cost-inefficient for high-tech (high cost) for a statistically low risk event of having crime against the juniors and/or women. Here, the high-tech mobile phone is more for reassurance for psychosocial needs of human security in highly urbanized society (*gesellschaft*).

For comparison, the high-tech solution to ensure school children safety should be viewed against the similarly success story of the local community mobilization of volunteers (parents and residents) who are willing keep a close eye on the children against the risks from the strangers, following the mutual help tradition in local community (Kingston 2004).

From the author's fieldwork observation, it should be pointed out that there is a very good practice to ensure primary school children's safety, students are usually organized by the school, teacher and parents together that, to get-to-gather at certain rendezvous and travel to school as a group; it is almost accident and risk proof for the outbound journey to school. Yet, for the returning one from the school, it is much difficult, if not impossible, to organize such collectively safe trip, as there is differential and wide range of the after-school extra-curricular activities for students. In fact, most of the crimes against school children are reportedly for after-schooling. Obviously, the use of mobile phone for children safety is more likely targeting to the 'after-schooling' than the 'going-to-school' one.

Judging from the responses of the informants sending mobile phone reportage to the police and users for such service in Hamakita city, Ikeda and Arakawa Ward, one of the major benefits of the initiative is the enabling of positive community networking: using mobile phone technology at the locality level enhances not just safety for children (and women), but also facilitates mutual help among residents, and enhances community building with sense of belonging. Hence, the mobile phone offers

Fig. 2: Number of Calls by Time Zone (2003)



an additional safety and precautionary measure, for social harmony and individual security. And the cultural logics and social norms are actuality reinforced rather than eroded. In a sense, Gergen's (2002) hope that the mobile phone could help re-establish a perceived loss of community and family grounding seems to be in the process of being realized. In short, people feel a sense of community security and spirits with mobile communication or accessible to mobile phone.

### 3. Creating Social Spaces under Mobile Pricing Regime

In Japan, the total numbers of mobile phone subscribers, as of 31.October 2005, were 89,365,200, an increase of 0.3% compared with September 2005; the market share of mobile communication during the same period was differentially divided by three major players: NTT (55.9%), au-KDDI (27.3%) and Vodafone (16.8%). Three major players adopt different strategies terms of sourcing, techno-service development, and networking and marketing, hence there is strong competition among them not just in terms of product-service differentiation, but also the targeted pricing for consumers-in-social network. For instance, there is differential familial and lovers based subscription charge regime for different social relationships - perhaps this is the idiosyncrasy of Japanese mobile phone use in a highly modernized and urbanized socio-spatial nexus.

The public performance of private talk of mobile communication becomes a daily praxis, and all

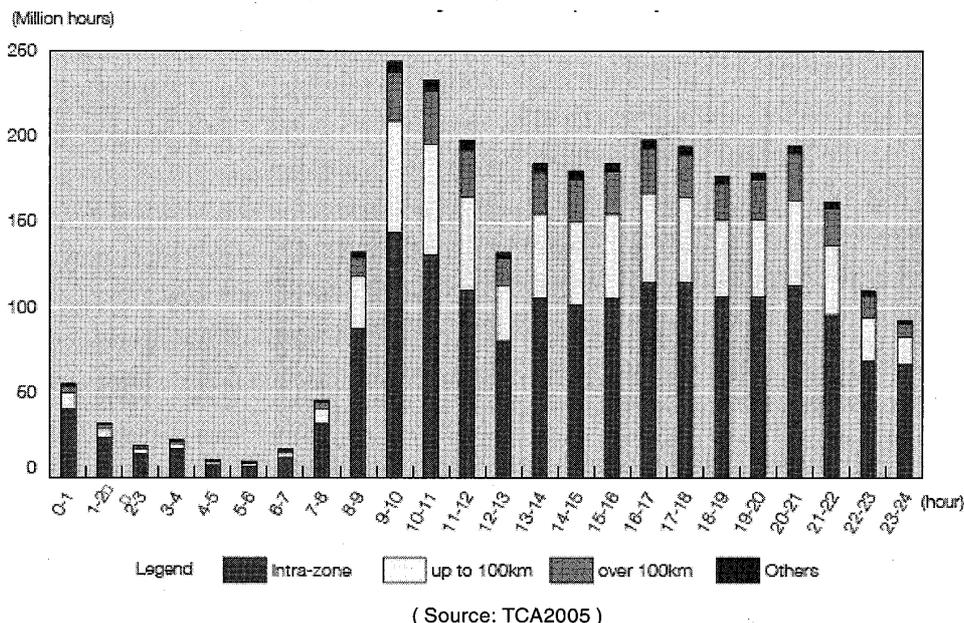
the communicative acts are on the hyper-modern social stage, we all are actors with our own scripts to performance with others, as if we are co-present (Katz and Aahkus Eds. 2002; Oksman and Turtianinen, 2004). More specifically, the spatial and location relevance is more than obviously performed by mobile phone callers and the called one, particularly when they are initially engaging in the callers-called identity management. Hutchby and Barnett (2005, p.167) rightly pointed out that inquiries about location in mobile phone conversation are not simply or straightforwardly a substitute for the 'how are you' inquiry in landline telephone conversation. Rather, location relevance is bound up with specific kinds of interaction business for mobile phone callers and answerers.

And as mobile phones afford mediated conversation not anchored to pre-specified geographical locations, therefore, callers have developed the location inquiry sequence as an *additional* element within the broader opening exchange, to accomplish the work of both (1) specifying, or formulating, location and (2) establishing interaction relevant links between present location and current activities.

To highlight the importance of spatial and location dimension (in the seemingly location-less) of mobile phone, below is a delineation of major pattern of mobile communication in Japan.

For the number of calls by time zone, within the given pricing regime, the spatial distribution of mobile phone calls is obvious (see Fig.2). For 2003, the intra-zone traffics of mobile communication ranked top, and was spatially distributed inversely to distance. This is likely to imply, or to confirm, that

**Fig. 3:Duration by Time Zone (2003)**

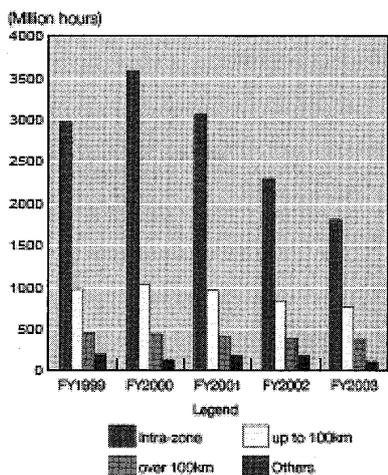


the pricing model and the socio-spatial connectivity of people-in-mobile-communications are reinforcing each other. People talk more to find relatives and friends nearby - geophysical distance counts in the seemingly location-less mobile communication.

For the same period, within the given time zone, considering the number, and the duration, of mobile calls, the duration of the mobile calls tended to be longer; in other words, there was longer duration of calls for intra-zone and during the non-peak (particularly the nocturnal) hours (see Fig.3). Here, mobile callers / called are extending their communication time-span, being nocturnal, but still very much psycho-social and geo-physical proximity.

For a longer period (1999-2003) of observation,

**Fig. 4:Duration by Distance Zone (1999-2003)**



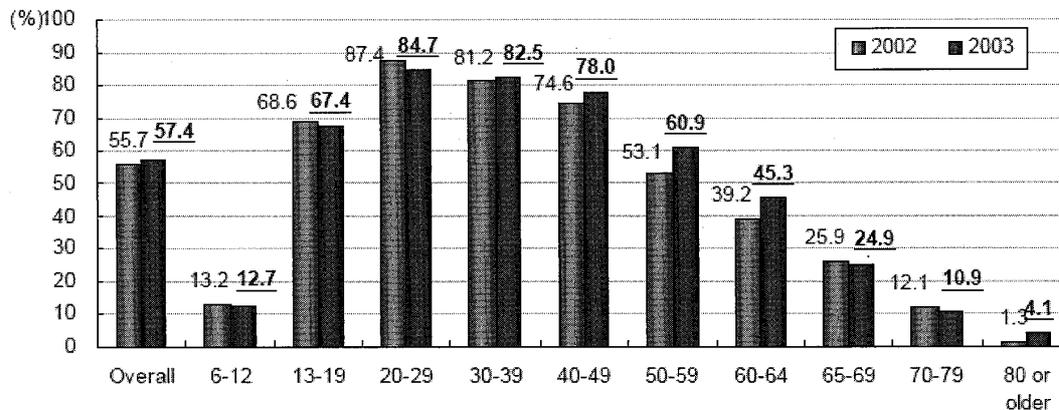
it is more than obvious that the duration of the total calls is decreasing, particularly for the intra-zone communication (See Fig.4). In other words, less (time) for more efficient use of mobile phone is the likely trend - though we have to contextualize this trend with the pricing regime and socio-technological change, say, more efficient use of alternative mobile value-added communication services, say SMS, MMS, Voice Mail recording / playback.

On the whole, mobile phone ownership goes up and more people can use mobile phones in Japan, but the use of mobile phone tends to be more efficient and less time consuming, shorter call duration, with different services other than voice call.

**4. Mobile Communication Extends Elderly Social Space**

For the first time in Japanese history: in October 2004, the number of people aged 90 or over topped 1 million, and in July 2005, 25.54 million of the population aged 65 or above (20% of total population of 127.68 million), including about 23,000 centenarians, thanks to a very low birth rate (1.29 in terms of Total Fertility Rate). The new demographic challenge for Japan is two-folded: the speeding up of the aging population and the beginning of the shrinking population in 2005, and it is certain to cause socio-economic adjustment problem in the decades to come; for instance, the world's second-largest economy will have a labor shortage, particularly for those jobs to caring the aged, the likely erosion of the tax base, the burden on the pay-as-you-go

**Fig. 5: Age-Specific Digital Divide**  
Mobile Phone Users by Age Group



(Source: MPHPT 2004b)

pension system, and increasing demand for support the expanding elderly population (Lai 2001; MHLW 2004, 2005). Hence, the question of beneficiary of mobile communication for aging population is raised recently.

#### 4.1 Active Aging in Information Society?

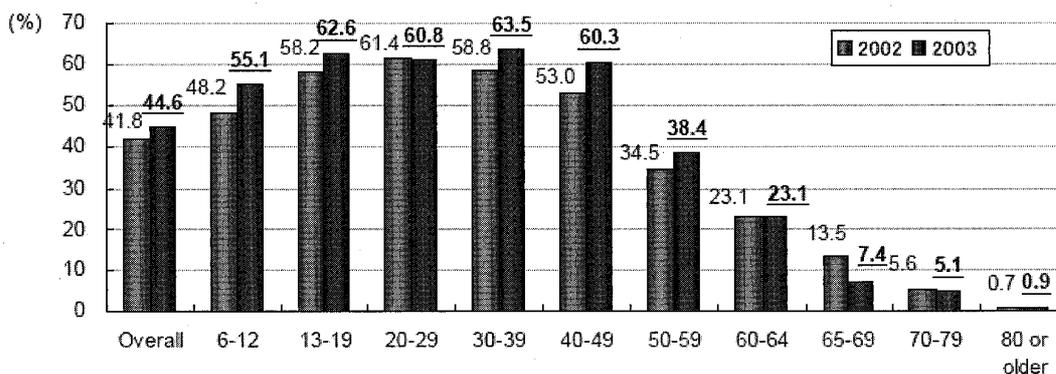
As highlighted in many communication studies that mobile phone can definitely extend one's personal networking and social space, and at the very least extending the communicator's horizon of information (Ito, et al. 2005; Katz and Aakhus, Eds., 2002; Ling, 2004). But the diffusion of mobile communication is socially differentiated, so do the beneficiaries for mobile phone users. In spite of the increasingly taking up of mobile communication by Japanese society, there is an age-specific digital divide in terms of the usage of mobile communication, as shown in the nationwide

*Communications Usage Trend Surveys* (MPHPT 2004b) completed for the financial years 2002 to 2003 (Fig.5): contrasting a very high usage rate of mobile phone (over 80%) by the younger generations (age group 20-39), only 25% of those aged above 65 used mobile phone. A related study on the Internet usage, it also confirms such a discrepancy (Fig.6).

Despite low penetration rates, mobile communication technologies have been beneficial to Japan's elderly population, and show even greater promise for the future. In its early stages, the location-based service "ima-doco" was used to find children and senile elderly. Mobile communication service oriented toward elderly health needs is also reflected in au-KDDI's Helpnet and NTT's Life Support. The former is a one-button push emergency service to signal the location of the caller, the latter connects volunteers with elderly people living alone (Srivastava, 2004, p.249).

In other words, frequent users of mobile

**Fig. 6: Age Specific Digital Divide**  
Usage of Personal Computer / Internet by Age Group



(Source: MPHPT 2004b)

phone are mostly the younger generations. Yet, the beneficiary for the less frequent users should not be underestimated (cf., Oksman and Turtiainen, 2004; Wang, 2005). For instance, mobile communication can extend the sense of networking (and hence social space extension) for vulnerable groups, like the elderly and children. For the elderly, more initiatives from government and business sectors are recently attempting to bring them onto mobile communicative accessible.

In 2005, there is an increasing number of senior adults taking up of mobile communications with their family members and friends, according to a recent survey 2005 Survey on *Community Participation of the Elderly* (DG-PCS 2005) - this is inline with the trend that senior adults in Japan are actively involving in community activities: over 54% of the age had community participation, a big jump of 11% increase if compared with survey five years ago. The predominant mode of activities is health and sport relate (25.3%), followed by hobbies (24.8%) and community festival alike (19.6%). All types of major participatory activities showed an upward growth. One new and important aspect of their community activism is their high utilization of ICT and mobile communication. The study found that 17.9% of the surveyed elderly were frequent users of mobile phone, followed by fax (10.3%), and the internet and e-mailing (4.7%). Though their use of ICT is comparatively lower than the younger generations, it is already an encouraging sign if compared with other elderly in Asia.

For comparison, computer and Internet usage in Hong Kong, one of the NIEs, have grown rapidly since mid-1990s: the computer penetration rate has had more than doubled (from 34.5% to 71.1%). The growth of internet penetration has even surged from 11.8% in 1998 to 64.9% in 2004. However the computer and internet usage are lower among the older persons and the less educated. In particular, older persons aged 55 - 64 have a computer usage rate of 20.6% whereas those aged 65 and above has only 4% meanwhile the overall average of all persons aged 10 and above is 59.5% (Wong, et. al. 2005).

#### 4.2 Mobile Communication for Active Aging!

Compared with other Asian societies, Japanese aging population is active in terms of both community participation and mobile communication (Chi, et.al. 2001; Lai 2001). And because of the activeness of the elderly, their needs for further mobile communication in information society translate into actual new demand for new services

and products in telecommunication market.

And from our field observation, elderly population also have an open attitude to embrace ICT in general and mobile communication in particular. Our recent fieldwork, with in-depth interviews and focus group, also reveals the following characteristics of senior adults' adaptation to mobile communication. First, there is a differential adaptation path between the 'young-old' (60-70) and the 'old-old' (75 or above). As for men, the former group has had prior hand-on experience of using ICTs in their working setting. As for women, they learned from peers and friends about using ICT or mobile phone to coordinate their domestic household tasks like shopping and the maintenance of socio-familial networks. While for the senior aged one, they simply have not been fully aware of the availability of ICT gadgets and mobile communication - for them, learning mobile communication therefore needs the more tailor-made handset and the simplified telephony protocol (like single-button call). The 'young-old' are frequent and active users of mobile phone, in terms of the number/duration of calls and the communication services they engage in, respectively; for instance, they use both paid and free mobile services beyond the normal verbal communication.

Despite their differences in terms of learning experience and usage of mobile communication, both groups of elderly have been discovering, with positive views of the benefits and offerings of the new way of multi-media communication for their socio-familial networking.

In Japan, accessibility, popularity and affordability of mobile phone in the market place, coupled with the concern for personal safety against accidents and risks, are the key factors for the aged people adoption for the Internet and mobile communications. Like other developed economies, in spite of the intrusiveness of mobile telephony which challenges social norm, elderly people are increasingly accepting mobile phone can be a life saving device, a call for assistance, in emergency situation (MIC 2005; MHLW 2004, 2005; Ling 2004).

The emerging trend for more senior adults to take up mobile communication can also been seen in, and reinforced by, the initiatives from the government's *e-Japan / u-Japan* project and the market driven promotion for senior-adults friendly mobile phone. The re-designing process for elderly-friendly mobile phone is underway too: simple and functional for the aging users are the key concepts. For instance, mobile phone is redesigned for senior adults with bigger character-size(ing) for key-pad and display,

louder volume control, and pre-set phone number for their frequent calls.

To recapitulate, mobile communication can enable beneficiaries that the reinforcement of social relationship and the extension of socio-spatial network go hand-in-hand, for the elderly as well as for the younger generations. With mobile phone and/or the Internet connectivity available, offering the real time audio sound bits and/or video images, there is likelihood for an enhanced inter-generational communication between the senior and younger members of the family/society in future.

### 5. Bounded Mobile Communication in u-Japan?

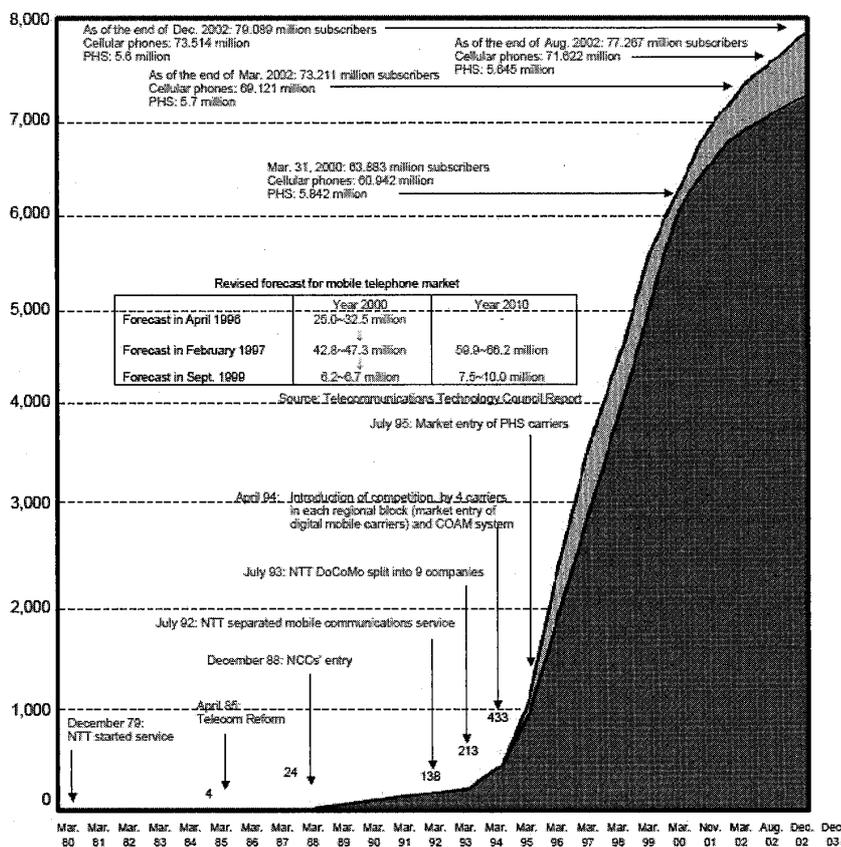
The rapid development of Japanese information society is characterized by its production-driven regime for both export and domestic demand derived from mass consumerism on high tech gadgets at the earlier stage, the liberalizing Japanese communication market competitions more recently (Srivastava, 2004; MIC, 2005; MPHPT, 2004a/b; TCA, 2005). The rapid adoption of mobile

communication and the Internet is phenomenal (see Fig.7 and Fig.8): in less than a decade, over 80% of the people use mobile phone and the Internet. Yet, the development of mobile communication is not freely evolving and in fact, a path-dependent one following not just the network development logics as shaped by market force and the state project for modernity, but also the fulfilment of social needs as circumstances arise.

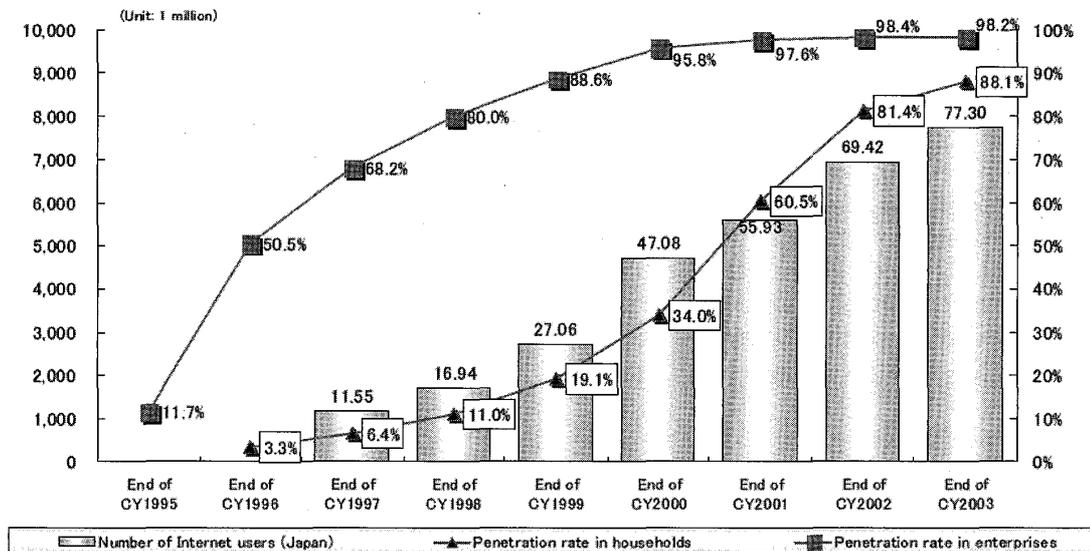
The maximal experimentation of high tech gadgets in mitigating social uncertainty and risk highlight this, as shown in our case studies on the parental-children use of mobile phone for reassuring personal safety and the senior adults' social engagement. Here, Japanese using mobile phone for socio-familial relationship and the protection of both children and the elderly underscore such adaptation process for socio-familial needs. In actuality, it is the reinforcement of the existing social norm for searching harmony and consensus (*wa*) and sense of humane security.

Perhaps, this resembles the idiosyncrasy of Japanese modernization, an important yet sometimes the forgotten aspect of the modernity project

Fig. 7: Mobile Phone Usage and Diffusion Trend 1980-2004



( Source: MPHPT 2004a )

**Fig. 8: Total Internet User Population and Internet Diffusion Rate**

※ Businesses are those having more than 300 workers on their payrolls, and are located in Japan (excluding businesses in the agriculture, forestry, fisheries and mining industries).

Source: WHITEPAPER Information and Communications in Japan 2003, etc.

( Source: MPHPT 2004a )

(Murdock 2004; cf., Bauman 2000; Beck et al. 2003; Dirlick 2003; Therborn 2003). In other words, for mobile communicator in particular, what, where and how he/she can communicate (with whom) though is much shaped by the network conditions of pricing and technology as defined by the limited mobile service providers, it is equally conditioned by the expected and perceived beneficiaries. The recent maximal use of mobile phone for ensuring human security at large, attempting to strengthen socio-familial ties, redefines the landscape of mobile communication - we refer this as the bounded mobile communication.

### 5.1 Bounded Mobile Communication penetrates Japanese Life?

For the 21<sup>st</sup> century, Japanese government's goal is to build up a so-called u-Japan (ubiquitous Japan). This is very much with the policy initiative in most of the East Asian industrialized economies which have already been developing their portals for an e-government and e-commerce, and the development is always making mobile communication ubiquitous and omnipotent (Lai 2004, 2005; MPHPT 2004a; MIC 2005).

Social consequences of the u-Japan can be represented by the dynamics, mode(s), patterns and of *keitai* (mobile) communication in Japan, which

emerge, or have been emerging, from "a historically specific series of negotiations and contestations within and outside Japanese society" - half rightly mooted by Mizuko Ito (et. al. 2005, p.15). Such characterization of Japanese experience and processes of mobile communication is insightful yet contestable, as their path-breaking collective work (and in every chapter) in fact is the testament of the idiosyncrasies of Japanese mobile communication that are made and consumed in Japan, by and for Japanese. The socio-cultural specificity of Japanese mobile communication has been confirmed.

The instrumentality of Japanese mobile communication within the broader policy context of *u-Japan* reflects the logics of Japanese modernization project, namely (Western) technologies are using for the fulfilment of socio-familial needs, and socio-cultural norms at large (Feldman 2000; Goodman, Ed., 2002; Kingston, 2004; White 2002). Obviously, this resembles the idiosyncrasy of Japanese modernization, an important yet sometimes forgotten aspect of the modernity project; hence the process of adaptive mobile communication is a negotiating one (Ito, et al. 2005). In other words, for mobile communicator in particular, what, where and how he/she can communicate (with whom) though is much shaped by the network conditions of pricing and technology as defined by the limited mobile service providers, it is equally conditioned by

the expected and perceived beneficiaries, adapting to socio-familial logics and norms. In short, the recent maximal use of mobile phone for ensuring human security at large, attempting to strengthen socio-familial ties, redefines the landscape of mobile communication - we refer this as the bounded mobile communication (Lai 2006).

Likewise, as shown in our case studies of the use of mobile technology and communication for children safety, the logics of the mitigation of social risk (strangers) in modern city are socio-cultural, familial and inter-personal embedded. It is Japanese specific socio-cultural processes of identity building, and the distinction between someone known and the stranger.

Socio-cultural change, though not determined by ICT development per se, ICT in general and the inter-personalized mobile communications in particular will interfacing, intertwining and synergizing with socio-cultural domains. Our previous discourse on the interfacing, repercussions, and synergetic effects of mobile communication in general, the mobile phone in particular, though positively orient towards a better future, but it might reproduce the problems of media-centrism, namely, missing out the non-participants, the digital exclusion and divides (Murdock and Golding 2005). To end this paper, the following section raises certain critical issues for continuing questioning and debate, on the socio-spatial aspects of mobile communicative daily engagements in Japanese society and beyond.

## **5.2 Known Technology but Unknown Social Destiny?**

In line with the global development of ICT and mobile communication, it is an irreversible trend that, in Japan, mobile phone will replace fixed line communication, stronger competition among the existing and new service providers, as well as new technologies from 3G to 3.5G. The further integration and consolidation of ICT in wired and wireless communication is likely the dominant force, moving towards a mobile communication regime, to shape the bounded communication. In short, mobile communication technology is known in terms of technology development road map.

For instance, by combining a fixed-line service with a wireless local area network (LAN) communications system, NTT DoCoMo Inc. will enable subscribers to use their handsets as fixed-line phones at home in 2006: usage of cell phones at home will be charged at the same rates as fixed-line phones, which are cheaper than those for cell phones

(*The Japan Times*, 1.June 2005). It is likely that other mobile phone service providers will follow similar service in future. The implication for the integration of fixed line and mobile communications, making communication more location-less, is that communication will resemble more like the mobile one - the question of "Where are you now?" is still, and will be, embedded in every mediated communication.

Likewise, the competitive market force will likely shape the emergence of more mobile network providers, from the present major three to five providers in 2006. Their differential logics of operation, business models, integrating fixed line and mobile network with the Internet (telephony of IP phone, VoIP and the Skype-in/out) and techno-specificity will likely determine the actual way of mobile communication for people: how, under what socio-spatial conditions and with what pricing. Hence mobile communication will be still much a bounded one, though with more (re-)discovery of new socio-spatial sense beyond the question of "Where are You Now?".

But for social consequences of mobile communication, the social destiny at large, are highly uncertain, if not unknown, as many mobile communication studies note that the inter-personal mobile communication is reinforcing and redefining the existing social relationship, sometimes creating the new (intimate) one (Tomita 2005). Yet, the contrary might be also true that, mobile communication is to guard against the unwelcoming encounters as well as nurturing one's narcissism. To make an interim remark here, mobile communication is more technological known but the destiny for human(ity) - mobile communication interfacing is definitely uncertain!

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