Melding with the Self, Melding with Relational Partners, and Turning into a *Quasi-social Robot*: A Japanese Case Study of People's Experiences of Emotion and Mobile Devices

Satomi Sugiyama
Franklin College Switzerland

ABSTRACT

Past research suggests that the mobile device can be experienced as a relational artefact, and also, as a technology for cyborgization, questioning the boundary between the mobile device and humans. This paper examines the question in the context of Japanese young people. More specifically, the present study seeks to identify various patterns of the way people make sense of their mobile device in Japan, suggesting some possible future research questions where the notion of social robots, mobile device, and emotions intersect. Based on the results of focus group interviews conducted in 2010, the paper explicates how humans start blurring the distinction between their relational partners and the mobile device that affords the sense of perpetual contact. This is indicative of how a mobile device has gone through the process of *anthropomorphization*, turning into a *quasi-social robot*. Furthermore, the paper discusses how some experience their own mobile device as a part of their body. This suggests how a mobile device is perceptually incorporated into the body, turning humans into *quasi-social robots*. Connecting the results to the notion of electronic emotions, the paper conceptualizes the idea of *quasi-social robot* as a metaphor that conveys the extent to which humans are now equipped with advanced technologies, making us more powerful but also simultaneously more vulnerable. It concludes that the heightened complexity in the relational dynamics, and the emotions that are triggered and exchanged deserve further investigation to see how their emotional experiences are changing. Such future research promises to foster our understanding of the transcending boundary between humans and the mobile communication device, informing the question of social robots and emotion.

KEY WORDS: mobile device, social robot, quasi-social robot, emotion, body, Japan

INTRODUCTION

Literature on the relationship between the mobile device and people is relatively scarce compared to the literature on how the relationships between people were facilitated or hindered by the mobile device. The essential difference between the two paradigms is that the former treats the mobile device as more than a functional communication tool. Examining the relationship between the mobile device and people draws our attention to the physical and symbolic distance between the mobile technology and the human.

Although limited, the question of the distance between mobile technology and the human was explored during the past decade. A part of such an effort is the *Machines That Become Us* perspective proposed by Katz (2003). In this perspective, Katz delineates how machines such as mobile devices *become* us in three senses: *become* extensions of us, *become* integrated with our clothing and body, and *becoming*/fitting to us. The research findings such as the mobile phone as an extension of the hand and a body part in the case of Finnish teens (Oksman & Rautiainen, 2003a, 2003b) inform the *Machines That Become Us* perspective by offering some empirical evidence as to the way one can experience the mobile as an extension of the body.

As is seen in the *Machines That Become Us* perspective, an aesthetic aspect of the mobile technology has been noted in exploring the relationship between the mobile device and the user. The aesthetic aspect of the mobile device has been associated with the shrinking distance between the mobile device and the human body (Fortunati, 2003; Fortunati, Katz, & Riccini, 2003). This rather philosophical question has been explored at the level of empirical studies by examining the importance of the mobile design and its overall appearance with quantitative and qualitative data (e.g., Katz & Sugiyama, 2006; Ling & Yttri, 2002; Ling, 2003; Sugiyama, 2009, 2010a). These studies highlighted how the aesthetic aspect of the mobile device is closely tied to one's self-expression, thereby not only expressing the self, but one also defines and redefines one's self via the aestheticized mobile device displayed in public (Sugiyama, 2010a).

Aforementioned studies by Sugiyama (2009, 2010a) specifically focused on the case of Japanese youth. Based on a series of focus group interviews of college students conducted in 2005-2006, Sugiyama argued how the mobile phone is not a mere telephone in transit but an aestheticized object whose aesthetic appeal to the user is continuously evaluated against the changing norms of mobile phone appearance in a given place and time. This aspect was explicated by applying the concept of fashion. Simultaneously, the study uncovered how these college students in Japan develop emotional attachment to the externally and internally decorated mobile phone because the mobile phone is a locus of relational negotiations (Sugiyama, 2009). The college students reported that it is hard to be separated from their mobile phone, rendering the machine that physically is miniature to be monstrous in presence (Sugiyama, 2009).

It is within this context that the question of social robots and emotion, as it relates to the mobile technology, arises. Zhao (2006) defines humanoid social robots as "human-made autonomous entities that interact with humans in a human like way" (p. 405). In making distinctions among human-humanoid interactions, computer-mediated communication, human-computer interaction, and "post-human" cyborgization, Zhao explains that, in computer-mediated communication, a technology serves as a medium of human interactions rather than as a counterpart of interactions. Since the mobile device is not an autonomous entity and often serves as a medium of human interactions, the mobile communication resembles computer-mediated communication at the most apparent level.

However, as the mobile device comes closer to the human body constantly extending the natural human capacities, this seeming resemblance requires a critical examination. For example, aforementioned past research seems to suggest that the mobile device can be experienced as a

relational artefact, and also, as a technology for cyborgization, questioning the boundary between the mobile device and humans. That is, positing the mobile device as a mere medium of human interactions is not sufficient to account for such human experiences with the mobile. As people engage in emotional exchanges that are expressed both on the surface of the mobile as well as in the SMS and voice calls, how does the boundary between the mobile and humans change? Are humans with electronic emotions, which are "emotions lived, re-lived or discovered through machines" (Fortunati & Vincent, 2009, p. 13), turning into social robots through the process of cyborgization? Are mobile devices turning into social robots by being heavily involved in the human experiences of electronic emotion? Or perhaps, if not social robots, can we identify some traits that both humans and mobile devices are turning into *quasi-social robots*? In order to explore these questions, this paper analyzes the relationship between people and their own mobile device, building upon the previous study conducted in Japan during 2005-2006. More specifically, the present study seeks to identify various patterns of the way people make sense of their mobile device in Japan, suggesting some possible future research questions where the notion of social robots, mobile device, and emotions intersect.

METHOD

In order to examine the proposed question, focus group interviews were conducted in Japan during the summer of 2010. The method of focus group interviews was selected because of its strength in creating the dynamics that is similar to one of everyday social discourse (Lindlof, 1995). Four sessions of focus group interviews were conducted. In order to keep each focus group demographically homogenous following the recommendation by Lindlof, each group was composed of participants with similar backgrounds in terms of their age and professions. In a collectivistic culture such as Japan, age and social status play a significant role in group dynamics and sharing ideas. Therefore, the demographically homogenous group composition was regarded particularly important so as to facilitate frank and lively group discussions minimizing the concern for violating the cultural norm of "occupying a proper place" (Lebra, 1976).

More specifically, one group was composed of young professionals, between the age of 35 and 40, who work at the major corporations in Tokyo (FGI 1), two groups were composed of undergraduate students from a private university in Tokyo (FGI 2 and 3), and one group was composed of graduate students in the Master's program at a public university outside of Nagoya area (FGI 4). In total, 17 people participated in the focus group interviews. In addition to the focus groups, two junior high school students and one business entrepreneur were interviewed as a supplemental data source. However, this portion of data is not reported in the present paper.

It should be noted that all focus group participants were below the age of 40, and except for 1 participant in FGI 1, all were unmarried. These demographic characteristics make the data particularly interesting for examining how single young adults were experiencing their mobile device and interpersonal relationships. At the same time, it must be acknowledged that the experienced relationship with the mobile device might be quite different for those who are older and at a different life stages. Therefore, this study should be treated as such.

Each interview session lasted about one hour, taking a semi-structured approach. The interview schedule was adopted from the previous study conducted in 2006 (Sugiyama, 2006). The interview began with some questions regarding when they started using a mobile phone as well as how often and in what ways they use it. It then moved on to some questions about the style and the decoration of their mobile and what the mobile means to them. All focus group interviews were audio-recorded and transcribed.

Once the transcriptions were completed, the data was analyzed using the grounded theory approach (Strauss & Corbin, 1998). In this process, the past literature and experience were used to sensitize the analytical perspective of the researcher, while minimizing the possibility of forced interpretations (Strauss & Corbin). Throughout the analysis, the researcher sought to discern phenomena, which is "repeated patterns of happenings, events, or actions/interactions that represent what people do or say, along or together, in response to the problems and situations in which they find themselves" (Strauss & Corbin, p. 130). In the present study, the researcher sought to discern some repeated patterns of the meanings participants attach to their mobile device, as well as their emotional experiences involving their mobile, in order to understand the perceived distance between people and their mobile device.

MELDING WITH THE SELF

Past research identified how people develop emotional attachment to the content stored in the mobile device (e.g., Vincent, 2003), as well as to the device itself (e.g., Sugiyama, 2009; Vincent, 2009). This theme was quite notable in the present study as well. However, it should be noted that there was a range of responses in terms of how closely they keep their mobile device with them, suggesting that the attachment people feel to their mobile device varies.

A notable number of the focus group interview participants suggested how they are attached to their mobile device and how they maintain a close relationship with the device. For example, the focus group 1 participants agreed that they always carry their mobiles including the time when they sleep. All participants of the focus group 3 also reported that they keep their mobile device right by them when they sleep, and carry it even to the toilet. The following quote captures this proximity between the user and the mobile device:

Moderator: How often do you use (your mobile)?
F[1]: All the time.
M: *Hadami hanasazu.*
F: If I accidentally leave it at home, I feel anxious.
Moderator: So you always keep it very close to you?
M: I always keep it in my pocket.
F: Always (with me) other than the time when I take a bath.

Hadami hanasazu is a common Japanese expression. *Hadami* literally means "skin and body" and *hanasazu* means "don't let it go." This expression is often used when one carries something precious all the time, or keeps it in a very close possession. A male participant of focus group 2 also suggested the preciousness of the mobile device, commenting "It is a tool for killing time, but it's also like an *omamori.*" *Omamori* is a cultural artifact that is often purchased at a Shinto shrine or a temple in wishing good luck for a variety of causes (e.g., health, business, study, marriage, etc.). Although he emphasized the utilitarian aspect of the mobile device such as a tool for contact and information access, he also described that the mobile is like an *omamori* for him. Just like he feels calm and safe if he hangs an *omamori* nearby, he feels calm and safe if he is with his mobile.

This trend is not new but it is noteworthy that a similar trend is still observable even after the ever-developing mobile technology has become so ubiquitous in our everyday life. Furthermore,

---

[1] F indicates female participant and M indicates male participant in the focus group. When more than one female and male participants appear in the given quote, numbering system such as F1 and F2 was used to indicate the range of ideas expressed by different participants.

what is interesting is how their mobile device accompanies mundane movements from one place to another even though they do not exert much effort of remembering to carry it. For example, when the moderator asked if they carry their own mobile device to go to a different room within their house, the focus group 1 participants all said no at first. Then, the following conversion took place:

> F: Come to think of it, I might do that.
> M: I might put it on my pocket and go downstairs.
> F: I might keep it nearby, like in the living room.

This conversation suggests that they do not necessarily pay attention to whether they carry their mobile device, but instead, their movement from one location to another with their mobile devices, despite the proximity between the two locations, seem to *just happen*. In fact, a female participant from focus group 2 reported that she sometimes takes her mobile device "without realizing it." This sense of "come to think of it" implies how closely the mobile device has been incorporated not only into everyday life but also into their minute location movements.

As this sense of "always with" is a default for these participants, they appear to lose balance when their mobile device is not with them. For example, the following conversation took place during the focus group 1 session:

> F1: When I accidentally leave my mobile at home, I go back home to get it.
> F2: Really?
> M: Yeah, I get extremely anxious. If I left my mobile at home, I will be extremely anxious at work, so I might go back home in the middle of the day.
> Moderator: You might go home to get it?
> M: Yeah.
> F2: Somehow, all day long, somehow, feel blue (if I left my mobile at home).
> M: Depressing.
> F2: Not sure if feeling blue is a right word, but…
> M: I think that I have to go home early on that day.
> (All agree)

Then, they all laughed saying that they usually do not receive any *meiru* (*keitai* email)[2] or phone calls on such an occasion, but admit that they cannot help worrying about their mobile. It is particularly noteworthy that they explain how their emotional states fluctuate depending on the presence of the mobile device. The following example from focus group 3 also indicates how the state of "always with" their mobile device is a default for them:

> F: I am at a loss when I don't have it. If I accidentally left my mobile at home, I feel uneasy all day long. I can't focus, worrying if some important *meiru* is waiting for me. The mobile gets too much of my attention.
> Moderator: Like, "I don't have my mobile!" all day long?
> F: Always, start looking for it like, "where is it?" And then, realize once again that I left it at home.

It is notable that she said that the mobile gets too much of her attention when it is *not* right there with her. In the same way that they do not pay much attention to the presence of, say, a right hand,

---

2 For explanations for *meiru* (*keitai* email) and SMS, please see Matsuda (2005), p. 35.

they do not make a special note on the presence of their mobile if it is with them. "Always with" is indeed a norm for these participants. For them, the mobile device presence is so paramount that it has developed into a natural part of their own presence, and by extension, a natural part of their own body.

This metaphor of the mobile as an extension or a part of the human body appears to be even more clearly and directly pronounced for some people in Japan these days. It is hard not to notice the way many people in public places are walking around with their mobile device in hand, looking as if their device is extending their hand.[3] Indeed, some of the focus group interview participants reported that they often find themselves walking around with their mobile device in hand. For example, a female participant from focus group 2 stated, "I am often holding my mobile in my hand. Always." She showed me how she always preciously holds her two mobiles in her right hand. Others said they sometimes walk with their mobile in their hand after using it in the train, or when they are waiting for someone to contact. The following conversation from focus group 3 serves as an additional example:

> Moderator: Do you walk around with your mobile in your hand?
> All F: Ah, yeah!
> Moderator: Is it for a particular time, or you just find yourself walking around with your mobile in your hand?
> F1: I just find myself walking with my mobile in my hand.
> F2: When I am expecting a contact.
> […]
> Moderator: Do you carry it in your hand?
> F3: Yeah, I carry it in my hand. Perhaps, that's my most typical way of carrying my mobile.

When she made this comment, others expressed a little surprise in a teasing manner. She explained that it is because her mobile decorations tend to get caught with other items in her bag when she takes her mobile out. However, this account sounded like her excuse to accommodate her peers' teasing comment.

On the other hand, a sizable number of participants reported that they do not feel particularly attached to their mobile device. A male college student from focus group 2 said that he does not bother carrying his mobile when he goes to a nearby convenience store. He reported that he keeps his mobile at the entrance hall once he returns home where he lives with his family, indicating that he keeps a distance from the mobile when he is at home.

A female college student from focus group 3 made the following comment after other participants reported how they carry their mobile device everywhere:

> I think that I am not that attached to my mobile. Without it … it will be inconvenient if I don't have it when I have a plan to meet someone, but if I don't have a plan, I tend to be ok without it. I just think, what I'm going to do from now (laugh). I feel it's ok without it.

Another female college student from a different focus group (FGI 2) made a similar comment:

---

[3] Based on informal yet informed observations in Tokyo in summer 2012, the trend of walking around with their mobile in hand seems to be still quite prevalent. With the increasing dissemination of smart phones, however, how they look with their mobile in hand in public places seems to be changing. Since the smart phones that are currently available tend to fit in the hand, walking around with their mobile device in hand does not seem to create a visible impression of extending their hand like the way the "Galapagos *keitai*" do.

I sometimes accidentally leave my mobile at home. At first, I think, oh no, what I'm going to do, and particularly when I have a plan to meet with my friend in the evening, I feel like "what I'm going to do!" but then, on the day I don't have any particular plan, I just go home wondering if there is any *meiru* while I was away. So I don't get anxious at all.

In addition to the two examples above, none of the focus group 4 participants (male graduate students) said that they use their mobile all the time. The actual number of the *meiru* they exchanged does not necessarily seem to be less than other FGI participants. For example, one of the participants reported that they exchange 5-10 messages per day. What is noticeable is that they all emphasized how much they use the computer. One of the participants said that he uses his mobile device to forward messages from his computer. This significant presence of a computer might be a reason why they did not express the sense of "always together" with their mobile in the way that many participants from other focus groups expressed. These participants also live in a more suburban area where they live very close to their university. This living environment might also contribute to the different sentiment that they expressed compared to those living in an urban environment.

As is shown, the overall data indicated that the participants' experiences of feeling attached to their mobile device range on the continuum of attachment between high and low, and this range of attachment does not necessarily come from the frequency of *meiru* exchanges and phone calls. When all focus group 1 participants agreed that they "always" use their mobile for *meiru*, the moderator asked about how many *meiru* they exchange per day:

F1: Depends on the day. When I have an appointment like this, I exchange 10-20 *meiru* per day, but when I don't have an appointment, sometimes, it's like one or two *meiru*.
F2: I never reach 20.
F1: Perhaps 20 is an exaggeration, maybe.
F2: About 10.
F1: Maybe about 10. Then, I might not be using my mobile that much.

This suggests that the mobile device has quite a significant presence in their everyday life regardless of the frequency of exchanging *meiru* for these participants. The number of *meiru* that they exchange is not so different from the number of *meiru* that the aforementioned focus group 4 participants reported. It is noteworthy that the focus group 1 participants felt like they are always using the mobile device, while the focus group 4 participants felt that they are much more detached from the device. This distinction shows that there is a different degree of mobile device presence that one feels, and the degree of the presence does not necessarily correspond to the frequency of the interpersonal contact one has with the device. There seem to be different factors that can explain the varied levels of perceived attachment.

In discussing the frequency of mobile device use, a female participant from focus group 2 stated, "Well…whenever I have free moment….looking at it (her mobile device)." What she is "looking at" is websites such as some blog pages and pages on the Japanese social networking site called *Mixi*. When asked to elaborate what she means by the "free moment," she said, "*Chotto shita toki*," which can be roughly translated into "little random moments." This captures the sense of how the mobile is always right by her, whenever she is, whatever she is doing. This also shows the significant presence it has in her everyday life. This physical proximity that one feels for his/her own device might be a potential factor that leads to a higher degree of emotional attachment, leading to the melding between the mobile device and the self. In discussing the case of mobile use in Japan, Fujimoto (2005) states that "as gadgetlike media with audiovisual dimensions become more

prominent, one outcome is that our experiences with and relationships to objects become more intimate" (p. 91). The present data offer a support for this point.

MELDING WITH RELATIONAL PARTNERS

There was a range of responses in terms of the experienced nature of the relationship between the participants and their mobile device. An essential concept that captures the nature of the relationship appears to be the control and the uneasiness that emerges when the relationship becomes out of control.

A number of focus group participants reported an uneasy relationship with their mobile device. This trend was particularly noticeable among the focus group 3 participants. They discussed how they sometimes receive late night calls, and this can be quite troublesome. Particularly among female students, they seem to call each other when they are worrying about something, or when they cannot sleep.

> F1: Yeah, phone call right before midnight!
> Others: Yeah, right before midnight!
> F2: I was going to sleep, but I somehow answered…
> Moderator: You can't help answering?
> All: No, (I) can't help.

This shows a difficult relationship that these participants have with their mobile device because the mobile gets them involved in their friend's personal troubles when they are in a rather peaceful state. Such troubles that the mobile device brings in to their life appears to be translated into an uneasy relationship that they experience with their device itself.

Not only does the mobile bring their friend's personal problems into their life at an inconvenient moment, it also brings some complications to their own relationships at random moments.

> Moderator: Is the mobile important to you?
> F1: Yes, in its own way. (laugh)
> F2: I wish it's gone.
> F1: Yeah, I wish it's gone too.
> Moderator: You wish it's gone?
> M: I might have thought in the way too, maybe once. (laugh)
> Moderator: Only once?
> M: It might be better once it disappears (from my life). I feel it's controlling me.
> All: Yeah, controlling me.
> F3: There are some moments that I feel like breaking my mobile.
> F2: Yeah, often!
> F3: When everything is annoying.
> M: I see.
> F3: So, I turn it off, because I cannot break it. So, I turn it off, and leave it somewhere.
> F2: Yeah, that happens.
> M: If I turn it off….
> F1: Then, nothing comes in.
> Moderator: Have you felt in the way?
> M: Once in a while.

F1: I have done it. […] I was like, sorry for a while….
Moderator: When does it happen?
F1: When I am extremely busy, and receive so many *meiru* from the mailing lists…when everyone is busy, like right before an event…
F2: Also for relationships….
Others: Relationships!
F2: When relationships are complicated, it's like "too much trouble!"
F3: Yeah, too much trouble!
F2: It's like "because there is a mobile!" and like "you should say face to face!"
F3: Like "you should say directly to me!"
Moderator: Something like that happens?
F2: Yeah, we can't see the other person, so *ki wo tsukau*. Also, misunderstandings happen when replies get delayed, and the other person also worries….ahhh troublesome! Things like the timing of replies and so on…
F1: I know what you mean, the timing of replies…
Moderator: So in that kind of cases involving complicated relationships, you turn off your phone?
F2: Yeah.
Moderator: 2 to 3 days?
All: No, can't turn off my phone for 2 to 3 days!
F3: Maybe only that night.
[…]
Moderator: You can ignore your phone without turning off your phone? But you'd rather turn it off?
(brief silence)
F2: Because it flashes… (laugh)
All: It gets my attention. I can't help checking if a meiru comes in.

This lengthy discussion from the focus group 3 suggests the frustration that the participants experience toward their mobile is because it tends to bring relational complications, or at least, it seems to magnify such relational complications. Since the mobile device offers a potential for the perpetual contact (Katz & Aakhus, 2002) and "possible communication" (Campbell, 2008, p. 160), and the participants are quite aware that timing of the contact conveys relational meanings, they feel that they cannot postpone dealing with the relational complications. They are somewhat trapped in inescapable relational complications, leading them to feel a strong urge to cut themselves off from all potential perpetual contact. They wish to control the device so that they can avoid complicated social relationships and their felt social saturation. The only way to control it, according to them, is to turn it off for just a while. Even if the mobile is on silent mode, they appear to feel that they cannot help checking for *meiru*. If they notice that a *meiru* came in, they just cannot avoid paying attention to it. Many Japanese mobile devices flash these days in order to signal incoming contacts, which seems to make it even harder to ignore it.

Turning off their mobile device appears to be the only way to control the device, and consequently, the only way to make it "disappear" from their life. As the conversation above suggests, turning off their mobile is an extremely difficult thing to do because the mobile device serves as the social blood vein for them (Sugiyama, 2009). However, they experience the intense frustrations toward their mobile device to the extent that they feel like breaking it. Therefore, they have to oscillate between the anxiety of being cut off from their perpetual contact and the strong desire for controlling the device so that they can regain a balanced relationship with their mobile.

This can be analyzed through the theoretical lens of the relational dialectics that considers social life as "a process of contradictory discourses" of the centripetal (discourses of unity) and the centrifugal (discourses of dispersion) (Baxter, 2004, p. 182). Just like the way people often experience the competing discourses of centripetal and centrifugal forces with their relational partners, these participants experience such a dialectical tension of connection and autonomy with their mobile device itself.

The focus group 3 participants further commented on their frustrating relationship with their mobile:

> Moderator: What is mobile for you?
> F1: It is troublesome, but something I need.
> […]
> F1: It's troublesome. It makes my life complicated.
> M: Indeed.
> (Others agree)
> F1: Like "you didn't reply to my *meiru*!"
> Others: Yeah!
> F1: Or I am not receiving a reply….making me excited and worry, but without it, I feel anxious. I feel completely separated from the world.
> F2: Yeah, yeah.
> F1: So I feel anxious, but it often makes me worry.
> Moderator: Makes you worry?
> F3: But perhaps, it is a necessity after all. I feel anxious without it.
> M: Yeah, anxious.

This conversation captures the sentiment of seeking to manage the aforementioned dialectical tension with two highly intertwining relationships: with relational partners and with their mobile device itself that can become out of control. Since personal relationships and the mobile devices that make perpetual contact possible are hard to be separated, the dialectical tensions that need to be negotiated heighten the sense that the mobile device is a complicated and troublesome object in which their relational partners and the mobile device meld together, suggesting that the mobile device can be experienced as an animated humanized object. Once the mobile device is entrusted with numerous relational meanings in their mind, such relational meanings start facilitating the personification of the machine, creating the sense that the device itself is a relational partner that poses numerous challenges on their life.

CONCLUSION: FROM MELDING TO *QUASI-SOCIAL ROBOTS*

In observing the patterns of how people explain their everyday experience involving their mobile device, it appears that the level of emotional attachment that one feels towards their mobile device has something to do with the degree of the relational dialectics between the connection and autonomy that they experience. More specifically, those who feel attached to their mobile device seem to experience the need for connection and need for autonomy in a more pronounced way, both in terms of their relationship with others via their mobile device as well as in terms of their relationship with their mobile device itself. That is, one with a higher level of attachment to one's own device needs to continuously negotiate the dialectical tension between seeking for connection and seeking for autonomy, and the movement across the continuum of a relational dialectics tension is greater. This is a process of seeking equilibrium (Sugiyama, 2010b) although a state of equilibrium

is not to be attained since relational dialectics is "ongoing centripetal-centrifugal flux" without a balanced central point (Baxter, p. 186). This intense movement across the continuum triggers the stronger sentiment of uneasiness.

Then, why do some of the people experience more intense relational dialectics than others? In introducing Durkheim, Cladis (2001) points out Durkheim's concern on "multiplicity of ways of organizing and categorizing the world" in diverse societies (p. xxiv). As Durkheim writes, "the categories of human thought are never fixed in a definite form. They are made, unmade, and remade incessantly; they vary according to time and place" (p. 16). The way people make sense of the world is constantly in flux, and as our society become more fragmented at the micro level (Meyrowitz, 2003), our everyday interactions and media experiences at a small group level start to play a critical role in the meaning-making process. Durkheim states, "society needs not only a degree of moral conformity but a minimum of logical conformity as well" (p, 19). Then, we are in constant search, or perhaps, in constant participation of constructing the moral and logical conformity in numerous small groups to which we belong. With the use of a mobile device that allows us to be in perpetual contact (Katz & Aakhus, 2002) within close-knit group members (e.g., Ling, 2008; Sugiyama, 2011) people can feel the stronger need for staying abreast of this meaning-making process. The meanings they create are essential for developing and maintaining their social relationships, and also, constructing their selves. This might be a reason why some of the focus group participants feel that they cannot ignore the phone calls around midnight. If one of their friends needs to talk late at night, they should be available for him/her as a close friend. After all, s/he is relationally close enough to feel comfortable making such a late night phone call. They know that ignoring the call would not be perceived favorably within the agreed-upon framework of meanings among their close-knit group members.

In discussing Durkheim, Ling (2008) points out Durkheim's sentiment that "there was a plasticity regarding the concrete forms used in the ritual" (p. 49). What is important, according to Ling, is not about each steps of rituals, but rather, about the group's awareness of the ritual itself and how mutually understood interaction rituals help develop a sense of unity and cohesion (Ling, p. 49-50). In applying Durkheim to the context of mobile communication, Ling draws our attention to the role of totem in rituals. He points out that the totem is "an object or icon into which the energy of the collective ritual is symbolically invested" (Ling, p. 50) which serves as a symbolic reservoir of shared experiences; but constant contact via mobile communication nullifies the periodic need for co-presence to rejuvenate its symbolic power, obviating the totem in the group. In this way, mobile-mediated interactions become pivotal in creating solidarity and cohesion rather than solely relying on co-present interactions like before. Because mobile-mediated interactions make the internal group bond stronger (Ling, p. 18), conforming to the internally proper rituals is essential for staying in-group. This can give a paramount pressure to be always close to their mobile for those who belongs to a group where "always in contact" is an expected interactive ritual, leading to a more intense level of emotional attachment to the mobile.

The process of developing an emotional attachment to their mobile device can also be analyzed in light of the discussion of social robots. The present analysis offers additional support for the idea about how humans start blurring the distinction between their relational partners and the mobile device that affords the sense of perpetual contact. As Fujimoto (2005) states, the mobile device is more than a tool for young people in Japan, and "it is something that they are highly motivated to animate" (p. 87). And this trend was more pronounced among those who suggested a higher level of emotional attachment to their mobile device and a higher level of proximity to their device. This is indicative of how a mobile device has gone through the process of *anthropomorphization*, turning into a *quasi-social robot*.

Katz (2003) states, "human perception can lead to the feeling that machines have a value, 'mind,' and separate evolution unto themselves" (p. 314). The mobile device is *anthropomorphed* into an almost autonomous entity in the mind of some people. This autonomy at the perceptual level might be a factor that triggers the felt need of control of the device. In discussing the idea of media equation, which is the idea of "media equal real life" (Reeves & Nass, p. 5), Reeves and Nass (1996) state that what *seems* real is more influential than what *is* real. Then, this perceived *anthropomorphization* could play a significant role in their mobile experiences.

Turkle (2012) states that attachment to the technological artefact follows from what they evoke in users, and not from the belief that those objects have intelligence and emotions (p. 20). We feel attached not because we think that they are communicating with us but because it triggers numerous emotions. As Turkle reports, children built "a thou" with sociable robots such as Kismet and Cog from caring, disappointment, and anger, among others (p. 92). Reflecting upon this present Japanese case study, we can see a parallel here: it is not that these people are feeling that their mobile is actually their relational partner. Because of the emotion that it triggers, such as anxiousness, anger, and comfort, they feel as if their mobile is alive, or in Turkle's term, "alive enough" (2011, p. 35), although its appearance and originally intended function are quite different from such sociable robots as Furbie and Aibo. It is not about actually confusing their relational partners and their mobile device, nor confusing their mobile device with one of those sociable robots. Indeed, the boundary blurring for this ubiquitous technology is so subtle and very hard to recognize in everyday use.

The paper also discussed how some experience their own mobile device as a part of their body. This suggests how a mobile device is perceptually incorporated into the body, turning humans into *quasi-social robots*. Because of the physical closeness and emotional immediacy people feel toward their mobile device, the mobile device is perceived as a part of themselves. The enhanced ability to interact, and also, to feel the presence of important others, technologizes us at a more advanced level than the pre-mobile phone era. The prevalence of smart phones is presumably making our body into a hybrid with even more advanced technologies.

Fortunati (2003) argues that the human body "is represented as the emblem of naturalness" within a historically determined concept of naturalness, yet it is indeed "artifice to the maximum degree" (p. 72). Then, how shall we reconsider the technologized human body in relation to the concept of naturalness? When we use a term such as *quasi-social robot*, many of us might have certain negative reactions thinking that we are losing our naturalness. Do we need to resent it if some of us are turning into *quasi-social robot* as a result of their mobile device melding with us? If we experiences electronic emotions with the mobile device melded with us, is it an *unnatural* human experience? The strength of the electronic emotions that some of the people reported seems to suggest that their experienced emotions are no less natural.

If emotion is one of the criteria to distinguish humans from social robots, then, a *quasi-social robot* in this case should not be heavily associated with the autonomous entity with artificial intelligence but without emotions. It is rather a metaphor that conveys the extent to which humans are now equipped with advanced technologies, making us more powerful but also simultaneously more vulnerable. The heightened complexity in the relational dynamics, and the emotions that are triggered and exchanged deserve further investigation to see how their emotional experiences are changing. Detailed examination of the process in which people manage emotions triggered and mediated via their mobile device in the given relational and technological dynamics will foster our understanding of the transcending boundary between humans and the mobile communication device, informing the question of social robots and emotion.

REFERENCES

Baxter, L. A. (2004). A tale of two voices: Relational dialectics theory. *Journal of Family Communication, 4*(3&4), 181-192.

Campbell, S. W. (2008). Mobile technology and the body: Apparatgeist, fashion, and function. In J. E. Katz (Ed.), *Handbook of mobile communication studies* (pp. 153-164). Cambridge, MA: MIT.

Cladis, M S. (2001). Introduction. In E. Durkheim (2001). *The elementary forms of religious life* (C. Cosman trans.), (pp. vii-xxxv). Oxford: Oxford University Press. (Original work published 1912)

Durkheim, E. (2001). *The elementary forms of religious life.* (C. Cosman trans.). Oxford: Oxford University Press. (Original work published 1912)

Fortunati, L. (2003). The human body: Natural and artificial technology. In J. E. Katz (Ed.), *Machines that become us: The social context of personal communication technology* (pp. 71-87). New Brunswick, NJ: Transaction.

Fortunati, L., Katz, J. E., & Riccini, R. (2003). *Mediating the human body: Technology, communication, and fashion.* Mahwah, NJ: Lawrence Erlbaum.

Fortunati, L., & Vincent, J. (2009). Introduction. In J. Vincent, & L. Fortunati (Eds.), *Electronic emotion: The mediation of emotion via information and communication technologies* (pp. 1-31). Oxford; Peter Lang.

Fujimoto, K. (2005). The third stage paradigm: Territory machines from the girls' pager revolution to mobile aesthetics. In M. Ito, D. Okabe, & M. Matsuda (Eds.), *Personal, portable, pedestrian: Mobile phones in Japanese life* (pp. 77-101). Cambridge, MA: MIT.

Katz, J. E., & Aakhus, M. (2002). *Perpetual contact: Mobile communication, private talk, public performance.* Cambridge: Cambridge University Press.

Katz, J. E. (2003). *Machines that become us: The social context of personal communication technology.* New Brunswick, NJ: Transaction.

Katz, J. E., & Sugiyama, S. (2006). Mobile phones as fashion statements: Evidence from student surveys in the US and Japan. *New Media and Society, 8*(2), 367-383.

Lebra, T. S. (1976). *Japanese patterns of behavior.* Honolulu, HI: University Press of Hawaii.

Lindlof, T. R. (1995). *Qualitative communication research methods.* Thousand Oaks, CA: Sage.

Ling, R. (2003). Fashion and vulgarity in the adoption of the mobile telephone among teens in Norway. In L. Fortunati, J. E. Katz, & R. Riccini (Eds.), *Mediating the human body: Technology, communication, and fashion* (pp. 93-102). Mahwah, NJ: Lawrence Erlbaum.

Ling, R. (2008). *New tech, new ties: How mobile communication is reshaping social cohesion.* Cambridge, MA: MIT.

Ling, R., & Yttri, B. (2002). Hyper-coordination via mobile phones in Norway. In J. E. Katz, & M. Aakhus (Eds.), *Perpetual contact: Mobile communication, private talk, public performance* (pp. 139-169). Cambridge: Cambridge University Press.

Matsuda, M. (2005). Discourses of *keitai* in Japan. In M. Ito, D. Okabe, & M. Matsuda (Eds.), *Personal, portable, pedestrian: Mobile phones in Japanese life* (pp. 19-39). Cambridge, MA: MIT.

Meyrowitz, J. (2003). Global nomads in the digital veldt. In K. Nyiri (Ed.), *Mobile democracy: Essays on society, self and politics* (pp. 91-102). Vienna: Passagen Verlag.

Oksman, V., & Rautiainen, P. (2003a). "Perhaps it is a body part": How the mobile phone became an organic part of the everyday lives of Finnish children and teenagers. In J. E. Katz (Ed.), *Machines that become us: The social context of personal communication technology* (pp. 201-217). New Brunswick, NJ: Transaction.

Oksman, V., & Rautiainen, P. (2003b). Extension of the hand: Children's and teenagers' relationship

with the mobile phone in Finland. In L. Fortunati, J. E. Katz, & R. Riccini (Eds.), *Mediating the human body: Technology, communication, and fashion* (pp. 103-111). Mahwah, NJ: Lawrence Erlbaum.

Reeves, B., & Nass, C. (1996). *The Media equation: How people treat computers, television, and new media like real people and places.* New York: Cambridge University Press.

Strauss, A., & Corbin, J. (1998). *Basics of qualitative research: Grounded theory procedures and techniques.* Newbury Park, CA: Sage.

Sugiyama, S. (2006). Fashioning the self: Symbolic meanings of the mobile phone for youths in Japan. (Doctoral Dissertation, Rutgers, The State University of New Jersey, 2006). AAT3240282.

Sugiyama, S. (2009). The decorated mobile phone and emotional attachment for Japanese youths. In J. Vincent, & L. Fortunati (Eds.), *Electronic emotion: The mediation of emotion via information and communication technologies* (pp. 85-103). Oxford: Peter Lang.

Sugiyama, S. (2010a). Fashion and the mobile phone: A study of symbolic meanings of mobile phone for college-age young people across cultures. J. R. Hoflich, G. F. Kircher, C. Linke, & I. Schlote (Eds.), *Mobile media and the change of everyday life* (pp.171-190). Berlin: Peter Lang.

Sugiyama, S. (2010b). Seeking equilibrium: A study of how college students with diverse cultural backgrounds experience mobile communication in everyday life. *Encyclopaideia: Journal of Phenomenology and Education, 27*(2), 133-154.

Sugiyama, S. (2011). Interpersonal communication beyond geographical constraints: A case of college students who maintain geographically dispersed relationships. In R. Ling, & S. W. Campbell (Eds.), *Mobile communication: Bringing us together or tearing us apart? (The mobile communication research series, vol. II)* (pp. 271-292). New Brunswick, NJ: Transaction.

Turkle, S. (2011). *Alone together: Why we expect more from technology and less from each other.* New York: Basic Books.

Vincent, J. (2003). Emotion and mobile phones. In K. Nyiri (Ed.), *Mobile democracy: Essays on society, self and politics* (pp. 215-224). Vienna: Passagen Verlag.

Vincent, J. (2009). Emotion, my mobile, my identity. In J. Vincent, & L. Fortunati (Eds.), *Electronic emotion: The mediation of emotion via information and communication technologies* (pp. 187-206). Oxford: Peter Lang.

Zhao, S. (2006). Humanoid social robots as a medium of communication. *New Media and Society, 8*(3), 401-419.

BIOGRAPHY

Satomi Sugiyama is associate professor of Communication and Media Studies at Franklin College Switzerland. She has been conducting research on the way young people perceive and use mobile communication technologies in various cultural contexts, particularly in Japan. She completed her Ph.D. in Communication at Rutgers University in 2006. She was awarded MacArthur and National Endowment for the Humanities pre-doctoral fellowships at Colgate University. She has organized an international exploratory workshop on social robots and emotion upon receiving a grant from the Swiss National Science Foundation in 2011, and is currently examining the boundary between humans and mobile technologies.