

# Examining the Adverse Effects of Mobile Phone Use among Japanese Adolescents

By Kenichi ISHII\*

## Summary

Mobile phones have become an essential part of the daily lives of teenagers in recent times. There are growing concerns among many Japanese people, including policy makers and the press, about the adverse effects of mobile phone use on adolescents. For example, the National Policy Agency (NPA) indicated the association between mobile phone use and juvenile delinquency. This study focuses on how use patterns and motivations are associated with the negative effects of mobile phones on the basis of a survey of junior high school students aged 14 years in Tokyo (N = 311). The factor analysis of motivations yields two factors, namely, emotionality and instrumentality. The first factor, emotionality, is significantly correlated with the frequency of mobile e-mailing and delinquency score. However, despite the significant and positive correlation between the delinquency score and frequency of mobile e-mailing, the effect of mobile e-mailing on delinquency and school grades is not significant when controlling for the motivation factors. These results show that the adverse effects of mobile phones are not supported.

## Introduction

Mobile phones have become an almost essential part of daily life since their rapid growth in popularity in the late 1990s. A nationwide survey conducted in 2007 shows that mobile phones are the most necessary medium of communication for adolescents. When respondents were asked about the medium of communication that they regarded as a necessity, 40.0% of those aged 13 to 18 years chose mobile phones, while 22.9% chose TVs and 10.3% chose PCs (Nibin, Shiraishi, & Terai, 2008). According to a nationwide survey conducted in 2006 (Director General for Policies on Cohesive Society, 2007), 27.3% of primary school students (aged 10 to 12 years), 53.4% of middle high school students (aged 13 to 15 years), and 95.2% of high school students (aged 16 to 18) owned a mobile phone.

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With the rising popularity of mobile phones among teenagers, there are growing concerns among many adults about the adverse effects of mobile phones. The Asahi, one of the major newspapers in Japan, highlighted the risks of mobile phone use:

Every year, about 1,000 children get involved in rape and other crimes through dating service sites. Violent and obscene images are only a couple of clicks away. On *gakko ura saito*, or the so-called unofficial school websites where kids can post whatever they want, anyone can fall victim to brutal “verbal mob lynching” by their peers. (Editorial, Asahi Shimbun, June 5, 2008)

Japan’s Prime Minister Yasuo Fukuda commented in April 2008, “I can’t think of one good reason for (letting youngsters) have a mobile phone. Malevolent adults take advantage of the widespread use of the mobile phone among children. Mobile phones are harmful for children who study social relations and are not useful for educational purposes.” The government is considering shielding the youth from harmful information on websites and cyber bullying. Some policy makers even seek to enact a law regulating the use of mobile phones among primary and middle high school students (Asahi Shimbun, July 12, 2008). Such criticism is widely supported by the general public. According to a survey conducted among the readers of the Asahi in July 2008, 60% of the respondents agreed with the prohibition of mobile phone use by primary and middle high school students. In 2009, the Japanese government set guidelines for banning mobile phone use in primary and junior high schools. As of 2009, 94% of primary schools and 99% of junior high schools have banned mobile phones.

Japan’s National Police Agency published a report on the use of mobile phones and juvenile delinquents (Juvenile Division, National Police Agency, 2004). According to this report, juvenile delinquents used mobile phones more frequently than non-delinquent students, and delinquent tendencies and frequency of using mobile phones are significantly and positively correlated even among non-delinquent students. This correlation suggests that mobile phone use could result in a very serious problem. However, despite growing criticism of using mobile phones by adolescents, only a few studies have examined the effect of using mobile phones on delinquent tendencies on the basis of scientific data.

### *Mobility and Social Interaction*

Mobility is a new paradigm that outlines the vision of communication media today (Ishii, 2006). Katz and Aakhus (2002) used the term “apparatusgeist” to describe the development of personal communication technologies in our society. According to them, mobility has become one of the most important aspects of the contemporary medium. Paradoxically, if “mobile” media means an instrument that accompanies physical travel, the mobile phone is not very mobile. In fact, a time

diary survey shows that users send text messages via mobile phones most often (56%) when they are at home (Ishii, 2004).

Contextual mobility is a key to understanding the social consequences of the introduction of the mobile phone into our society (Kakihara & Sorensen, 2002; Ishii, 2006). Context is one of the most important factors accounting for interpersonal behaviors. In face-to-face interactions among people, communicators need to conform to contextual aspects, which continuously reframe their interaction, including people's cultural background, specific situation or mood, and mutual recognition. Mobile media enables relatively free communication in specific contexts. For example, mobile phones enable adolescents to communicate with others without feeling constrained in the presence of their family.

Erving Goffman developed a theory of social interaction processes, the so-called dramaturgical model (Goffman, 1973). People may or may not do things while sustaining their performance before an audience. In order to sustain the projected image of the self as a performer, people try to exclude those persons from the audience, who see them giving an inconsistent presentation when backstage. For example, if one uses a wired phone at home or in the workplace, it will sometimes be difficult to ensure privacy from family members or colleagues. Since wired phones are mostly shared with family members at home, their use is closely linked with the familial context. Evidence from many studies worldwide reveals that one of the most common reasons that the youth use mobile phones is to feel liberated from the grasp of their family. For example, U.S. college students used mobile phones to maintain or manage privacy, but they also use them to keep in touch with their parents (Aoki & Downes, 2003). In Japan, mobile phones are recognized as a technology that gives people a sense of freedom from their family, especially among teenagers (Ishii, 2006).

Japanese mobile phone users are characterized by their frequent use of mobile e-mail services (or text messaging) (Ishii & Wu, 2006). However, only a few studies have attempted to answer why Japanese users prefer mobile e-mailing over voice calling. Ishii (2006) examined how mobile communications are associated with interpersonal relationships in daily life. On the basis of a nationwide survey, he compared the landline phone, mobile voice-phone, mobile mail (mobile e-mailing), and PC e-mail to assess their usage in terms of social network and psychological factors. The results indicated that young, non-family-related pairs of friends living close to each other with frequent face-to-face contact were more likely to use mobile media. According to Ishii (2006), social skill levels are negatively correlated with a relative preference for mobile mail in comparison with that for mobile voice-phone. These findings suggest that mobile mail is advantageous to young Japanese people who tend to avoid direct communication and that it maintains existing bonds rather than creating new ones. Furthermore, a U.K. study shows a similar result: lonely participants preferred making voice calls and rated texting as a less intimate

method of contact, whereas anxious participants preferred texting and rated it as a superior medium for expressive and intimate contact (Reid & Reid, 2007). Previous studies have documented that the use of mobile phones in Japan, especially mobile e-mailing, is associated with the frequency of activities with friends (Ishii, 2006).

### *Adverse Effects of Mobile Phones*

A number of studies have examined the effects of mobile phone dependency among adolescents in Japan. Igarashi and his colleagues (2008) showed that text message dependency does not lead to psychological/behavioral symptoms. Kamibeppu & Sugiura (2005) revealed that sociable students estimated that their own mobile phone was useful for maintaining friendship. On the other hand, the Japanese government's reports mostly highlight the adverse effects of mobile phones. For example, Osaka prefecture published a report on mobile phone use among school students. The report concluded that (1) heavy users of mobile phones study for a shorter duration than others and (2) heavy users of mobile phones are more likely to become victims of crime. As mentioned above, Japan's NPA reports on juvenile delinquency revealed that delinquent adolescents are more likely to be dependent on mobile phones (Juvenile Division, National Police Agency, 2004).

## Research Purposes and Hypotheses

Why do parents buy mobile phones for children? Matsuda (2008) argued that increasing anxieties about safety lead to the increasing perception that the mobile phone use is useful in order to prevent crimes against children. The uses and gratifications approach has more generally attempted to explain why people use mobile phones. Dimmick, Sikand, & Patterson (1994) indicated three factors of gratifications obtained from the use of household telephones: sociability, reassurance, and instrumentality. Leung & Wei (2000) found that the use of mobile phones comprises seven dimensions: fashion and status, affection and sociability, relaxation, mobility, immediate access, instrumentality, and reassurance. Reid & Reid (2007) identified five factors underlying mobile e-mailing: self-presentation, intimacy, appearances, escapism, and last resort.

### **RQ1: Which factors influence the motivation for mobile phone use?**

Many previous studies have revealed that the use of mobile phones is associated with the frequency of interactions with friends and the degree of independence from the family (Kasesniemi & Rautianinen, 2002; Ishii, 2006). However, most of these studies have not examined the motivations associated with the use of mobile phones. This study attempts to explore how mobile phone use is associated differently with the so-called adverse effects.

**RQ2: How are motivations for mobile phone use associated with the influence of such use?**

In this paper, the following two hypotheses regarding the adverse effects of using mobile phones will be tested:

**H1: The frequency of mobile phone use is positively correlated with delinquent tendencies.**

**H2: The frequency of mobile phone use is negatively correlated with school grades.**

## Method

We selected junior high school students aged 14 years as our research target because many people in Japan are most concerned about the use of mobile phones among this age group. The survey was designed and conducted by a research group headed by Prof. Hashimoto from December 2006 through January 2007. A questionnaire was distributed to the respondents and their mothers by the research company staff and was collected later. The sample was selected by the two-stage random sampling method, whereby 26 areas were selected from the Tokyo metropolitan area in the first stage, and 811 respondents, aged 14 years, residing in these areas were selected in the second stage. From the total of the 811 respondents, 311 (38.3%) completed the questionnaire.

## Measures

**Phone use:** The respondents were questioned about the frequency of their mobile phone use, including voice calls, mobile e-mailing, and SNS (Social Networking Service) and the frequency of using their household phone (fixed phone) for communicating with friends. We constructed measures of monthly frequencies of the usage of each medium from these responses.

**Avoidance of using the household phone:** At home, adolescents can choose either the household phone or their own mobile phone to communicate with friends. In order to measure the avoidance of the household phone (fixed phone), the survey included a statement “I do not call friends via a fixed phone even at home,” which was rated on a four-point Likert scale (1 = not true, 2 = not very true, 3 = slightly true, 4 = true).

**Mobile phone addiction:** Six statements regarding psychological dependence on the mobile phone were rated on a four-point Likert scale (1 = not true, 2 = not very true, 3 = slightly true, 4 = true), including “I feel worried when I forget to carry the mobile phone” (Table 2). The mobile phone addiction score was defined as

the sum of the six items ( $M = 13.2$ ,  $STD = 4.3$ ), and Cronbach's alpha was 0.843.

**Delinquency scale:** Seven statements were included (Table 3) in this scale. The frequency of these statements was rated on a four-point Likert-type scale (4 = often, 3 = sometimes, 2 = rarely, 1 = never). These statements are shown in Table 3. The delinquency score was defined as the sum of these seven items ( $M = 11.0$ ,  $STD = 3.6$ ), and Cronbach's alpha was 0.716.

**Motivations underlying mobile phone use:** The respondents were requested to state whether they use their mobile phone to contact friends, either via voice calls or text messages, for the following eleven purposes (Table 4). These items were rated on a four-point Likert scale (not true = 1, not very true = 2, slightly true = 3, true = 4).

**Demographic factors:** The respondents' mothers were requested to fill in a separate questionnaire that included questions about the mothers' educational levels and family income.

## Results

### *Descriptive Results*

Almost three-fourth (74.9%) of the respondents used a mobile phone during the course of the survey. Among them, 98.7% (almost everyone) used the mobile e-mail services<sup>1</sup> and 74.7% visited websites through their mobile phone. The most-visited websites were those that offered downloads of ringtones (92.5%), wallpapers (52.9%), games (32.8%), and music (42.8%). Only a few mobile phone users (23.1%) accessed websites to communicate with friends (e.g., bulletin board system, chatting, blogs). Table 1 indicates the frequency of the use of the fixed and mobile phones by the respondents for voice calling and mobile e-mailing respectively. This table shows that both female and male adolescents use mobile e-mailing more often than voice calling. Table 2 presents the averages of items related to mobile phone addiction. Only the first item is rated higher than the midpoint (2.5) of the rating; this indicates that most of the respondents do not perceive themselves as mobile phone addicts.

Table 3 shows respondents' reasons for using mobile phones either for voice calls or text messages. For voice calls, "to give an urgent message" was the most common reason (65.7%), followed by "to coordinate a meeting or appointment" (28.3%) and "to inform about a class or student club meeting" (27.3%). For using the text message service, "to coordinate a meeting or appointment" was the most common reason (88.4%), followed by "to inform about a class or student club meeting" (70.8%) and "to tell what happened to me recently" (68.7%). The difference between voice calling and mobile e-mailing denotes that the instrumental

purpose is selected relatively more often for making a voice call, while the consummatory purpose (e.g., talking without a purpose or killing time) is preferred for mobile e-mailing.

Table 1: Frequency of phone use for communicating with friends (per month)

|                             | Male adolescents |        | Female adolescents |        | F value  |
|-----------------------------|------------------|--------|--------------------|--------|----------|
|                             | Mean             | STD    | Mean               | STD    |          |
| Mobile phone (voice call)   | 7.99             | 24.42  | 14.02              | 53.12  | 1.634    |
| Mobile phone (text message) | 226.19           | 494.98 | 451.53             | 730.69 | 10.073** |
| Fixed phone                 | 8.59             | 24.20  | 10.85              | 33.65  | 0.462    |

\*\* p<0.01

Table 2: Descriptive results of mobile phone addiction

|   | Mean | STD  |
|---|------|------|
| I feel worried when I forget to carry the mobile phone                    | 2.67 | 1.05 |
| I sometimes lose sleep because of mobile phone use.                       | 1.86 | 0.90 |
| I sometimes fail to study because of mobile phone use.                    | 2.12 | 0.89 |
| I would feel bored and worried without the mobile phone.                  | 2.43 | 1.03 |
| I easily get irritated when a party does not respond quickly.             | 1.97 | 0.91 |
| I do not want to visit a place where mobile phone service is unavailable. | 2.12 | 0.98 |

Table 3: Delinquent tendencies scale

|   | Mean | STD  |
|---|------|------|
| I did not come back home even after midnight                      | 1.08 | 0.37 |
| I loitered around the convenience store with friends.             | 1.48 | 0.79 |
| I was late for school.  | 1.46 | 0.82 |
| I fell asleep in class.   | 1.89 | 0.95 |
| I littered the street.  | 1.64 | 0.86 |
| I went out for spending leisure time without parents' permission. | 1.68 | 0.98 |
| I loitered around on the way back from school.                    | 1.77 | 0.95 |

*Factors underlying mobile phone use*

In order to explore the structure of motivations underlying mobile phone use, a factor analysis was performed on the items shown in Table 4.<sup>2</sup> Table 5 shows the factor components obtained from the principal component analysis with varimax rotation. Two factors with an eigenvalue greater than one were extracted. The first

Table 4: Percentages of reasons for mobile phone use by adolescents

|    |  | Voice call | Mobile e-mail |
|----|--|------------|---------------|
| 1  | to coordinate a meeting or make an appointment     | 28.3       | 88.4          |
| 2  | to learn what he/she experienced recently          | 10.3       | 68.2          |
| 3  | to share what I experienced recently               | 11.2       | 68.7          |
| 4  | to convey an urgent message                        | 65.7       | 41.2          |
| 5  | to kill time                                       | 3.4        | 70.0          |
| 6  | to contact friends who you do not usually meet     | 9.9        | 63.9          |
| 7  | to share your feelings                             | 15.5       | 50.2          |
| 8  | to distract your mind from loneliness              | 4.7        | 49.8          |
| 9  | to consult about your difficulties                 | 15.0       | 55.4          |
| 10 | to inform about a class or student society meeting | 27.5       | 70.8          |
| 11 | to talk without any purpose                        | 7.7        | 63.9          |

Table 5: Factor analysis of the purposes of using mobile phones: making voice calls or sending text messages

|    |   | Factor 1<br>Emotionality | Factor 2<br>Instrumentality |
|----|---|--------------------------|-----------------------------|
| 1  | to coordinate a meeting or make an appointment  | -0.082                   | 0.833                       |
| 2  | to find out what he/she experienced recently    | 0.636                    | 0.287                       |
| 3  | to share what I experienced recently            | 0.698                    | 0.277                       |
| 4  | to convey an urgent message                     | 0.019                    | 0.800                       |
| 5  | to kill time                                    | 0.767                    | -0.025                      |
| 6  | to contact friends whom you do not usually meet | 0.672                    | 0.082                       |
| 7  | to share your feelings                          | 0.807                    | 0.047                       |
| 8  | to distract your mind from loneliness           | 0.844                    | -0.077                      |
| 9  | to consult about your difficulties              | 0.745                    | 0.045                       |
| 10 | to inform about class or student society        | 0.190                    | 0.610                       |
| 11 | to talk without any purpose                     | 0.750                    | -0.024                      |
|    | % of the variance accounted                     | 40.5                     | 17.1                        |

factor, labeled *emotionality*, reflects mobile phone use for emotional purposes. This factor loads highly on the statements representing consummatory motivations of mobile phone use such as “to share your feelings” and “to distract your mind from loneliness.” The second factor, labeled *instrumentality*, loads highly on the statements representing the instrumental or more purposeful use of mobile phones such as “to coordinate a meeting or make an appointment” and “to convey an urgent message.” The instrumentality factor was also found in a previous study on household phone use (Dimmick, Sikand, & Patterson, 1994). These factors are associated with different patterns of mobile phone use. Table 6 indicates that significant and positive correlations are observed among the frequency of mobile e-mailing, mobile phone addiction, and emotionality (the second factor score of mobile phone motivations). In contrast, the frequency of making a voice call is correlated neither with mobile phone addiction nor with motivation factors. The frequencies of accessing websites on the mobile phone and mobile e-mailing exhibit a similar pattern. The addiction score is positively and significantly correlated with the frequency of mobile e-mailing ( $r = 0.368$ ,  $p < 0.001$ ) and the first factor (emotionality) score ( $r = 0.410$ ,  $p < 0.001$ ).<sup>3</sup>

Table 6: Correlations between mobile phone use and scores of the three dimensions

|                 | Mobile phone use | Mobile phone use | Mobile phone                    | Mobile phone                    | Fixed phone use | Addiction score |
|-----------------|------------------|------------------|---------------------------------|---------------------------------|-----------------|-----------------|
|                 | (voice)          | (mobile e-mail)  | Websites <sup>1</sup> (reading) | Websites <sup>1</sup> (posting) |                 |                 |
| Emotionality    | -0.002           | 0.194**          | 0.158*                          | 0.199*                          | 0.036           | 0.411***        |
| Instrumentality | 0.061            | 0.061            | 0.025                           | 0.026                           | 0.072           | 0.113           |
| Addiction score | 0.048            | 0.293***         | 0.068                           | 0.107                           | 0.096           | -               |

Note 1: Websites for communicating with friends (e.g., blogs, Social Network Service, and BBS)  
; \*  $p < 0.05$ , \*\*  $p < 0.01$ , \*\*\*  $p < 0.001$ .

These results indicate that adolescents use two channels, voice calls and text messages, for different purposes and motivations. Why are these channels associated with different motivations? A plausible explanation is that Japanese adolescents wish to use mobile e-mailing more often than voice calling in order to avoid direct communication with friends (Ishii, 2006). Therefore, they do not usually make a phone call for emotionality motivations. Therefore, if both male and female adolescents are motivated to communicate with friends for an emotional purpose, they are more likely to use the mobile e-mail service rather than make a voice call.

### *Mobile Phone Use and Delinquent Tendencies*

Delinquent tendencies are expected to be affected by demographic factors as well as mobile phone use. Therefore, regression parameters are estimated while controlling for demographic variables such as gender and family income (Table 7). Inconsistent with the findings of the NPA (2004), it was found that the delinquency score is not significantly correlated with the frequency of mobile e-mailing, but it is significantly and positively correlated with mobile phone addiction ( $p = 0.31$ ) and emotionality ( $p = 0.20$ ,  $p < 0.01$ ). The frequency of outings with friends is also significantly correlated with delinquent tendencies. This result suggests that some degree of mobile phone use motivated by emotionality is closely associated with a greater level of delinquent tendencies. Note that these results do not necessarily imply that mobile phone use causes greater delinquency, but that only some problematic use is associated with it. With regard to school grades, only emotionality (factor 1) is significantly correlated with the dependent variable. This result demonstrates that the mobile phone use is not directly associated with low achievement in school. Hence, both H1 and H2 are not supported.

Table 7: Standardized regression parameters predicting delinquent tendencies and school grades

|  | Delinquent tendencies |                      | School grades |                    |
|--|-----------------------|----------------------|---------------|--------------------|
|  | Parameter             | t value              | Parameter     | t value            |
| Frequency of using the fixed phone             | 0.08                  | 1.29                 | -0.12         | -1.63              |
| Frequency of calling through the mobile phone  | 0.02                  | 0.42                 | 0.02          | 0.34               |
| Frequency of mobile e-mailing                  | 0.03                  | 0.40                 | -0.05         | -0.67              |
| Addiction score                                | 0.31                  | 4.82 <sup>***</sup>  | -0.01         | -0.11              |
| Factor 1 (emotionality)                        | 0.20                  | 3.20 <sup>**</sup>   | -0.17         | -2.31 <sup>*</sup> |
| Factor 2 (instrumentality)                     | 0.00                  | -0.08                | 0.07          | 0.95               |
| Number of e-mail addresses in the mobile phone | 0.15                  | 2.51 <sup>*</sup>    | 0.13          | 1.84               |
| Frequency of outings with friends              | 0.21                  | 3.47 <sup>***</sup>  | 0.04          | 0.48               |
| Gender (M = 1, F = 2)                          | -0.20                 | -3.35 <sup>***</sup> | 0.07          | 0.94               |

The frequency of interaction with friends is expected to mediate between delinquent tendencies and the frequency of mobile phone use. Therefore, an additional regression model is estimated (Table 8). The frequency of outings with friends is regressed on the patterns of mobile phone use and demographic variables.

Estimated parameters in the second model demonstrate that male adolescents engage in outings with friends more often than female adolescents, and that the frequency of mobile e-mailing is positively correlated with the frequency of outings with friends. These results indicate that the frequency of outings with friends mediates the relationship between mobile phone use and delinquent tendencies. However, it should be noted that the use of mobile phones only for emotional reasons is significantly correlated with delinquent tendencies. This suggests that the root cause of delinquency is not mobile phones but the emotional problems of users.

Table 8: Standardized regression parameters predicting the frequency of outings with friends

|   | Parameter | t value   |
|---|-----------|-----------|
| Frequency of using the phone for calls    | 0.057     | 0.863     |
| Frequency of using mobile mail services   | 0.247     | 3.624***  |
| Frequency of using the fixed phone        | 0.116     | 1.759     |
| Emotionality (the first factor score)     | 0.100     | 1.508     |
| Instrumentality (the second factor score) | -0.102    | -1.572    |
| Gender (M = 1, F = 2)                     | -0.173    | -2.635*** |
| Family income                             | -0.013    | -0.186    |
| Educational level of the mother           | -0.138    | -1.916    |

An additional result regarding the avoidance of using household phones reveals an interesting aspect of the use of mobile phones among adolescents. The score of avoidance of using household phones is positively and significantly correlated with the delinquency score ( $r = 0.180$ ,  $p < 0.01$ ). The correlation is statistically significant even after controlling for gender, income, and mother's educational level (partial correlation = 0.168,  $p < 0.05$ ). These results suggest that avoidance of using the household phone is associated with some delinquent behaviors probably because students wish to hide such activities from their family. This suggests that some adolescents perceive the use of their own mobile phone as liberation from the grasp of their family.

## Discussions and Conclusions

In Japan, the mobile phone is recognized as the most important medium of communication among adolescents. Internet access via PCs plays only a limited

role among Japanese adolescents, as compared with mobile phones. This study demonstrated that mobile e-mailing holds a very different meaning among adolescents as compared with voice calling by mobile phones. At the same time, the use of the mobile phone held a different meaning from that of its counterpart, the household fixed phone. A regression analysis showed that only the frequency of mobile e-mailing was significantly correlated with interactions with friends. This finding suggested that using mobile phones for e-mailing was perceived as a medium for socializing with friends through liberation from the grasp of the family. This was also evidenced by the result that the delinquency score is positively and significantly correlated with the avoidance of household telephone use.

The factor analysis revealed two factors underlying mobile phone use: emotionality and instrumentality. The first factor, emotionality, was positively correlated with the frequency of mobile e-mailing. The level of addiction of using mobile phones was also positively correlated with frequency of mobile e-mailing and the first factor score. In contrast, instrumentality was not significantly correlated with any item under mobile phone use. A regression analysis also denoted that using the mobile phone only for emotional reasons was associated with delinquent tendencies. Although the results showed that emotionality was associated with perceived addiction and delinquent tendencies, the frequency of using mobile phones was not correlated with delinquent tendencies after controlling for the frequency of interactions with friends.

The critical attitudes toward mobile phone use among the government and the media may be interpreted as *moral panic*. For example, the potential causal role of video game exposure has been extensively studied, although such claims fail to acknowledge the methodological divides between video game research and serious violence (Ferguson 2008). Similarly, many people make the mobile phone a scapegoat for social problems among adolescents, but as far as the delinquent tendencies are concerned, the findings suggest that the problem is not mobile phone use per se. It is true that the use of mobile phones, especially mobile e-mailing, is strongly associated with interaction with friends. However, it should be noted that the mobile phone is only a medium of communication. Let us hope that the policy makers and school teachers *do not throw the baby out with the bathwater*.

## NOTES

1. In this paper, e-mail and SMS (short message service) via mobile phones are collectively called "mobile e-mail." In Japan, it is more common to use the e-mail service of a mobile phone than the SMS (Ishii, 2004).
2. These items were recorded with scores between 0–2 (both voice calling and text messaging = 2, either voice calling or text messaging = 1, and neither = 0).
3. Even after controlling for gender, family income, and mother's education level, the addiction score is positively and significantly correlated with text messaging (partial correlation = 0.274,  $p < 0.001$ ) and the emotionality factor score (partial correlation = 0.418,  $p < 0.001$ ).

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