# Your Smartphone Can Be Well-Mannered: Five Ideas to Improve Smartphone Manners

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Abstract: Despite the numerous advantages of the smartphone, bad manners have become a topic of increased discussion. In this research, we found actual cases of bad manners regarding smartphone usage and investigated the causes of this behavior. We collected 30 Asian participants' episodes of their bad-manner experience of smartphone use through an online-survey. The causes of cases could be grouped into the following categories: 1) Low social acceptability in a specific place, 2) Lack of signifiers of user's behaviors, 3) Misjudgment of the identity of the user by unintentional releasing private information, 4) Mistakes due to unfamiliar interface and technology, and 5) Stereotypes of smartphones toward disconnection concerns. Based on insights, we suggest new concepts for more courteous smartphone usage. These concepts help to bridge the gap between the new and the traditional to enhance the social acceptability of smartphones, allowing the smartphone to provide users with signifiers by extending and displaying status, enabling the user to implement a digital persona and digital ego to prevent misjudgment, and broadcast the user's status from the physical world to the virtual world to resolve disconnection concerns. We propose these concepts to introduce design possibilities for future smartphones in our sophisticated social contexts.

*Key words: Good manners, Smartphone, Social interaction, Interaction design*

## 1. Introduction

According to a survey by the Mobile Government Consortium International in the UK, about 75% of the respondents were of the opinion that a smartphone brought many advantages to their lives. However, about 25% of respondents responded negatively when asked about smartphones and their use. Bad manners and declining common courtesy were considered as the most serious reasons among those people for their negative feelings about smartphones [12]. Users of smartphones have realized that, despite the benefits of the smartphones, these devices can make human interactions impersonal and cause people to become less sociable [6].

Although some studies have focused on current ways to enhance personal emotional values through new interaction styles [1, 11] or on ways to improve task performance levels [7, 8], factors related to social impacts such as manners are less popular topics in the field of HCI. People learn manners through "social signifiers," which include perceived indicators and social signals, when interacting with other social members [14]. Although it is difficult to deliver a social signifier in the virtual world, persuasive technology [4] has a potential in changing attitudes or behaviors of the users through persuasion and social influence in various ways, e.g., as a tool, a form

of media, or a social actor. However, in this paper, we try to provide a natural, subtle, and unconscious guide to users for well-mannered behaviors by using design rather than persuading people to change their behaviors that have already become commonplace in their own lives.

In this study, we aimed to generate new ideas that are applicable to smartphones to prevent impolite usage by solving potential misunderstandings regarding smartphone use that might seems impolite and bad-mannered. We suggest new design directions that can trigger people to consider others and display good manners.

To generate the ideas, we asked 30 Asian users about the use of their smartphones with regard to social misunderstandings among people and actions they considered impolite. We examined why people misunderstood each other when using a smartphone and tried to reduce such misunderstandings by suggesting new smartphone ideas.

## 2. Related Work: Design Cases that Consider Manners

Traditional designers try to provide tips for good manners to users through various design items. Most designer cases related to good manners are related to table manners. For example, the Fun Fam Table Manners Set [5] creates a fun atmosphere for kids while establishing a subtle guide to table manners.

Recently, design cases that consider the manners of mobile phone users have become popular as smartphones have become more widespread. Several application developers have made applications to teach good manners and etiquette in the mobile phone market [2, 20]. However, many manner-supporting applications simply provide the digitalized documents of manner guidelines to users. Another smartphone application, Etiquette Me [3], provides a function to set the start-time and end-time for silent or vibrate mode so that users can conveniently control their phone for a set time. However, more complex social contexts are associated with manners as regards the use of a smartphone that requires more than simply controlling the ringer mode.

To explore mobile phone behavior, IDEO designed the SoMo (Social Mobile) [19]. For example, SoMo1 generates an electric shock when users speak into their mobile phone loudly to offer a design solution to bad manners. Although this concept inspired designers to consider the social impact of mobile phones, it is limited in its practical application since it is used only by willing users.

As exemplified by design cases, both a rich understanding of the social context and applicability to a smartphone are important. Therefore, we have to explore a broader scope of manners in social contexts in an effort to understand the fundamental problems and reasons behind the generation of applicable smartphone ideas. Furthermore, we also need to explore more natural ways of guiding people to behave in a more socially appropriate way with their smartphones instead of forcing them to do so.

In our research, we focus on design strategies for providing socially understandable cues that may help people unconsciously and naturally to use smartphones politely without being forced. To achieve this objective, we first asked 30 Asian smartphone users about their experiences related to impolite smartphone usage through an online survey. After we gathered these related episodes of users, we clustered the episodes based on the types of reasons.

We examined why the bad mannered experiences occurred in the smartphone usage, and we suggested a new design direction for future smartphones. The examples of new design ideas represented the possibility of a future smartphone that can guide people to use their smart devices with in socially appropriate ways by resolving misinterpretable social situations in real usage situations.

# 3. Preliminary Study: Understanding User Experiences with Bad Manners in Product Use

## 3.1 Types of bad manners pertaining to product use

We conducted an interview to explore if there are certain distinctive types of bad manners pertaining to product use. We also wanted to see whether or not different qualities of bad manners could be categorized for different product categories. Products categories are shown in Table 1.

Table 1. Categories and products examples

| Category | | Examples |
|---|---|---|
| Digital Products | IT devices | Smartphone, Digital camera, Mp3 player |
| | Electronic Appliances | Laundry machine, Air conditioner, Telephone |
| Non-digital Products | | Chair, Sofa, Window |

We recruited four users who have experiences on all of the products in Table 1 and let the participants share their impolite usage episodes regarding the use of the aforementioned products. We let the participants freely talk about their experiences with bad manners related to the nine products without time limitation. After the focus group interview, we extracted insights from the interview result regarding the reasons and types of bad manners in using the products (Figure 1).



Figure 1. The scene of Focus Group Interview (left) and the example of the process to find the types of reasons on bad manners pertaining to the product use (right)

## 3.2 Results: Two sources of Bad Manners, Product and User

We found that there are two sources of bad manners. The first one is the product itself (Table 2). For example, if a product has no guarantee of being error-proof and has a complicated interface, people think that it is the source of bad manners. The second source is the user of the product. For instance, a user who speaks loudly on his/her mobile phone in public is regarded to be showing bad manners. The study participants reported that, in the case of electronic appliances and non-digital products, the primary source of the feeling of bad manners was the product itself. Interestingly, when the participants talked about IT devices, they mainly talked about the bad manners of other users and not of the product itself. The participants reported that ill-mannered behavior was

mostly due to people's misunderstanding other's behaviors and not due to poor product-user interaction. There are many studies related to the issue of a product's manners in the field of HCI and HRI [13, 18]. Although the results validated those effective social strategies among people, such as an apology, can be applied directly in product-user interaction, they have limitation to be applied in mobile devices, which are closely interwoven with a social context. Thus, we narrowed down the research scope to bad manners from social misunderstandings, and we targeted the smartphone, as it is a typical example of an IT device.

Table 2. Bad manners and examples of categorized products

| Category | Source of Bad manners | Examples |
|---|---|---|
| IT devices | From the users of the products<br>* Mainly in IT devices | Speaking loudly on their mobile in public |
| Electronic Appliances | By the product<br>(such as a non-user-friendly interface and/or Poor usability)<br>* Mainly in Electronic Appliances and Non-digital Products | No guaranty of error- proof operation and complicated usage of a product or its interface |
| Non-digital Products | | |

## 4. Empirical Study: Episodes of Bad Mannered Smartphone Use

### 4.1 Overview of Empirical Study

We tried to understand the causes of bad manners pertaining to smartphone use. We collected episodes from 30 Asian participants regarding smartphone use. We made an online survey that asked smartphone users to freely describe episodes of their own impolite behaviors or the impolite behavior of other people in smartphone usage. After that, we shared an online survey link on Social Networking Sites and gathered more than 30 participants during one day. Since there were several unfinished responses of the survey, we had to except several survey results. Most of our participants had used their smartphones from 6 to 18 months. After assembling all of the episodes, we clustered episodes based on similar contexts and behaviors of smartphone use. Finally, we categorized the causes of impolite smartphone use into five types from all the collected episodes. The categories are as follows: 1) Low social acceptability in a specific place, 2) Lack of signifiers of user's behaviors, 3) Misjudgment of the identity of the user by unintentional releasing private information, 4) Mistakes due to unfamiliar interface and technology, and 5) Stereotypes of smartphones toward disconnection concerns. We also suggested new possible design implication ideas for a smartphone that can naturally lead to good manners based on the insights of each category.

### 4.2 Results: Five types of Bad Manners and Design Ideas

### Type 1: Low social acceptability of a specific place

*"When I go to church, I have to bring a Bible and hymn notes. They were heavy, so I brought my smart pad a few weeks ago; but my parents saw that and seemed to be really uncomfortable with my smart pad in the holy place." (Male, Age of 26)*

*"In my French class, I just wanted to search for certain words, so I used the dictionary on my smartphone. The lecturer told me to focus on the class. I was actually focused on the class. Maybe he thought I was texting."* (Female, Age of 25)

As shown in the participants' quotes above, we found that people do not welcome the use of smartphones in certain contexts. In particular, smartphones were not welcomed in traditional places, such as religious places and classrooms. For instance, in a church, people have carried their own Bible and hymn note. They take notes on a sermon during preaching, and people dog-ear pages in their own holy book. Through this process, the book itself has not only a value as a religious content book but also shows the owner's sincerity toward the religious service. However, it is hard to express owner's sincerity toward traditional services or work using a smartphone and its digital contents. With various functions combined in one device, users' behaviors were misunderstood as entertainment-seeking, even when they used a function relevant to the context. For this reason, the social acceptability of a specific place caused smartphone users turn off their phones.

**Idea for type 1: Harmony between new and traditional**

We tried to enhance the acceptability of smartphone use in specific social contexts where traditions exist (Figure 2). The new idea of Figure 2 allows users to take notes their thoughts while they are reading their e-Bible. In the same manner, students can use their smartphones as a study aid during the class. Technology provides knowledge and information to the users, regardless of its weight and volume. At the same time, users can digest the provided knowledge and information in traditional ways such as note taking. Through this idea, users can keep their traditional method and utilize new technology at the same time.
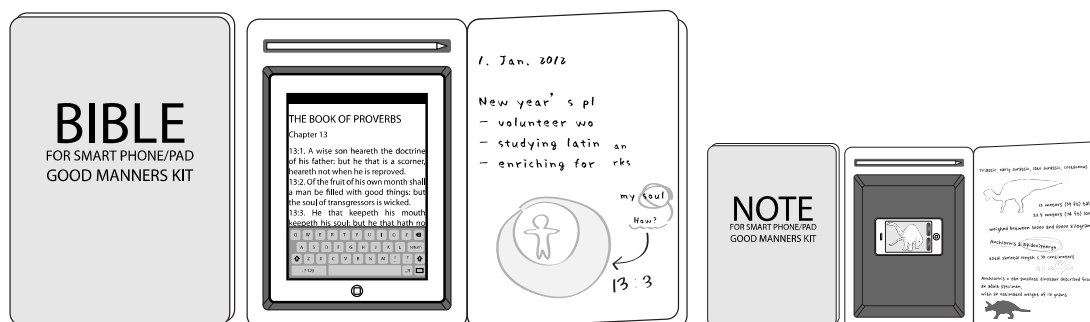


Figure 2. A design concept example of harmony between new and traditional

**Type 2: Lack of signifiers of user's behaviors**

Some functions require users to adopt similar postures when using them, which confuses other people. The most common case of such a misunderstanding was when users were assumed to be using the camera function while they were actually using other functions instead.

*"When I was in the subway, there was a lady in front of me. I was checking my e-mail, but the lady stared at me. Maybe she thought that I was taking a picture of her."* (Male, Age of 24)

Users realizes that the lack of signifiers of their smartphone use so they intentionally tried to express what they were doing.

*"I use my smartphone during meetings for note taking. However, my colleagues thought once that I was not concentrating on the meeting. Therefore, I started to use the smartphone with a blue-tooth keyboard. It appeared more proper for a meeting."* (Female, Age of 31)

People recognize a social situation through 'social signifiers', which provide indicators and signals in a socially meaningful way when interacting with others [14]. Asians users, who tend to live in high context cultures [9], were especially sensitive to the embodiment of skills that are necessary to understand the situation effectively. However, a smartphone cannot deliver precise signifiers to other people on behalf of the user, and this lack of signifiers causes social misunderstandings.

### Idea for type 2: Extending and displaying status for others

We tried to provide a social signifier while also accounting for the formality of the situation. In this idea, we added a small projector to a smartphone in order to announce the user's current usage status (Figure 3). During the meeting, for instance, people will see the user type on the keyboard and record other people's comments. This idea can be seen as an extended concept of the current projection keyboard for mobile devices. Through extending and showing the current working status of a user, other people easily recognize that a user is in the same context with them.
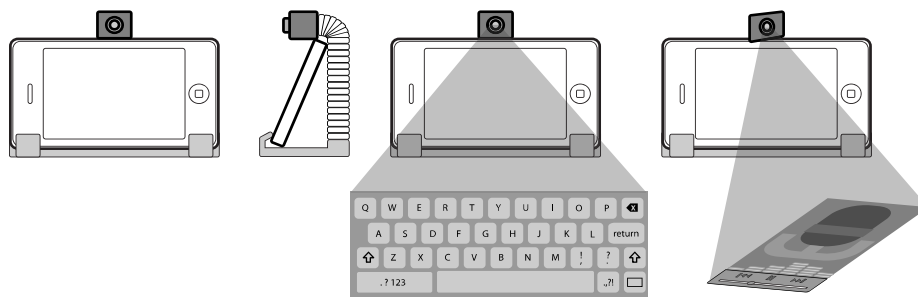


Figure 3. A design concept example of extending and displaying status for others

### Type 3: Misjudgment of the identity of the user by unintentional releasing private information

As the latest models of the smartphones rapidly appear in the market and attract the fascination of users, having the latest model has become an issue among users.

*"I used an old feature phone, and I did not have any problem with it. However, my friends considered me as an 'old school' person. When I changed my phone to a smartphone, mine was the newest one among my friends, and they suddenly thought of me as a follower of new technology."* (Male, Age of 29)

In addition to having the latest smartphone or decorating the smartphone with accessories, using certain applications or mobile content can also have a great deal of social meaning to users. Furthermore, the combination of installed applications and saved digital contents show the owner's identity, but this can sometimes be misjudged by other people.

*"I accidently downloaded a cruel shooting game application. I knew that the game (program) existed in my mobile, but I did not delete it because I just did not care about it. One day, my classmate saw the installed game, and he was pretty surprised. He had thought I was quite feminine."* (Female, Age of 24)

*"I was surfing on the Internet with my smartphone in the cafe. As my girlfriend appeared, I disconnected the Internet from my phone. Unfortunately, I didn't close the pop-up ads when closing my navigators. The ads were kind of racy, and she saw that when she used my Internet. There was an awkward silence between us. My face burned with shame. I felt betrayed by my smartphone." (Male, Age of 20)*

As people are curating larger and more diverse collections of digital contents these days, they feel this virtual data, such as software and digital files, that they create or amass to be their own possessions [16]. They also think that those virtual possessions represent their identities [15].

### Idea for type 3: Applying digital persona and digital ego

We considered that the contents of a smartphone express its owner's persona. In psychology, persona is the social face the individual presents to the world. It works as a mask designed to conceal the true nature of the individual but to make certain impressions upon other people [10]. The digital contents of smartphones, a representation of virtual possessions these days, have a value as an extension of the owners themselves. Therefore, we tried to show a proper persona of a smartphone user to others and to maintain the self, the conscious personal state, and ego [10] of the smartphone user. Our design idea shows that a user displays CNN and BBC applications in the persona state of the smartphone (Figure 3). In the persona mode, the user can show his/her applications and digital files to other people. If the user worries about the unintentional release of private information, the user can change the smartphone mode to ego mode. The user can practice state-of-the-art DJ-ing through such an application when s/he inputs a secret touch code.
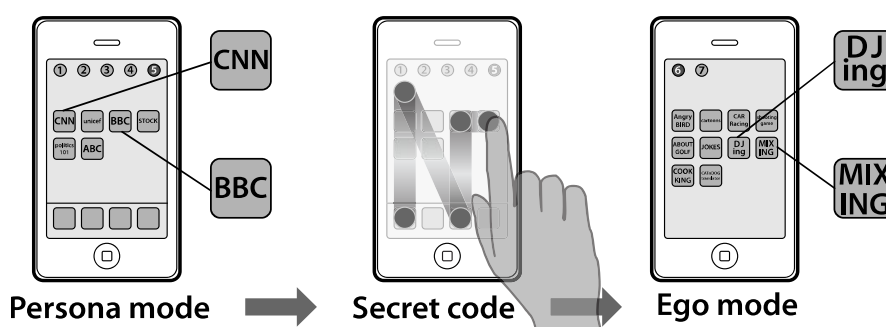


Figure 3. A design concept example of applying digital persona and digital ego

### Type 4: Mistakes due to unfamiliar interface and technology

The participants reported that when they were in the novice stage of smartphone use, they often made mistakes while trying to use the sophisticated functions and controls of their smartphone. In particular, the touch interface was not only unfamiliar but also extremely sensitive to new users' touch. Therefore, they often call the wrong person. Moreover, they carried their smartphones constantly, sometimes causing the touch interface to make a call from their pocket, a behavior commonly known as "pocket dialing."

*"When I was calling my boyfriend, my cheek touched the screen and the call ended. We were in the middle of a small argument, so he thought I was pretty upset." (Female, Age of 23)*

*"The spell checker changes my words all the time. It usually just makes the sentence meaningless, but it can also change the meaning!" (Male, Age of 27)*

*"My kids like to play with my smartphone. One day they tried to watch some cartoons but they accidently called my boss. They clicked the end call icon all in a fluster, but they had to drag the icon. Unfortunately, kids did not know that. My boss finally answered the phone, and my kids only made panic noises." (Female, Age of 42)*

Even a simple function, such as an auto correction function, that is supposed to help users cannot assist users in actual use situations. Such a function would assist a user if the user has enough time to check the results of auto correction function. However, in the real use situation, users hardly care to recheck the result, but they trust the autocorrect feature because it shortens the typing time and is convenient to use. In the same vein, a new but unfamiliar interface does not create a problem if a user has enough time to think and understand the interface. Problems occur sometimes in sudden and abnormal situations. What we found interesting is that users treat their smartphones as a social actor, not a tool. For that reason, people blame to their smartphone. Thus, we suggest a responsible smartphone that tries to cover its owner's faults.

### Idea for type 4: A responsible smartphone for its owner

Because people need time to learn a new technology, we tried to protect the owners of the smartphones from beginner's mistakes. The most common mistakes that eventually lead our participants to bad manners were auto-correction and pocket dials. We noted that the users blamed the phone if users made an auto-correction mistake while texting. In the same manner, we thought the smartphone would appear well designed and that the other party would be less annoyed if the smartphone noticed its owner's faults and apologized to them (Figure 4).
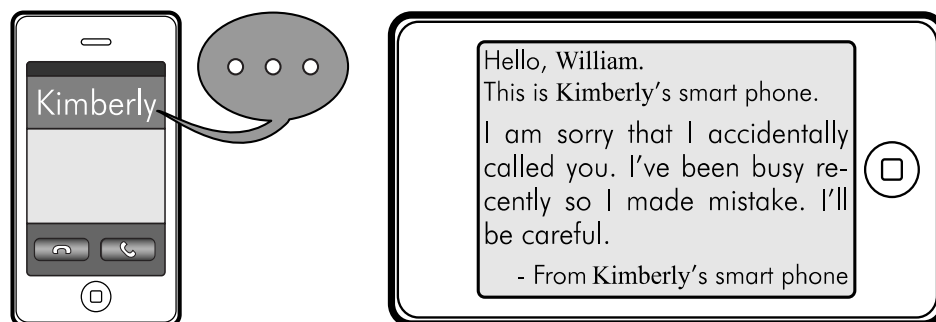


Figure 4. A design concept example of a responsible smartphone for its owner

### Type 5: Stereotypes of smartphones toward Disconnection concerns

Smartphone addiction has become a serious social phenomenon. According to a report from the media competition regulator Ofcom [17], the vast majority of smartphone users in the UK (81%) never turn off their mobile phones. When they asked about the use of these devices, 37% of adults and 60% of users in their teens said that they were "highly addicted." We found that this social phenomenon was also reflected in our survey.

*"After my friends and I bought smartphones, sometimes we sent phone messages to each other even though we were in the same space. I only can hear the typing sound. We are together but not together." (Male, Age of 27)*

However, several participants reported that these social concerns about smartphone obsession and disconnection cause other people to misunderstand them. Social concerns about the smartphone cause several users to frequently be considered rude and ill-mannered unintentionally.

*"I was waiting for important admission e-mail from my school, but I had to go to my friend's party. There, I checked my e-mail frequently. One of my friends said that this behavior was anti-social. Usually, I switch off my mobile at a party, and I am social!" (Male, Age of 25)*

Even using a smartphone does not mean that someone is antisocial, as various social phenomena induce negative feelings toward smartphone use, especially in physical social contexts. We think that the role of design and technology is not to solve social problems directly but should provide the opportunity for people to think and reflect about the problem. Thus, our goal is not to change the user's behavior but to give awareness to users about good manners and appropriate social codes of smartphone use.

### Idea for type 5: Broadcasting status from the physical world to the virtual world

Mobile phones are a mediation device that is used between a physical space and a virtual space [6]. According to the psychologist Turkle [21], people need smartphones for purely practical reasons but people's emotional attachment to their smartphones is way out of proportion to daily needs. Thus, people lose the balance between the world of the smartphone and the world they live in. To have the benefits of various functions in the virtual space and to live in the physical world with others, we created a timer for broadcasting the user's possible communication and attention statuses. Using our concept, a user can set his/her time for the virtual world. If the timer shows a certain amount of time, other people understand that the user is not available in the physical world. After a certain time, the user comes back to the physical world (Figure 5).
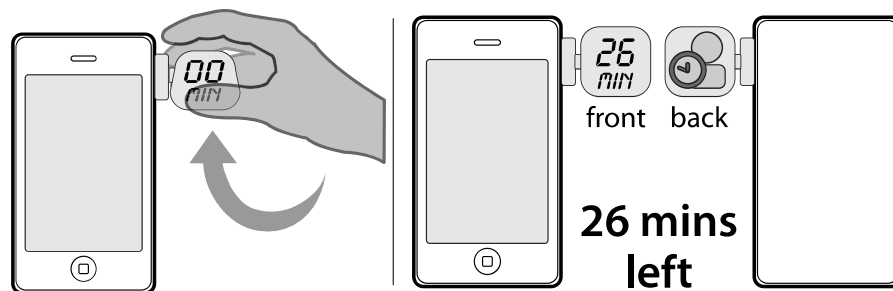


Figure 5. A design concept example of broadcasting status from the physical world to the virtual world

## 5. Discussion on Designing Smart Devices with Social Considerations

Through exploring the impolite usage of smartphone users and suggesting new design concepts for socially appropriate future smartphones, we found several interesting insights and design concerns for manner-specific contexts. Our findings on the episodes of bad manners in smartphone use show that manners play significant roles in the smartphone usage. The findings of this study raised a range of design considerations when designing new smart products and related services.

### 5.1 Multi-functional Devices and Social Signifiers

According to Norman [14], a user's behavior with a product influences other people who observe the user and provides them with social cues. For instance, when we see a person who wears headphones, we automatically know that it is hard to communicate with that person. Many products reveal the user's status in using the product, as in the headphone case. However, in the case of smart devices, it is difficult to get a sense of a user's cues as to his/her current status, subsequent activity, and whether or not the user welcomes the other person's intervention

during the product use. Smart devices like a smartphones provide various functions in one device. For this reason, users' behaviors were misunderstood as entertainment-seeking, even when they used a function relevant to the context. Therefore, in the context where traditions are strongly involved, it is important to have visible signifiers that show user's behaviors regarding the use of smart devices to other people who are in the same context. Design solutions that help other people to understand a user's behavior regarding the usage of smart devices are necessary and these solutions can be represented in many ways. For example, the current status of a user regarding smartphone use can be delivered though the modality, interface, quality of interaction, and other devices. Smartphones could reduce socially misinterpretable situations by providing other people with a signifier that the user's behavior is not entertainment-seeking but relevant to the context.

## 5.2 Digital Materiality and Physical Materiality

Through the iterative interaction between the product and the user, there are several accumulated changes. Those accumulated changes of the product manifest as faded color, deformed shape, smells, textures, and other evidence that enables us to surmise the duration of ownership and usage pattern of its owner. Sometimes, accumulated changes reflect the user's effort in using a product and its context. For instance, old and underlined textbook shows that its owner is a hardworking and well-mannered student. However, digital devices and their contents do not get worn out, although if they did, it would indicate the interaction history between the user and the device. In digital contents, such as digital photos and mp3 files, it is hard to accumulate a visceral interaction history which regards as the trace of efforts and good manners due to characteristics of digital materiality that are duplicability and easy accessibility. Therefore, the interaction history of digital contents should be researched, and a design strategy that can express to other people the user's attention and effort in context, even in the digital materiality should be developed.

## 5.3 Cultural Differences and Good Manners

For designing artifacts and services for good manners, cultural differences in users' social contexts should be deeply considered. In the case of smart devices, the behaviors of user when s/he uses the product can deliver negative feelings toward the users of the smart devices, especially in certain cultures as we highlighted in the users' episode above. According to Hofstede [9], each nation has different perceptions on diverse dimensions such as individualism and social hierarchy, especially between East and West. This cultural difference influences the user experience of smartphone usage in the usage pattern, the utility of the product, emotional affects, and more [23]. Along with the development of technology, interactive products and services target the global marketplace, and they have been sold all over the world. These products and services have been used in diverse circumstances with multi-users, who interact with other people from different cultural backgrounds and values. Therefore, the design strategies that consider such cultural differences should be applied in products and services. Making products and services international is not only a language issue, but should cover all user experiences in the design; thus, it is necessary to reflect the good manners and social norms of different cultures in designing smart devices and their contents.

## 5.4 Ethical Issues on Intervention of Technology

Technology should provide users with the freedom to maneuver, not to manipulate their behaviors or force them to change their habits [22]. In the same vein, in this study, we try to make users aware of the appropriate

social codes instead of focusing on persuading them, which we hope will help them to change their bad habits and familiar usage patterns of their own volition. Manners do not have any structured rules or punishments, and manners may reflect an underlying ethical code of contemporary society and reflect the common values and attitudes of the era. Therefore, in dealing with manners, which covers a wide spectrum of behaviors, it would be ethically improper to force a user to behave with good manners. However, the levels of intervention that indicate the strength of persuasion or intrusiveness toward a good mannered behavior would differ from the context of the product. Thus, those reflections on the intervention pattern should be considered and applied in design.

## 6. Conclusion

Through deeper understanding of manners and how they are affected by smartphone usage, we can find design opportunities pertaining to smartphone design. Well-mannered smartphones should sustain old values with new technology and give social signifiers to users. Smartphone could then project the users' identities without misjudgment from others and could help to prevent the users' mistakes. Overall, a smartphone with good manners should recognize the social context and maintain a balance between the physical world and the virtual world.

We tried to create a guide for new smartphone ideas to reduce bad manners and social misunderstandings that may appear to be bad manners. Our ideas were designed through understanding the social impacts of a smartphone rather than developing new technology or enhancing its performance. By suggesting five different ideas, we tried to offer new concept possibilities that may require further study for future smartphone design. Each of the ideas is not a final design case for smartphone manners, but each shows one opportunity among various potential designs. Regarding the background and the participants' complaints in this study, potential ideas may be expressed differently by redesigning the interface, interaction styles, additional products, systems, or services.

Through our concepts, it is possible to use the smartphone with a socially appropriate code and to resolve the social misunderstandings related to smartphone use. In this study, we considered the user experience from the perspective of relationships with others rather than the relationship between the smartphone itself and the user. Through this approach, we hope to show new design possibilities that increase social empathy among people, which will eventually result in more positive behaviors.

## 7. Acknowledgments

## 8. Citations

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