Development of Information Technology Guidelines for Promoting Wellbeing in Japanese Culture

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ABSTRACT
We started a research project to develop technology guidelines for promoting wellbeing, with focus on value systems seen in collectivist cultures such as Japan (i.e., the values generated from human relationships vis-à-vis the group one belongs to or one processes as objective). We will establish and disseminate information technology guidelines with an emphasis on how we can charge such cultural perception of wellbeing into information technology, and how information technology can approach problems in collectivist cultures.

Author Keywords
Positive Computing; Collectivism; Value-Sensitive Design; Haptic interface; Symbol Grounding; Empathy; Autonomy; Human-Centric Design; Development & Assessment Guideline;

ACM Classification Keywords
K.4.1 Public Policy Issues: Computer-related health issues

INTRODUCTION

Recently it has been pointed out that while information technology makes human intellectual tasks more efficient, it also has negative effects on the psychological state of users. Thus guidelines for designing mind-enriching information technology are being sought from a different standpoint than that of mere efficiency. There is a global trend in rethinking the role and assessing the potential risk of technology in the society in general. Dedicated institutions such the Future of Humanity Institute [1], Future of Life Institute [2] are good examples of efforts to deploy not only academic but also public discussions on the impact of digital technology on human society. This trend coincides with an arising public interest in pursuing mental wellness, as seen in active coverage of terms like Mindfulness by the press (see for an example [3]).

In recent years, as a paradigm shift in the measurement of human psychological wellness occurred, the notion of Happiness has been rendered with higher resolution, based on multidimensional evaluation including a quantifiable axis such as in the form of the PERMA model in Positive Psychology [4]. The problem of the human-machine relation has been specifically explored by research areas such as Calm Technology [5], Affective Computing [6]. Positive Computing [7], which is explicitly based on Positive Psychology gives an important ground for designing human computer interface in regard with human psychology.

However, it is known that positive-psychology interventions (PPIs) are more effective in individualist cultures, in mainly Western regions. While the wellbeing of individuals are regarded as a primary value in the Western cultures, the values generated from human relationships plays an important role in in collectivist cultures. It is debatable whether the design principles established in the Western cultures can be applied to the collectivist cultures directly, and whether such difference can lead us to a different technology design principles. We have thus started a project to develop technology guidelines for promoting wellbeing, with focus on value systems observed in collectivist cultures, and especially Japan, where we are based.

OUTLINE OF OUR PROJECT

Our project team includes engineer, cognitive scientist, social activist, IT entrepreneur, community designer, policy researcher, lawyer, Buddhist priest, Noh actor, as shown in Fig. 1. Based on cross-disciplinary viewpoints, we will establish and disseminate information technology guidelines with an emphasis on how we can introduce such collectivist-specific value systems of wellbeing into information technology, and how information technology can approach problems specific to collectivist society. Through such effort, we aim to help an ecosystem of information technology truly fitting with modern society in collectivist cultures to emerge.

Specifically, we try to establish information technology guidelines that will help any developer to promote users' wellbeing, through a transparent process in which a broad variety of entities can take part, and concretely discuss how

we should reconcile various values with existing social systems such as laws and policies. The long-term vision of our project is to build a model of information technology better fitted to the sense of values specific to collectivist society, in order to complement individualist forms of wellbeing, and to contribute to the international discussion from this view point.

In the following section we will discuss how the collectivist-specific values can be integrated in information technology by describing our previous workshop called "Heartbeat Picnic".

"HEARTBEAT PICNIC": APPRECIATION OF LIFE WITH THE SENSE OF TOUCH DEVICE

To enable people to reaffirm their lives through their experiences, we developed a device (Fig. 2, left) for touching the heartbeat, a very basic phenomenon of life, and designed a workshop called "Heartbeat Picnic." The workshop participants are asked to hold a stethoscope in one hand and a white box equipped with a vibration speaker (referred to as the heart box) in the other (Fig. 2, right). When the stethoscope is placed on the person's chest, sound signals of the heartbeat is sent to the control circuit. The circuit can convert the sounds into vibration signal, and send it to the heart box. As a result, their heartbeat is output as both sounds and vibrations from the heart box, which enables participants to not only hear sounds of their own heartbeats but also feel the vibrations. The devices are put in a picnic bag.

Workshop

The procedure in a typical workshop is as follows. First, the participants touch their own heartbeat. Then, they exchange the heart boxes with other participants, so that feel the differences between their own heartbeats and those of other people. Third, as the workshop is normally held outdoors, participants are free to move about as if they are having a picnic, and they are able to freely feel the changes in their heartbeat with their own hands (Fig. 3). Finally, their heartbeats are recorded in the boxes. Participants experience that their heartbeat has become independent of their own body. The experience of touching heartbeats, which is usually impossible, provides each participant with the opportunity to externalize their heart and to appreciate the importance of life.

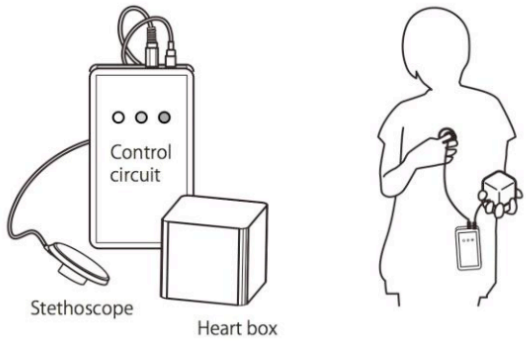

Fig. 2. Illustrations of device (a) and how to use it (b).

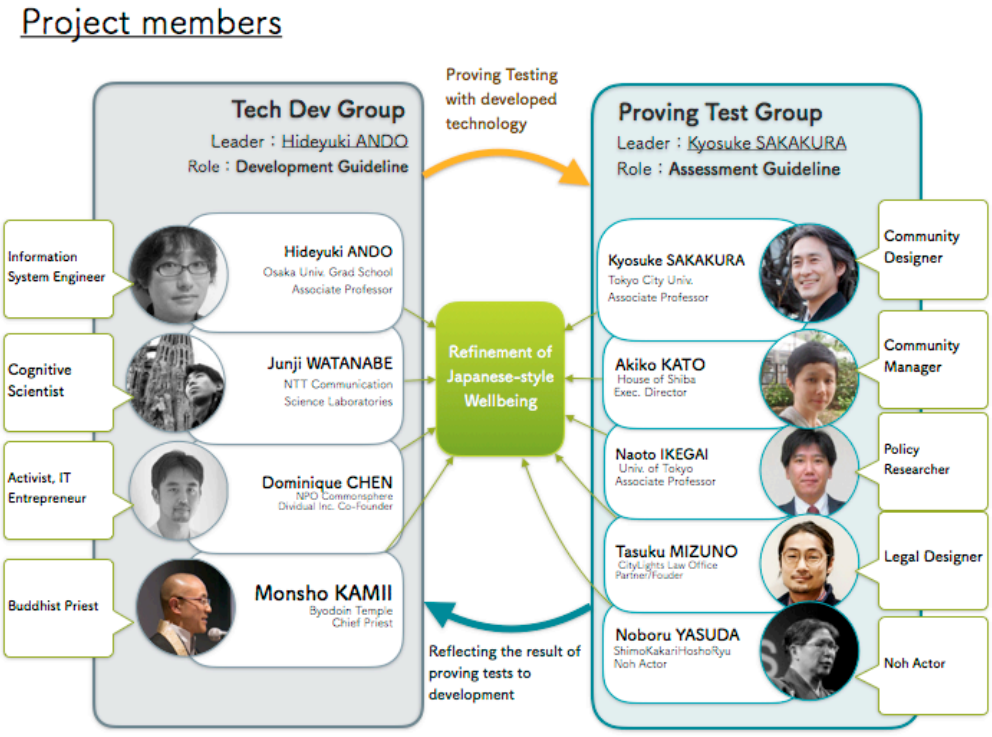

Fig1. Organization of Project Members

Fig. 3. Photographs of participant

Feedbacks

The Heartbeat Picnic workshop has been held at art and design museums, such as 21_21 DESIGN SIGHT (Tokyo, Japan, 2010), the Ars Electronica Cyber Art Exhibition (Linz, Austria, 2011), Ogaki Biennale (Ogaki, Japan, 2013), and Smart "Hikari" heartbeat project supported by NTT West (Fukuoka, and Okinawa, Japan, 2014), and we have received various responses from the workshop participants regarding their experience of touching heartbeats. Some said that they felt a sense of endearment with their own heart boxes and a sense of affinity and kindness upon feeling other people's heart boxes. One participant commented that the only other time she had felt another person's heartbeat was when she had a baby in her womb. These responses suggested that the experience of touching the heartbeat, even if only simulated and artificial, provides an opportunity to appreciate the vitality, autonomy, and irreversibility of life. The experience mediated by the media technology might enable us to have realistic connection to the wealth of life. In summary, this workshop can encourage people to learn what life is, and to affirm the dignity of life, without escaping from their modern everyday environment.

DISCUSSION

To construct the information technology guidelines we need to take into account the component of wellbeing, such as positive emotion, engagement, autonomy, competence, meaning, relationship, etc (see an example of components in Fig. 4). Here we like to discuss the characteristics of human-computer interaction in collective culture, and the difference from the Western culture.

Observation from "Heartbeat Picnic"

From our observation of feedbacks from the participants of the Heartbeat Picnic, we consider that the experience of the workshop highlights three crucial elements that can be correlated to Japanese cultural view of wellbeing.

First, the Heart Box helps the participants generate intrinsic questions (e.g., "What's life?") and meanings of experience (e.g., "I'm alive!"), without presenting any verbal or symbolic information. Second, the experience of feeling the heartbeat creates a sense of empathy toward others. Third, this empathy helps generate social connection with others. While symbolic representations of phenomena dilute the actual sensation and weaken our connection to the phenomenon, embodied experience is evocative, and might enhance the sense of empathy at the subconscious level.

This workshop provided an opportunity that people can experience the reality of life without having to escape from their modern and technologized everyday environment, only by evoking the imagination through the sense of touch. At least in the collectivist culture (we performed the workshop many times in Japan), holding and exchanging heartbeats could be evocative experiences. We conjecture that the usage of embodied experience can be an effective approach not to hinder autonomy of participants, and to enhance the sense of connectedness to the others (relationship).

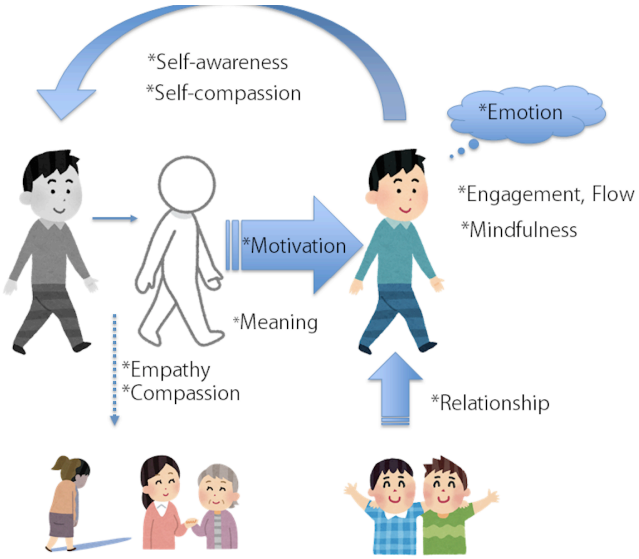

Fig. 4. Example of components of wellbeing

Value-Sensitive Discussion

Based on this observation, we organized the following table through a thorough discussion with the members.
The table shows the differences in the Approach, Means and Medium to achieve societal wellness between individualist and collectivist cultures. In our view, this comparison should not be seen as dichotomy, but rather as complementary. Even modern Japanese culture is a mix of these two cultural types, and is certainly not a purely collectivist society.
However, one important difference that has been noted upon our discussion is that the very idea of prioritizing

	Individualist culture	Collectivist culture
Approach	maximize each individual's wellbeing to realize societal wellness	sense of contribution to the organization of society as the basis of individual wellbeing
Means	provide answers for preset purpose	midwife autonomous questioning
Medium	Literal, Verbal	Evocative, non-verbal

Table 1. Mutually complementary forms of wellbeing between individualistic and collectivist cultures

individual wellbeing over the wellness of society (e.g. from family, circle of friends, to workplace, locality, and nation=state) is inversed in collectivist thinking of Japan. In other words, if an individual cannot sense her contribution to the dynamic organization of the social system she belongs, her wellbeing would be greatly undermined even if her personal elements of wellbeing is maximized.

This notion of individual ontology can be seen in many aspects of Japanese traditional cultural practice. For example, in the Fantasy Noh play, which is 600 years old traditional theatrical form that depicts the interaction of a ghost and a human being, a cooperative conversation called "Kyo-wa" (N.Mizutani) often takes place. In such conversation, the distinction between the subjects blurs, and it ultimately leads to the disparition of the subjects, ending in just a depiction of the scenery. Such melting of subjectivity is commonly found even in everyday life in Japanese society, where some words can both mean the speaker and the other party (in English, "I" and "You" are never confused). In a similar way, RenKu which is a form of cooperative creation of Haiku between multiple participants, the authorship of the resulting work is extremely blurred (* Renku reference). In fact, both Haiku and Noh are known to be deeply grounded in Buddhist philosophy (which has its own complex history of cultural adaptation from the original Indian and then Chinese buddhism).

Another way to comprehend this particularity in Japanese culture is the appraisal of naturality over artificiality. This feature has been discussed in comparative literature analyzing differences between Chinese and Japanese landscape design (M. Nakano), where Chinese favors information-rich representation of nature, in contrast to Japanese tradition favoring a minimalist representation that allow autonomous projection of meaning by the visitor. This same philosophy is incorporated in the Noh play where the mask of main characters are shaped as emotionless by design, thus letting the audience's imagination complement the imagery.

This Japanese-specific value is called "Mitate", and is repeatedly found in traditional and modern Japanese culture. The experience design of our Heartbeat Box also reflects this idea of Mitate, in the sense that it just presents itself as a simple square box that the users later come to see as a proxy of their heart. Also, the users spontaneously projects meaning to their interaction with the box, despite the absence of any instruction or preset goal. This lack of purpose also helps the generation of a social field, where a type of "cooperative identity" emerges from the deliberate sharing of each other's heartbeat.

GUIDELINE FOR DEVELOPMENT AND ASSESSMENT

Based on the above insights, we are going to develop a guideline documentation for any entity (from corporates to individuals) to design new technology that would be sensitive to the collectivist-wellbeing. We will not limit the scope of the guideline to just haptic interfaces but also to any kind of web services and smartphone apps such as Social Networking Services or games, to real-world-oriented interfaces and virtual reality environment.

There are a few technical guidelines for developing information technologies, such as Oculus Rift, and iOS apps. The guidelines are composed of a series of documents that describe how to make devices and apps without injure of user's health, and efficient user interactions. We supposed to have two types of guidelines: for development and assessment of information technology. The two guidelines include evaluations of components of wellbeing described in Fig. 5, and modify it suitable for collectivist cultures. In addition, the guidelines will also be validated in the viewpoints of laws and policies.

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