

## A View from the Far East: Neuroethics in Japan, Taiwan, and South Korea

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**Abstract** Cross-cultural studies of neuroethics that focus on Taiwan, South Korea, and Japan tend to dwell on three areas of “cultural” concern: local variations, the gap between the scientific community and the public, and the different approaches to ethical issues taken by different disciplines. According to a survey, Western and Taiwanese views on the relationship between the “soul” and the “mind” may have little in common. In South Korea, scientific research on bilingualism, covered by reports in the mass media, contributed to popular misconceptions about the early acquisition of foreign languages. Meanwhile, Japanese engineers and medical doctors involved in interdisciplinary research projects have run into trouble in the course of framing ethical guidelines for the treatment of human subjects. Every nation in East Asia has begun developing neuroethics projects, and the discipline has grown rather satisfactorily. However, the experiences of the different areas may differ much more than expected.

**Keywords** neuroethics · cross-cultural perspective · neuroscience

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## 1 Introduction

Science is generally considered to be rational, objective, and universal. An example might be Isaac Newton's laws of motion, long viewed as inviolable. Albert Einstein's theory of relativity, which is a somewhat expanded version of Newton's laws, enjoys even higher regard. However, the circumstances surrounding scientific activity have greatly varied across cultures. Thus, any attempt to subject science to scrutiny needs to consider such cultural differences; this is especially true of attempts to grasp the relationship between science and the public.

Consider the field of neuroethics. Born in the early twenty-first century, neuroethics is a young discipline and has not adequately focused on cultural considerations.<sup>1</sup> Perhaps early investigators concentrated on what they saw as more pressing issues, such as incidental findings. The time is ripe to explore wider cultural perspectives.

I shall consider three cultural topics in this essay: (a) the significance of cultural variation among nations, (b) cultural differences among academic disciplines, and (c) the noticeable gap between the scientific field and the general public. All three studies in this issue discuss these topics, and I summarize some of their points before offering a few thoughts of my own. I draw on the article by Kevin Chien-Chang Wu and Tamami Fukushi to discuss local variations. The relationship between science and society I consider through the article by Hawon Chang and Sungook Hong as well as my own article with Nozomi Mizushima, drawing on the latter to reflect on the gaps between disciplines. In my conclusion, I attempt to construct a universal framework to assess any type of cultural difference.

East Asian neuroethics began with research projects and study groups, just a few years after the field had first been fashioned by Western scholars. More studies appear with each passing year, and differences in local styles have become evident. Recently, national neuroscience projects have encouraged further growth. Such "top-down" growth in the study of ethical, legal, and social issues has both positive and negative consequences. On the one hand, it is a nascent discipline that receives generous subsidies, official support, and popular support in the form of abundant civilian involvement in participatory research. On the other hand, it suffers from significant restrictions on the direction of its activities, to be expected in national projects. My own research group, which was affiliated with Japan's national project to research and develop brain-machine interfaces, ran into a disagreement with one of the government officials who managed the project: this official did not understand the importance of public participation in the early stages of researching and developing emerging technologies. This so-called developmental dictatorship may prove more or less inevitable for other countries that are relatively new to the field. Here I consider such differences in terms of culture, not in terms of the development of neuroethics.

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<sup>1</sup> Modern neuroethics was launched in the early 2000s by researchers who came (mostly) from anglophone countries. The first uses of the term *neuroethics* date back to the 1970s, when it was used by American pediatrician Anneliese A. Pontius (1973; see also Kagawa 2006; Fukushi and Sakura 2008). In her paper, Pontius expressed concerns that medical experiments on infants might impair the healthy development of their neurons. Although her warning is still heeded (Racine 2008), today neuroethics treats a broader range of topics and issues.

## 2 Why East Asia?

One of the most visible points of divergence in neuroethics is observed in discussions of “mind” and “soul.” In their contribution to the present issue, Wu and Fukushi offer a good example. They asked Taiwanese patients suffering from mental illness and their families what they thought about the use of human brains in research; the results revealed that an unexpectedly high ratio, more than 70 percent, of both patients and family members believed that the brain was the location of the human soul.

It is safe to assume that the respondents’ cultural background affected these results. As Wu and Fukushi point out, in Taiwan and other parts of East Asia the Confucian tradition asserts a strong relationship between the mind and the body. A belief in the existence of the soul does not ineluctably follow, but the Confucian emphasis on respecting the body may well influence the public image of neuroscience. I would like to see more systematic comparative surveys in this regard.

The subtle nuances of meaning that different languages associate with their equivalents of terms such as *soul*, *mind*, and *consciousness* can easily give rise to misunderstandings, even among native speakers. This means that cross-cultural studies that involve comparing attitudes toward these ideas, in particular, can be extremely challenging and must be approached with great caution.

And, as Wu and Fukushi conclude, scientific information can be easily deconstructed and/or reconstructed within the contexts of local tradition. The quite different languages used by the scientific community and the public may yield additional translation problems. In addition, since East Asian countries receive much scientific information in a translated form, their ideas about neuroscience and neuroscientific knowledge may differ from the ideas that occur in anglophone countries.

## 3 Science and the Public—“Two Cultures” Again?

Several problems that affect the relationship between scientific communities and the public can also be discussed from a cultural viewpoint. Chang and Hong offer such a discussion in the article they prepared for this issue, on the role of the mass media in creating a certain public image of scientific knowledge. In South Korea, as they show, dubious information presented as scientific fact has become dominant in the public sphere. In these cases, scientists had published results that suggested a number of practical solutions to difficulties encountered in everyday life, such as learning, nursing children, and achieving general success. When news outlets spread the findings in oversimplified stories, private companies began to offer goods—ostensibly based on sound research—that aroused people’s desires. In addition, some goods targeted schoolchildren, and parents enthusiastically accepted the pseudoscientific “evidence” and snapped up the goods.

Two points should be noted here. First, scientists bear much of the responsibility for this troubling situation, as Chang and Hong clearly state. Moreover, they sometimes deviate from strict scientific protocols to make their message more exciting when releasing the results to the public. Chang and Hong discuss the notion, quite widespread in South Korea, of an “English brain.” This is based on the difference between early and late bilingualism discovered by Korean American neuroscientist Karl Hyo-

seung Kim. After Kim published his findings in *Nature* in 1997, other scientists disputed them, and according to Chang and Hong, the results have not been duplicated. However, some scientists (including Kim) continue to champion the “English brain” discourse, which emphasizes the necessity of “early bilingual” education.

Second, such situations are not limited to South Korea. In Japan, for instance, video games with names like “Brain Training” (supervised by Japanese neuroscientist Ryuta Kawashima) have sold millions of copies despite their questionable efficacy. Although similar conditions can arise in any country, they will always be informed by the underlying social and cultural dimensions and hence distinct.

#### 4 Interdisciplinary Variety

Neuroscience is highly heterogeneous: its researchers come from a variety of backgrounds, such as physiology, anatomy, genetics, developmental biology, psychology, cognitive science, informatics, information engineering, and robotics. Some hold doctorates, while others hold medical degrees. Such variety presents impediments to creating a shared and unified academic culture. This can facilitate conflicts, especially during interdisciplinary research.

The work I have done with my colleague Nozomi Mizushima focuses on the interdisciplinary variability of ethical issues. For our contribution to this issue, we interviewed medical doctors and engineers, discovering divergences in their attitudes toward a number of ethical issues that arise when human subjects are used. The nature of the divergences was not as simple as we had imagined, since both medical doctors and engineers were in fact deeply concerned about ethical issues. However, what they cared about was not identical, and some of them had difficulty communicating their concerns. This poor communication was partly due to hesitation triggered by an awareness of a hierarchy within the research team itself. For example, younger researchers generally had difficulties expressing any objections to the behaviors and judgments of their elders, especially those from different disciplines or cultures. A more complicated problem involved value judgments: how is one to know, when witnessing the troubling behavior of a member of one’s research team who comes from a different background or culture, whether the behavior should be blamed on an unethical attitude or a difference in norms?

The structure of a research project may function as a “boundary condition” for the behavior and value judgments of researchers. Although we found some suggestive cases, we are not yet prepared to propose a comprehensive perspective. Studies in cultural and social psychology have collected copious data in this area, and we hope to use them to develop a cross-cultural perspective on neuroethics in the near future.

#### 5 Perspectives on Cultural Neuroethics?

Grasping the implications of cultural perspective sheds light not only on practical neuroethics but also on the possibility of a theoretical framework. If people in Confucian countries generally regard the brain as the “seat of the soul,” as Wu and Fukushi’s findings imply, we should be more careful in using terms such as *soul*

and *mind* in public discussions of neuroscience. This balance between attracting the public and being faithful to scientific accuracy is a tricky issue for journalists. In addition, cultural factors may make the situation even more complicated. Moreover, it appears likely that the method by which social knowledge is constructed (with different interactions among scientists, the public, and reporters) may vary from one cultural region to another. The studies from South Korea and Japan in this issue may give some insight into this problem.

Finally, several cultural psychologists have revealed that the mode of the self differs among countries (Hofstede 1991; Triandis 1995). For example, in East Asian societies there is something called the “relational self” that lies between the individual self and the public. Although that might be an interesting topic for a study in neuroscience (see Kitayama and Park 2010), I focus here on another aspect of its significance in the context of neuroethics. This “relational self” may be more appropriate than the “individual self” as the agent for value judgments in neuroscientific experiments (Sakura and Kawato 2012), because the latter may be easily modified by scientific experiment or medical treatment. As a new “agent” that would ensure the continuity of identity through the entire sequence of trials, the concept of the collective self would prove valid and useful.

Cross-cultural aspects of neuroethics have only begun to be discussed, and many more systematic studies are needed. This special issue of *East Asian Science, Technology and Society* is a step toward such a future.

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