

Rethinking Women and Their Bodies in the Age of Biotechnology: Feminist Commentaries on the Hwang Affair

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Abstract Many Korean women felt strongly positive about donating their eggs for Hwang Woo Suk's research, in spite of the fact that Hwang was accused of fraud. It is said that there is a kind of unique 'egg donation culture' among Korean women, which urged them to donate their eggs for his research. However, positing such a Korean 'egg donation culture' does not seem to give a sufficient explanation of why so many Korean women were seemingly willing to provide their own eggs for Hwang's research. Instead, we suggest that egg donation issues in the Hwang affair can be interpreted under the paradoxical context, in which Korean women are situated in the age of biotechnology. On the one hand, the invisibility of women as subjects in the public sphere led to their lack of social control over ova trafficking and made it possible for a huge number of eggs to be supplied secretly for Hwang's team. The patriarchal structure of family, the myth of economic growth, and the restricted activities of feminist organizations are possible contributors to the invisibility of Korean women. On the other hand, in the practices of bodily technologies such as cosmetic surgery and reproductive technologies, Korean women have been highly visible. With the help of those technological instruments, women have been empowered to own their own bodies and to have them at their disposal. We argue that these dualistic realities of women as egg owners can explain the egg donation culture among Korean women in the Hwang affair.

Throughout this article, biotechnology is given its broadest meaning, including the full meaning of high-tech biomedical technologies from cosmetic medicine, contraception and IVF to other technosciences applied to human bodies.

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요약문 황우석의 줄기 세포 연구 논문이 조작으로 드러났음에도 불구하고 많은 한국의 여성들은 황우석 연구에 자신의 난자를 기증하는 것에 긍정적인 반응을 보였다. 이를 두고, 몇몇 학자들은 한국 여성들 사이에 난자 기증을 강요하는 일종의 독특한 ‘난자 기증 문화’가 있는 것이 아니냐는 주장을 제기하기도 했다. 그러나 한국의 ‘난자 기증 문화’라는 가설로는 그렇게 많은 한국 여성들이 황우석 팀의 연구에 걸로 보기에는 자발적으로 자신의 난자를 기증하려고 했던가에 대한 충분한 설명을 주고 있지는 못하다. 또한 ‘난자 기증 문화’라는 것이 설명 개념으로서는 부수적으로 더 많은 설명을 요하고 있다고 보여진다. 이런 까닭에, 이 논문에서는 기증 문화 대신에 난자 기증 현상을 생명공학 시대에 위치한 한국 여성이라는 모순적인 맥락으로부터 설명하고자 한다. 한편으로, 공공 영역에서 한국 여성은 주체로서 ‘가시성’을 획득하지 못하고 있다. 이로 인해 한국에서는 난자 매매에 대한 사회적 규제가 결여될 수 밖에 없었고, 이런 맥락에서 밝혀진 것처럼 엄청난 수의 난자가 비밀리에 황우석 연구팀에 제공될 수 있었다. 가족 내에 존재하는 가부장적 구조, 경제 성장에 대한 신화, 여성 운동 단체들의 제한된 활동들로부터 한국 여성의 비가시성이 연유되었다고 보여진다. 다른 한편으로는 성형이나 재생산 기술과 같은 신체를 대상으로 하는 생명공학 기술들 적용 과정에서 한국의 여성들은 대단히 높은 ‘가시성’을 보이고 있다. 이들 기술 도구들의 도움으로 여성들은 자신의 신체에 대한 소유권을 높일 수 있었고, 자신의 신체를 자신의 의지에 따라 처분할 수도 있게 되었다. 난자 기증 문화는 이런 가시성의 산물일 수 있다. 난자 소유자로서 여성의 이와 같은 이중적인 현실이 황우석 사태에 나타난 한국 여성들의 난자 기증 문제를 설명해줄 수 있다고 본다.

Keywords Biotechnology · Bodily technology · The Hwang affair · Egg donation · Feminism · Stem cell research · Korean women

Introduction

There have been many attempts to understand Hwang Woo Suk’s scandal in Korea since his first world wide scientific achievement—creating patient-specific embryonic stem cells—was exposed as a ‘big lie.’ Because Hwang’s two *Science* papers were based on manipulated data, this affair could have been defined as nothing more than scientific misconduct. But the way the fraud of Hwang’s team unfolded, and the response of Korean people to this affair were so unique, that it can be seen as reflecting some essential aspects of Korean society.

As many Korean scholars pointed out, various social and historical factors were involved in the Hwang affair.¹ Nationalism or an old ideology of economic growth may explain in part why Hwang’s supporters showed such sympathetic attitudes to Hwang’s research even after the *MBC PD Notebook* exposed its fraudulent research (Kim et al. 2006). Although Hwang’s scientific achievement turned out to be a fraud, most people held the opinion that Hwang’s team should be given opportunities to continue stem cell research because of national interest (Kim 2007).

¹The academic discourses about the Hwang affair were mainly focused on its uniqueness. For many scholars, the Hwang affair seemed not to be one of scientific misconduct, but a consequence of a too hasty modernization. See Kim et al. (2006).

Moreover, Hwang's scandal further caused Korean society to confront the women's question. The most unprecedented feature of Hwang's scandal was that his team used an enormous number of women's eggs—2,221 in total—over the past 3 years, not to mention the fact that he never succeeded in cloning a single stem cell (National Bioethics Committee 2006: 4). Even after this fact was disclosed, many Korean women have shown a strong will to donate their eggs for Hwang's research. Why did so many women make such a decision? Why did so many women dare to undergo the risks of egg donation? What does this social event reveal about Korean women and their bodies? As an explanation for this phenomenon, one American journalist has argued that there is a unique "culture of egg donation for research" (quoted from Cookson 2005 cited in Paik 2006) along with unethical scientific practices in Korea. The presence of a local culture—an 'egg donation culture'—and the failure to follow conventional global ethics—bioethics or research ethics—makes some sense of what happened in the non-Western country of Korea. However, it does not provide sufficient answers. The donation culture cannot explain fully how it was possible for Hwang's team to have obtained so many eggs from Korean women. In addition, this 'cultural explanation' itself needs to be explained. How did the donation emerge and develop? It is necessary to examine the socio-technical factors that are associated with the formation of this culture.

This paper offers feminist commentary on the Hwang affair while explaining two of its most scandalous features—the number of eggs used for Hwang's research during its heyday, and the great number of women wanting to donate even after his fraud was disclosed. In doing so, it introduces a variety of Korea-specific situations in which women and their bodies are made visible and, at the same time, invisible. The first part of this paper explores how Hwang's team was able to collect a huge number of eggs without making it a serious social issue by considering the invisibility of women as subjects in the realms of family, politico-economy, and ethics—as a whole, in the public sphere. The second part offers an explanation of why over 1,000 Korean women wanted to donate their eggs, taking into account the body-technology context in which women as subjects as well as objects are highly visible. Unlike previous feminist studies of egg donation for Hwang's research, this paper broadens its body-technology context into other bodily technologies such as cosmetic medicine. By highlighting the shaping of Korean women's invisibility in public spheres and the visibility of women's bodies in the practices of reproductive/cosmetic technologies, it attempts to recontextualize and relocate Hwang's scandal in feminist perspective.

Women, The Invisible

According to the National Bioethics Committee (NBC) in Korea, Hwang's team was supplied with 2,221 eggs from 121 women: (1) Among them, 85 women got paid for their contributions either through commercial donation or benefit in kind donation, and 36 of them including 2 female researchers from Hwang's own team could be classified as 'voluntary' donors; (2) On average, paid donors were 24.4 years old, distinguishably younger than non-paid and voluntary ones, whose average age was 32.6; (3) most of the voluntary donors decided to provide their ova on behalf of

family members who were disabled or ill. (4) Voluntary donors did not realize their eggs were to be used for 'research', instead they thought that their eggs would be used for therapeutic purposes (Myung 2006). These four facts show (1) more eggs used in Hwang's research were obtained from ova trafficking than from sacrosanct donation; (2) the primary motivation of young women donors was a financial one; (3) the voluntary egg donations were not a sacrifice for national development, but rather for possible family benefit in the future; (4) donor women seemed to consider donating their eggs for research to be the equivalent of donating their organs for transplantation.

Donor women did not seem to be influenced by cultural values or religious beliefs. Most human eggs used for Hwang's experiments were from donors who suffered from economic deficiency. Contrary to the cultural explanation, an 'egg donation culture' has nothing to do with the Hwang affair. The enormous number of eggs used by Hwang's team cannot be understood in terms of culture. Egg donors had different motivations for their decisions (Paik 2006). Those motivations could not be classified as cultural. 'The egg donation culture,' therefore, is not one of 'explanans,' but rather an 'explanandum' in itself. It is not unique feature of Korean culture, but the social practices of the Korean women that were most relevant to the acquisition of so many eggs by Hwang's team. In order to understand the willingness of Korean women to donate, we have to consider multiple contexts in which women's social practices were generated and performed.

Women and Family

One of the most important contexts in which specific attitudes or thoughts of women are constituted is family. As a fundamental social institution, family has in many ways influenced Korean society. Although industrialization in Korea caused the growth of the nuclear family, the function of family is still very important in Korea (Suh 2003; Song 2005). More and more young people today choose to remain single, but their lifestyle is not considered desirable. This type of family is usually regarded as abnormal. As a recent policy of the Minister of Women and Family indicates, the family of the married couple with two children is regarded as the most socially recommendable model (Mosef 2006).

While accepting the nuclear family value, women are expected to perform their role within the family. The first duty of married women is to become a mother. For married women in Korea, the role of mother is more important than that of housewife. The Korean traditional way of thinking, namely Confucianism, has had great influence over the life of the family in Korea. A recent study by a feminist scholar shows that institutions such as Korean Family Law preserve this patriarchal structure of the family (Kang 2002). Married women, and in particular, women who are married to the first son of a family, are obligated to produce offspring. If they fail to meet this obligation, they are put under enormous social pressure. Due to the stem-family-centered lifestyle, Korean society shows very low tolerance of the infertility of married women. The social discourse on infertility in Korea mirrors this situation. Infertility has not been understood as a difference, but as an abnormal deviation. Infertile women have often been socially disgraced and described as disabled (Park 2004). As a result, it has become a routine for a married woman to

visit a fertility clinic, if she does not get pregnant within 1 year after marriage. With the development of reproductive technologies, infertility is defined as a pathological phenomenon, which legitimates medical interventions.

The familial consciousness of 'blood lineage' also urges women to use medical solutions to infertility. Blood lineage was a traditional idea, but it has been modified into a modern form. Blood lineage meant the biological reproduction of the stem-family, which involved the reproduction of the blood of a father. Moreover, this traditional idea has influenced the development of IVF (in vitro fertilization) technologies. A number of research programs on IVF technologies are experiments of activating human sperm. In these experiments, human oocytes are manipulated for the purpose of increasing the fertility of a human sperm. Thanks to advanced technologies, the infertility of men can also be cured through the coordination with women's bodies. The availability of IVF technology paired with the consciousness of blood lineage makes it natural that even a healthy woman should be put under medical treatment. In addition, this traditional idea often raises conflicts between family members. One study demonstrates that infertile women often had conflicts with their husband's family, particularly with their mothers-in-law (Ro et al. 1998).² In order to avoid those conflicts, some women are willing to turn to medical procedures. Considering this context, it is no wonder that we observe the rapid expansion of fertility clinics in Korea.

While social practices such as family-ism or blood lineage forced many women to visit a fertility clinic, there has been little regulation or legal control over reproductive technologies in Korea. The Korean government has never tried to register children born by IVF conception or to assess the health of their mothers or infants. The long absence of social controls on reproductive technology in Korea can be traced to the social definition of reproduction. Reproduction in itself has always been private and beyond public responsibility (Ha 2006). For a long time, reproduction has been interpreted only in terms of blood lineage, and it was not necessary for the public sphere to become involved in such a private matter.

Although reproduction drew public attention during the advent of birth control in the 1970s, problems of reproduction remained apart from social debate (Ha 2006). This was the result of the way the military regime put birth control policy into practice. The purpose of this policy was the reduction of the population growth rate, which would contribute indirectly to economic growth. There was no particular concern for women's health or family life (see Fig. 1). Medical intervention, such as a vasectomy or tubal ligation, was considered as an efficient political instrument.³ Like economic planning, each local office of family planning had to force a designated number of married couples to undergo this medical intervention.⁴ Given the rhetoric of modernization this medical intervention evoked no serious social resistance and was quickly accepted as unproblematic. In this way, the family planning

²According to interviews, infertile women with jobs are often requested by their husband's family to quit their job in hopes of producing an off-spring. See Ro et al. (1998).

³According to one medical paper 6.2 million men had undergone vasectomy with the financial help of the Korean government from 1976 to 1977. See Lee (1979).

⁴The Korean family planning programs followed a top-down model and used a target system. See Park (1990).



Fig. 1 A poster of family planning policy produced by the Ministry of Health and Social Affairs and Family Planning Association in 1974. At the *end of the arrow*, it says “Way toward GNP \$1,000 in 1981.” There is a well-known slogan of “Bringing Up Two Children, Whether Sons or Daughters” at the *bottom* of this poster

program made women accept reproduction technologies as routine interventions. This created a favorable environment for the medicalization of women's bodies.

It was also considered that only women should be responsible for reproduction and for their own bodies. Until recently the role of families and men in reproduction were not clearly defined. The role of mother in the family became more important than the rights of women to bodily integrity and health. Ignorance of the rights of women to control their own bodies made it easy to practice risky technologies like IVF without any public regulation. For women, reproduction belonged to the private sphere. They thought that it was not necessary to request any regulatory policy about reproductive technologies. Consequently the need for social control over IVF technology has never been raised by any of the key actors involved: 'neither government, nor scientists, nor clients' (Ha 2006). In this situation, women's bodies have been transformed into objects of medical experimentation. The traditional social discourse about reproduction and the medicalization of women's bodies made women invisible, and it contributed to Hwang scandal by providing hospitable conditions for his experiments with human eggs.

Women in Politics and the Economy

Ova-trafficking has in fact taken place in other countries such as India (Sarojini 2006), which indicates that it is prevalent beyond the local context of Korea. Thus, Hwang's stem cell research should be situated both in the globally and locally organized practices of biotechnology (Jung 2006). Unlike Western countries where feminist movements were widespread, women's reproductive capacities in Korea have been considered to be the means of nation-building, not that of women's own subject-building.⁵ Motherhood was important because it supplied human power for the economic development of the nation, while family planning had to be performed for the modernization of society (Kim 1993; Hwang 2005). In this context, women have remained instruments for nation-building, and therefore, a woman's body in itself had no importance. The impact of contraceptives on women's health captured little public attention. Along with family planning policies, loose regulations of research dealing with humans caused Korea to become one site for clinical trials of risky birth control technologies funded by the American government (Jung 2006). Under these circumstances, many Korean women underwent medical experiments and experienced the objectification of their bodies.

During the 1970s, then, the issues of women's reproductive rights and health concerns were undermined to benefit economic development and transnational biomedical research. In the twenty-first century, reproductive technologies could be more easily applied to stem cell research without restrictions. In addition, the established myth of economic growth allowed those issues to remain unnoticed until recently. Since the government launched the new national project 'Biotech 2000'

⁵However, women who gained the status of subject were mainly 'upper middle class white' women even in Western countries. Therefore, Korean women as reproductive bodies for nation-building are not particularly unique in this context.

(*Chousun Ilbo*, 13 December 1993) in 1993, various biotechnologies including the stem cell techniques have been noted as promoters of economic growth. Without any fundamental criticism against these developments, it was accepted that biotechnologies could be promoted at the risk of women's health. With regard to the economic value of biotechnology, the issues of women's health concerns were not worth of mention. With little doubt, this politico-economic context made women's bodies invisible, which then facilitated Hwang's stem cell research.

Any research dealing with a human subject is under legal and ethical regulation in the West. Human embryonic stem cell research is especially engulfed by social debate. However in Korea, biomedical research including Hwang's work was praised without reservation for its economic value. Risks or ethical problems related to human embryonic stem cell research were hardly discussed. The economic or industrial value of such research had been emphasized, while negative effects had only been heard in the small circles of NGOs. In this situation, criticism of Hwang's research was regarded as unpatriotic. Women's rights to their own bodies have never been a subject of public debate (Kim et al. 2006).

Ethics Without Women

The weakness of the critical voices on stem cell research in Korean society also had something to do with the social movement organizations, which paid little attention to problems related to science and technology. Their activities had been oriented to politics, as they were not familiar with technological problems. Due to a lack of understanding of society as a socio-technical system, technological issues had been ranked as less important than other social problems. Except for environmental issues, scientific and technical risks had not been considered as serious social problems. Because social activists, including feminists, had had traditional views of science and technology—objective knowledge and profitable resources—they failed to bring fundamental questions or reflexive understanding to biotechnology.⁶ Some related issues, such as GMO (genetically modified organisms) foods or privacy protection in information technology fields, caught public attention for some time, but this did not last long. Further, the dominant image of biotechnology as an important economic sector also made social debates difficult. This economy-oriented view of science/technology hindered the formation of critical opinions about social issues related to risky biotechnology.

In Korea, ethical debates over biomedical technologies appeared first in the mass media when Hwang was known to apply for patents for human embryo culturing techniques in 2006 (*Kukminilbo*, 22 August 2006). At that time, the expressed concerns of moral philosophers, ethicists, and religious people were restricted to the human dignity of embryos. Other bioethical or research-related ethical issues such as humans as experimental subjects for scientific research were not a concern of ethical debates (Kim 2006b). The status of the human embryo was often the center of debate. Within this way of thinking, Hwang's research was highly problematic because it used potential human beings—human embryos—not because it used

⁶This comment was not intended to evaluate Korean feminist activism here. The point is to describe the then current impact of those actions.

existing human beings—women. That is, women as experimental human beings remained outside ethical debates. It seems that the status of women's bodies was ranked below that of the human embryos. After the initial success of Hwang's scientific efforts, stem cell research gained more support from the public due to its therapeutic and economic value. At that time, raising any ethical criticism including women's health issues became taboo. For instance, one of the producers who worked for *MBC PD Notebook*, which delivered very critical messages both scientifically and ethically on Hwang's research, was literally threatened by an anonymous Hwang supporter (*Hankyoreh*, 28 November 2005). In this social atmosphere, women's lives were perhaps the last thing to be concerned about.

Until a journalist from *Nature* reported that two female researchers of Hwang's team might have been coerced to donate their eggs, women were not an issue of either bioethics or research ethics. Only after that, the health rights of women undergoing egg extraction or the informed consent of women for scientific experiments began to be discussed. However, those issues were still not fully elucidated until Hwang's scientific achievements proved to be a fraud. The critical voices of women's organizations were too weak to organize such social action for political measures.

The long invisibility of women in ethical reflections on stem cell research is also deeply related to the tradition of women's social activism in Korea. Since the 1970s, many women's organizations had been founded that fought for democracy along with other non-feminist groups. The main target of the women's activism lay in obtaining workers' rights and establishing political democracy. During the 1970s and 1980s, feminists mainly dealt with social, political, and economic issues relating to women. Later on, feminist activists strove for women's rights and interests, which eventually led to numerous improvements in Korean women's lives. For example, woman's right to be the head of a family was one of their main achievements. As Korean society became more democratic in the 1990s, feminist visions expanded into cultural realms. With the introduction of cultural studies into Korean academia, women's organization began to criticize cultural values imposed on women's appearance, gender-biased representations in the media, and the stereotyping of women as consumers. As gender studies were established as an independent discipline in Korean academia, the spectrum of feminist issues became so broad that themes such as the social construction of women's bodies or gender politics were also discussed. However, women's organizations did not take action against risky technologies or attempt to awaken public attention to scientific issues related to women's health. There had been no significant suggestion to regulate science/technology until the Hwang affair.

For example, even when it was reported in 2002 that Korean women's eggs were sold to infertile Japanese couples, women's organizations in Korea did not respond this problem or call for action. As another example, during the establishment of 'the Law on Bioethics and Biosafety' in 2003, feminists' concerns were focused on whether to prohibit utilizing human embryos for scientific experiments. Even though some organizations such as *Korean WomenLink*⁷ were aware of the need to regulate

⁷Korean *WomenLink* is one of the largest feminist organizations in Korea, which was established in 1987. For details, see its official website <http://www.womenlink.or.kr/>.

egg donation in principle, it did not attract enough public attention. Hwang's scientific achievement was so overwhelming that critical voices about women's health caught no one's ear (*Hankyoreh*, 4 January 2006). In addition, Korean feminist activists failed to organize criticism about Hwang's achievement. This failure, however, could not be attributed to a lack of willingness, but to various kinds of social pressure. In addition, during the Hwang affair, some prominent members of women's organizations spoke highly of Hwang's scientific achievement (*Ohmynews*, 6 December 2005).

The invisibility of women in ethical debates may have contributed to the formation of an 'egg donation culture'. The issue of women's health and the risks of egg donation had been ignored, and many Korean women had internalized the dominant social values. For them, it was acceptable that national interests could be promoted at the risk of women's health. For them, actions to offer ova to the national hero were not deviant, but 'natural'.

Women, The Visible

While the invisibility of women's bodies in Korea might have made it possible for Hwang's team to gather a large number of women's eggs, another question remains. How can the visibility of women, who voluntarily donated their eggs even after Hwang's fraud, be explained? Women as subjects in the public sphere such as the family system, politics and economy, and social debates have been marginalized. However, it should also be noticed that women as objects—as research materials and tools—which are their corporeal bodies, have always been at the center. If women's bodies matter as objects of technological intervention, they need to be considered in the body-technology context. As this section of the paper describes, women as subjects as well as objects are apparent in other practices of bodily technology, for example, cosmetic technology.

Women and Bodily Technologies

In a politico-economic context, the development of reproductive technologies in Korea is important background for the technologies of stem cell research because various technologies for reproduction were also used in stem cell research. However, the various technologies have changed women's bodies in different ways. In 1970s Korea, the major application of reproductive technologies was 'sterilization'. With the support of the government, technical instruments for sterilization penetrated women's bodies: (1) for temporary birth control, women had intrauterine devices placed inside their bodies or took oral pills regularly; (2) for permanent birth control, they underwent surgical sterilization procedures such as laparoscopy. In this way, technological interventions occurred in women's bodies. However, these did not break down the integrity of women's bodies as a whole at the material level. The function of these technologies was limited to artificial control of conception within women's bodies. But it was not long before this limitation was removed.

When the IVF technique was developed, women's bodies began to experience actual fragmentation. In the context of IVF, the old technology of laparoscopy was used not for sterilization but for fertilization, specifically egg extraction for in vitro

procedures (Ha 2006). The development of IVF also brought out new technological innovations. For example, super-ovulation drugs were invented to produce more eggs than usual. This can be harmful to women's bodies because it causes a hormonal disturbance for a long-term period and brings about harm in unforeseen ways.⁸

Through these technological manipulations, women's bodies were fragmented into parts (the ova, for example) and became objectified, which means they also could be commoditized. Soon, people realized that the commercial trade in ova was not a science fiction story. In 2002, a woman's magazine reported that some female students had sold their oocytes to infertility patients for nearly 3,000 US dollars (*Women Donga*, December 2002). According to the report, those oocytes were even exported to Japan. New reproductive technologies made it easy for women's bodies to be fragmented and disposed at will. In some sense, the development of IVF, along with the silence about ethical problems of ova trafficking, contributed to enhancing women's power over their own bodies.

Women's bodies are visible not only in the field of reproductive technologies but also in that of beauty technologies. Korea is known as 'the kingdom of cosmetic surgery' as well as 'the kingdom of the infertility clinic.' If middle-class wives and mothers who go to infertility clinics are potential egg donors for research and if young working-class unmarried women are potential commercial egg donors (Paik 2006), all of them are potential patients for cosmetic surgery.⁹ In Korea, there have been two distinct and correlated changes in different realms since the dawn of the twenty-first century: the rapid growth of cosmetic medicines such as cosmetic surgery and cosmetic dermatology, and the sudden emergence of a 'well-being' frenzy in popular culture. According to the Association of Korean Dermatologists' latest report, the number of patients who have visited dermatologist's offices for purely aesthetic reasons, for example, eliminating wrinkles or freckles, has shown a 61% increase between 2002 and 2005—from approximately 138,000 to 225,000 people (*Donga ilbo*, 12 June 2006). One survey, done by a psychiatrist at Seoul National University, has shown that 52.5% of 1,565 female college students had already had a cosmetic surgery (*Newsmaker*, 10 December 2004). Further evidence of Korean women's interest in body reconstruction is the increasing number of cosmetic surgery clinics established between 2000 and 2001, which is five times higher than the average growth rate during previous periods (*Hankook ilbo*, 9 August 2001). In addition, since 2003, a 'well-being' trend, which put more value on both mental and physical health than on material affluence, began to sweep Korean society.¹⁰ Contrary to its origins, its focus began to emphasize body management through cosmetic surgery and diet and new shopping items such as organic food (*Economist*, November 2003). In Korean society, there has long been much interest in 'body', mostly for women.

⁸For the impacts of the drugs, see Norsigian (2005).

⁹Korean middle-class wives and mothers, especially middle-aged ones, also actively participated in practices of cosmetic surgery. See Choi (2005).

¹⁰"The biggest issue of last year was, without any hesitation, a 'well-being' trend. It has been so widespread through the society that it can be called a syndrome. ..." excerpted from the article "Well-being, New Culture? Or New Marketing Strategy?", *Donga Ilbo* (January 11, 2004), available from <http://www.donga.com/fbin/output?sfm=2&n=200401110071>.

Nothing demonstrates how women's bodies have been fragmented and objectified better than the development of cosmetic technologies. In the field of cosmetic surgery, women's bodies are seen as a set of components such as eyes, noses, lips, chins, breasts, legs, and hips, which can be altered with a knife. Similarly in the field of cosmetic dermatology, women's skin is a set of biochemical substances such as collagen, melanin, and hemoglobin, which can be regenerated through light-tissue interaction.¹¹ Beautiful bodies mean greater self-confidence for Korean women. Cosmetic technologies replace or reconstruct women's bodies so that they can have better 'appearance capital', that is, symbolic/physical capital for self-esteem, the marriage market, and employment.¹² In this situation, risks accompanying surgery or laser operations are compensated for by their outcomes—beautiful bodies, which make women better commodities.

What do these gendered practices of bodily technologies mean to women's bodies? The first point is that, due to bodily technologies, the boundaries of women's 'natural' bodies have been blurred.¹³ Although even before the advent of new reproductive technologies, female bodies were often reduced to reproductive bodies, the ova as well as the other reproductive organs were still *within* her body. However, new reproductive technologies for egg extraction enabled a part of her body—the ova—to be detached from her body. Cosmetic medicines have reconstructed each part of her body even at a molecular level, which means it involves natural body processes. There is no longer a 'natural body' in any absolute sense. Once parts of our bodies are physically separated without threatening one's life, they become things to be purchased in a capitalist society. Significantly, women's bodies have been objectified not only by others but also by themselves.

The second implication concerning body-technology contexts in Korea is that even though the 'body projects' as a 'technological fix' have been popularized in Korea (Lim 2002), these bodies could not be regarded as more valuable than others. Through the use of reproductive technologies, Korean women's bodies have been regarded as tools to control population and promote scientific research. At the same time, Korean women have sought medical solutions to transform their bodies as means of changing their self-identities or to gain access to capital. That is, once women objectified their material bodies, they exchanged their body parts with values that they thought more desirable. National interests, scientific achievements, self-identity, and capital; for women who let their bodies undergo egg extraction or cosmetic surgery, these values outweigh the pain and risk accompanied by technological intervention to their bodies.

¹¹Through this process collagen is regenerated and pigments such as melanin and hemoglobin are deconstructed. Recent laser technologies enable these processes without any severe side effects or long recovery times so that dermatologic changes look natural.

¹²There have been a number of studies regarding women's bodies and cosmetic surgery in Korea. Among them, see Kwon (1996) and Lim (2004).

¹³For sociological views on the human body, see Shilling (1993). And for especially women's bodies and technologies, see Balsamo (1996). Also for a more foundational conceptualizing of women's body and technology, see Haraway (1991).

Women as Egg Owners

On December 6, 2005, 100 women, representing the 1,000 women who signed up for egg donation for Hwang's future research, visited Hwang's laboratory and held a ceremony (see Fig. 2). The 'one-thousandth woman' said, 'I finally made a decision to donate my eggs for my sister who suffered from leukemia. I hope many people participate in egg donations because it will help to save other people's lives' (*Yonhap News*, 6 December 2006). For her, saving other lives outweighed the loss of part of her own body—her eggs. She in a sense exercised ownership over her own body; however, this would not have happened if there was no way to detach her ova from her body. The bodily integrity does not exist any more in the age of biotechnology.



Fig. 2 Women who decided to donate their eggs for Hwang's research decorate corridors to his office with azaleas and the national flower of Korea, the 'Rose of Sharon'. (<http://www.opm.go.kr/warp/en/korea/symbols/flower.html>) Source: Ohmynews (6 December 2005) available from http://www.ohmynews.com/NWS_Web/View/at_pg.aspx?CNTN_CD=A0000296998

Technologies allow women to think as if they could accomplish more values with less bodily sacrifice. Technologies even allow women to think as if they could exercise the right to pursue their freedom while controlling their bodies.

During the Hwang affair, many women were involved in egg donation with and without monetary compensation. On one hand, those women exchanged their ova for other things of value such as financial profits, moral satisfaction, patriotism, or scientific dreams just like women who had cosmetic surgery modified their eyes to get better jobs, higher self-esteem, or more desirable personal relationships. However, on the other hand, many people have claimed that those women did not make proper decisions due to the lack of regulation and informed consent. Thus, ethical imperatives have been called for to protect women from egg trafficking under the pretense of egg donation. However, ethics is not a cure-all for women. Most of ethics and policies concerning women's health consider women as potential victims, people who need to be protected. It is an irony that women as care-givers at home are care-receivers in public domains.

There is another irony that those who sell their eggs are usually regarded as criminals or compared with sex workers while noncommercial egg donation is thought to be something sacred (Paik 2006). All these ironies come along with related dichotomies between victim and choice, between objectification and agency, and between anti-technology and pro-technology. However, if having choices means making decisions completely free from all structural or ideological constraints, strictly speaking, there would be no one who can make a choice about anything (Wijsbek 2000). Ethnographies of infertility clinics and egg donation organizations in the USA have shown that the individual egg donors' altruistic motivations are socially constructed, which means their active participation and inspiration to participate is not divorced from socio-technical procedures to make out their profiles and objectify their bodies in practices.¹⁴ Therefore, even though 1,000 women who made their own choices over egg donation for Hwang's future research are actors influenced by nationalism, Korean family traditions, the appeal of financial compensation, or lack of proper information about the risks, these women should not immediately be considered to be 'actors with no agency.' In other words, because biomedical technologies were able to visualize, measure, and literally fragment their bodies, those women could exercise their power to dispose of their material bodies. That is, those women's agencies were "pursued in objectification," which was made possible by reproductive technologies (Cussins 1996).

¹⁴Almeling (2006) has shown that donors' reported motivations are produced through interactions between egg donation center personnel and the individual donors. Charis Cussins (1996) has coined the term "ontological choreography" to describe the coordinated process of creating and maintaining the referentiality between ontologically heterogeneous actors such as persons and reproductive technologies.

This is not to say that the regulation of scientific research that uses women's bodies is unnecessary, but rather it is to raise awareness of the complex realities of women's bodies in the age of biotechnology. Overall, Hwang's scandal needs to be understood in terms of ambivalence toward women's bodies: protection of their body-ownership vs. protection of their bodies; women as subjects vs. women's bodies as objects; bodies as holistic organs vs. bodies as sets of parts. Based upon this ambivalence, it can be argued that women who donate their eggs are not necessarily simply victimized by patriarchy, national development ideology, or science. Their actions, on the contrary, can be interpreted as the result of their choices, which show not only women's bodies as objects but also that their subjective rights in their own bodies are what mattered to egg donation in the Hwang affair. This is not to argue that women have necessarily been more empowered through technological development. Rather, it is to propose that women face even more complex situations where they themselves see their own body as separate objects and, at the same time, have more opportunities to become agents in politics, the economics, and ethics. In this sense, the Korean women involved in the Hwang affair are neither victims nor free decision-makers, just like any other human actors.

Conclusion: Women's Body in the Age of Biotechnology

Feminists have struggled to build women's power as subjects and to oppose the objectification of their bodies because it is assumed that bodies are biological objects that individual women have as a whole. However, our whole body is part of social practices that involve technologies and other people-bodies. On the one hand, as biotechnologies including reproductive and cosmetic technologies have fragmented and reconstructed women's bodies, their bodies have become ever more visible in such a way that their bodies as social entities became disguised. In the public domain, on the other hand, women as a social minority have not yet gained their autonomy while their bodies are used as scientific materials, national resources, and capitalistic goods. The main concern of this paper on the Hwang affair has arisen from the realities of women and their bodies in Korean society that cannot be interpreted from the dichotomist framework.

'The egg donation culture of Hwang's research' can be un-blackboxed by explaining the following social contexts: women's reproductive roles in their family systems, global-local politics and the economics of stem cell research, and the lack of legal and ethical regulation of scientific research in Korea. Technological contexts, though women are not considered social subjects, have enabled women as owners of their bodies. As a result, we have witnessed how many Korean women supported Hwang's research by choosing to provide their ova. From this perspective, feminist attempts to explain the egg donation culture in Korea should not overemphasize 'women' and 'Korean uniqueness.' This paper has therefore tried to reduce neither women nor Korean society to scapegoats or eccentrics. Instead it reveals that the paradoxical situations of women, generated in the era of biotechnology, were reflected in the Hwang affair. As many feminist and STS (science, technology, and society studies) scholars have claimed, boundaries between binary categories including subjects and objects or local and global have been

blurred in the socio-technoscientific world.¹⁵ The Korean public discourses and other phenomena formed during the Hwang affair are not local disorders but local symptoms of global ailments.

Given this understanding, there is one lesson drawn from the Hwang affair: in the age of biotechnology, women's bodies are to be understood "not only as something that individuals have but as something that people collectively do... in multiple different ways" (Taylor 2006) and furthermore it is 'not only as one body that individuals own but as collectives of multiple different parts that those women do.' All this inevitably leads us to conceptualizing the notion of the 'citizenship' of women as both reproductive bodies and social agents (Kim 2006a).¹⁶ Therefore, bioethics and research ethics should be established by and together with the reconstructing of women's citizenship based on 'collectives of multiple different contexts' where women and their bodies are situated in the age of biotechnology.

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¹⁵For example, Donna Haraway as a feminist STS scholar has "...tried to queer the self-evidence of witnessing, of experience, of the conventionally upheld and invested perceptions of clear distinctions between subject and object, especially the self-evidence of the distinction between living and dead, machine and organisms, human and nonhuman, self and other as well as of the distinction between ... local and global (Haraway 1997)..." and the social, the technical, and the scientific. Bruno Latour is also one of mainstream STSers who has countered modern dichotomies through numerous articles and books. Especially see Latour (1988 and 1993) for how to describe this socio-technoscientific world.

¹⁶This new concept of women's citizenship also resonates with the concept of 'cyborg' women which has been discussed in both feminism and STS fields since Haraway's famous "Manifesto for Cyborgs" (1985). See Haraway (1991) for this article.

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