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**WHY NEWSROOM CULTURE AND ORGANIZATION IS
IMPORTANT**

A Case Study of Korea's Stem Cell Scandal

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Acknowledgements

First of all, I confess that this thesis began with thorough self-reflection as I have not fully performed my responsibility as a journalist who has pursued truth as a calling. In that perspective, the thesis is a kind of writing for self-examination. I must clarify in the beginning that most outlines of this thesis are based on recent records about the fabrications of Doctor Hwang Woo-suk written by my brave journalist colleagues. They took the initiative to reveal the truth, believing the ‘power of truth’.

I am grateful to many people for their help and support in the research and writing of this paper. In particular, Professor Julian Savulescu played a critical role in helping me sharpen my thinking and writing of this thesis. Special thanks must go to Paddy Coulter, the director of the Reuters Institute for the Study of Journalism, for his constant help and thoughtfulness. I am also indebted to my employers, YTN and the Korea Press Foundation which gave me the chance to take a one-year study break overseas, financially backing the project. Finally, I would like to thank my family and friends who gave me encouragement and support.

Abstract

In this paper, I am researching for find detailed journalistic methods of practice which would prevent an occurrence of a '2nd Hwang Woo-suk scandal'. This relates to the conventional practice and cultural norms of Korea's press system. This particular analysis has been carried out through a comparison with news production systems and cultural norms in the U.K. This is because an outstanding product cannot be expected without an outstanding system.

In the centre of this scandal, of course, there is Dr. Hwang Woo-suk who in the matter of a day fell from being a national hero to becoming a notorious charlatan. Ironically, however, it is the press that deserves the fiercest criticism. It is because the scandal was a misfortune caused in larger part by Korean journalism itself. This case is considered to have a basis in the collective consciousness, or so called 'group-think' which had been seeking the advent of a national hero. The group-think is closely connected to the Korean media's wrongdoings in self-regulation. This study shows four major characteristics of the Dr. Hwang scandal as well as the problem with the Korean media's self-regulation system: **1.** Most Korean media have focused on selling patriotism to the people; **2.** Controversially, they defended Hwang, saying that criticism of him was against national interests; **3.** There are common points between Hwang's scandal and McCarthyism; **4.** Journalists are manipulated by news makers.

It is significant to note the cause of the media's fatal mistake, which can be traced to Korean media's culture and newsroom organization: **1.**The Korean press has a tendency to cover stories by being more conscious of the "market recipient" rather than pursuing truth as the essential objective of good journalism. It is because Korea still has a strong background of the "result-for-all policy," a remnants of former President Park Chung Hee's development dictatorship culture; **2.** The long-standing hierarchical structure of newsroom, such as "desk-centred" control system, where the chief of a newsroom is in absolute control along with the head of a department, functions as a guideline for pressmen to 'write an article loyal to the instruction'. It is because the head of a department has the power to commission, to direct how the story is covered, to order a rewrite of an article, and to evaluate the performance of each frontline pressman. **3.** What has supported the vertical structure includes the 'Seniority System' and 'Cohort Career Path' or 'Batch-Centred' practice that emphasizes the year of entering into a company. The Seniority System and Cohort Career Path (Batch-Centred Practice) still work as the main factors in controlling an organization invisibly even in the current media environment which is changing rapidly. In particular, the apprentice system under which intem pressmen learn plays a role in handing down and reproducing such culture in an organization.

In U.K. newsrooms, of course, hierarchy does exist, but the more important thing to note is that they have a two-way communication channel. For example, the BBC News 24, a 24-hour-news channel, has an organization that meets “horizontal culture, division of labour and specialization” and also embodies a diversified and specialized social structure. Whereas a departmental head of YTN, a 24-hour-news channel in Korea, plays a “multi-functional role” with the authority to order an article rewritten or evaluate a frontline pressman, the BBC News 24 has several positions to carry out such functions. In the U.K. newsroom, the authority of a divisional chief or a departmental head is delegated. To improve such a democratically horizontal culture, BBC News 24 has a system of fair competition and equal opportunity employment.

Both science and the press are based on this principle of democracy. As free criticism of scientists is the driving force of scientific advance, free criticism inside and outside of press companies enriches the press. To do so: **1.** The Korea press’s linear, vertical coverage structure which ranks from a chief of a newsroom to a departmental head, a departmental deputy head and frontline pressmen must switch over to a horizontal team-based coverage structure of ‘real’ professional journalists who have a self-regulation capability. **2.** The Korean press’s seniority system and cohort career path, batch-centred organizational operation should be discarded since they impede horizontal communication in an organization while preserving a clique culture. **3.** The beat-centred news gathering process should be eliminated to prevent inappropriate relationships between reporters and news sources. **4.** It is necessary for all journalists to learn from the past and make a concerted effort to manage their own ethics thoroughly. **5.** Collaborative efforts by the press and members of the scientific community should be urgently made to deliver accurate science reporting to the public. **6.** Particularly in the case of science reporting, the role of media should be encouraged to be a two-way communication with its audience or web users who can provide feedback in the form of peer review. **7.** The Korean press must respond to the world by dealing with Korea’s own cultural, ethical and legal issues concerning contemporary science and the global standard from the perspectives of ‘global standards’ rather than of nationalism to fulfil its proper mission to pursue the truth.

Part I . Introduction

A. Purpose of Study

We are now living in the era of globalization in which information distribution is faster and freer than ever, in which the meaning of national boundaries has in fact become insignificant. Every nation is run substantially as a single integrated unit. ‘Global standards of ethics and thoughts’¹ have become an ‘invisible hand’² that regulates and controls people and sways global society. If we fail to abide by these global standards of ethics and thoughts, we would be branded as law-breakers in the same way as if we had broken the law of our own countries. In this respect, ‘global standards of ethics’ are no different from unwritten laws in today’s era of globalization.

Korea, as a member of OECD, is ranked 12th place in the world in terms of its economic scale³ and plays an important role internationally as a trading nation. However, unlike its outside appearance, Korea, displays internally the distinct tendency to place greater importance on historical and traditional values and ethics rather than what the global standard has set for industrialized nations. Inwardly, Korea may well be regarded as a country that has yet to achieve complete globalization. What is more, it even displays an ultra-nationalistic tendency to exclude global values and ethics.

The case of research fabrication by Professor Hwang Woo-suk⁴, which shocked the scientific community, not only in Korea but throughout the world, is a good example that clearly illustrates this duality. In particular, this scandal starkly exposed many of the current problems of Korea, which achieved economic growth and democratization faster than any other in the world in just over 50 years.

The Korean prosecution investigating the scandal of Prof. Hwang Woo-suk compared this case to “the collapse of the Sungsoo Bridge,” one of the Han River bridges in Seoul, which took away 32 lives in 1994.⁵ The prosecution accused Hwang of embezzling 3 million U.S. dollars in donations for his research

¹ For the principles of a global ethic, see John Eade and Darren O’Byrne, ed., *Global Ethics and Civil Society*, Ashgate Publishing Limited, 2005, pp.15~33.

² The invisible hand is a metaphor coined by Adam Smith to illustrate how those who seek wealth by following their individual self-interests, inadvertently stimulate the economy and assist society as a whole. See, Adam Smith, *An Inquiry into the Nature and Causes of the Wealth of Nations*, the Online Library of Liberty, Liberty Fund, 2005, available at the download of http://olldownload.libertyfund.org/EBooks/Smith_0141.02.pdf or http://en.wikipedia.org/wiki/Invisible_hand.

³ According to Korea National Statistics Office as of 2005, GDP \$787.5 billion, Trade Volume Exports \$284,419 million 12th, Imports \$261,238 million 13th, Foreign Exchange Reserve \$210,391 million 4th.

⁴ For most Korean names I follow the Korean practice and place the surname first and the given second name last. For his life, see http://en.wikipedia.org/wiki/Hwang_Woo-suk.

⁵ This incident has been regarded as a symbol of the overall problems of Korean society, including

team by fabricating tax bills and money laundering.⁶

“This incident was something that exposed the overall problems not only in the scientific community, but the entire society of Korea”⁷

In the centre of this scandal, of course, there is Professor Hwang Woo-suk who in the matter of a day fell from being a national hero to becoming a notorious swindler. Ironically, however, it is the press that deserves the fiercest criticism.

“The Hwang Woo-suk scandal was a misfortune caused by Korean journalism itself and exposed its overall incompetence,” said Jeon Gyu-chan, a Korean media scholar. He urged self-examination by the press, which had aided, abetted, connived at and fanned the story in the scientific world.⁸ Most of the mainstream media in Korea officially apologized for their mistakes in their coverage of Hwang and his achievements in the wake of the research fabrication news.⁹

“In the course of this scandal evolving from an ethical lapse to procedural black marks and to a possible sham, we in the news industry can never be free from blame. Most media outlets were just busy blowing up the yet-to-be-realized therapeutic effects and faraway economic benefits. Scientific ignorance may be the main culprit, but its accomplice was easy sensationalism.”¹⁰

In relation to this case in the press, which is ‘the fourth estate’ leading today’s democratic society together with the legislative, administrative and judicial bodies, numerous studies are being conducted both in and outside the country from many different angles. Professor Hwang's scandal is being identified as a case study which successfully illustrates how each country must now deal with their own cultural, ethical and legal issues concerning contemporary science and the global standard it must abide by.

Numerous examples have shown us that bio-ethically faulty research cannot last long. The obvious lesson is of course

shoddy and faulty construction and irregularities and corruptions, abuse of power and irregular practices.

⁶ As of June 2007, the trial of Hwang Woo-suk and five other scientists involved in the fabrication of stem cell research has been under way at Seoul District Court. The first hearing was held in 20 June 2006.

⁷ The Korean prosecution announcement of the final investigative report on the Hwang scandal, 12 May 2006.

⁸ Jeon Gyu-chan, “The Korean Media Criticized for the Propaganda on the “False National Interests”, Newspaper & Broadcasting, Korea Press Foundation, Jan 2006, pp.18~22, or available at <http://www.kpf.or.kr/datas/pdsindex/simimg/200601171253443.pdf>, pp.18~22.

⁹ Lee Sung-ju, The Land of Hwang Woo-suk, Bada Publishing Co., 2006, pp.48~51.

¹⁰ The Korea Times’ editorial, “Time for Critical Reflection”, 19 Dec. 2005. or see http://search.hankooki.com/times/times_view.php?term=+&path=hankooki3/times/lpage/opinion/200512/kt2005121919215554050.htm&media=kt.

*the downfall of Dr. Hwang Woo-suk.*¹¹

When the British science magazine, *Nature*, first raised ethical questions about Prof. Hwang's pioneering human stem cell cloning in 2004 -one year before the scandal broke, the journal urged the Korean government to launch a probe into how cloning pioneer Hwang Woo-suk obtained eggs for his "breakthrough" research. But most of the mainstream press in Korea did not pay attention to this issue.

*"Hwang expressed strong misgivings about the Nature reporter's integrity as a journalist. When the Nature reporter visited me last month, it didn't take long for me to recognize his strategy. He seemed intent on finding any minute fault in our research from the beginning to the last moment"*¹²

How did such a mistake happen? What had the Korean media been doing while such fraudulent research was gaining a good reputation?

This study aims to examine the reasons for such actions by the Korean press. If the mainstream press of Korea had looked into the reports made by the foreign press from the perspectives of 'global standards', rather than of nationalism, to fulfil its proper mission to pursue the truth, Professor Hwang might not have committed such an enormous error in judgment and this would have certainly prevented the story from lasting such a long period of time as a major scandal. Moreover, Korean people would not have been greatly shocked at the scandal.

The fact that most of the Korean press overlooked it at that time shows their lack of objectivity, fairness and accuracy, which are the key elements of press reporting. In analyzing the causes, this research focuses on news production systems and social culture to explain the case of Hwang Woo-suk. In particular, analysis will be carried out through comparison with news production systems and cultural norms of the U.K. It is because an outstanding product cannot be expected without an outstanding system¹³ and political and economic actions are now embedded in cultural phenomena¹⁴.

¹¹ Lei Xiong, Bioethics and Media's Responsibility-A Chinese Perspective, Bioethics and Journalism, the 9th International Conference on Public Communication of Science and Technology, The Korean National Commission for UNESCO, 17~19 May 2006, p.6.

¹² Kim Tae-gyu, "Cloning Scientist Rebuffs Nature Journal's Claim," The Korea Times, 9 May 2004, or available at http://search.hankooki.com/times/times_view.php?terms=code%3A+kt&path=hankooki3%2Ftimes%2Fpage%2Ftech%2F200405%2Fkt2004050917134611780.htm

¹³ Won Yong-jin et al., ed., The Fall of Myth, the Ghost of National Interest, Hannarae, 2006, pp.27~28.

¹⁴ Tatsuro Hanada, "The Domination of Populist Culture over Science and Journalism", Trust and Ethics in the Investigative TV Journalism, Institute of Communication Research, Seoul National University, May 2006, p.8.

In this paper, I will seek to find detailed journalistic methods of practice which would prevent an occurrence of a '2nd Hwang Woo-suk scandal'. This is directly related to conventional practices and cultural norms of Korea's press system. Without improvement in the current news production system which at present continues under the pretext of everyday practices in Korea, ultimately it will not be able to follow the right path to fulfil its proper mission as the press should in today's era of globalization.

B. Summary of the Dr. Hwang Woo-suk Stem Cell Scandal

The rise and fall of Hwang is a unique incident that the Korean media followed for months. Hwang Woo-suk had been a national hero¹⁵ before the shocking stem cell research fraud was brought to light in late 2005. He claimed that he had created 11 patient-specific stem cells in a landmark research paper on cloning in May 2005.¹⁶ The research gave the world new hope of finding cures for such 'incurable diseases' as Alzheimer's and Parkinson's.

As Dr. Hwang once said himself, he was a pathfinder leaving his footprints on a snow-covered field.¹⁷ His stem cell research was often compared to the level of progress achieved during the Industrial Revolution in Britain.¹⁸ It attracted global attention as a watershed in the scientific history of humankind. Creating patient-specific stem cells, with a patient's own DNA, would be a key breakthrough because theoretically they could be used for treatments to replace sick cells with the assurance that they would not be rejected by the body. The government pledged full support for him, unveiling an ambitious plan to make South Korea a hub for international stem cell research.¹⁹ Most of the domestic media also fully supported Hwang by making him a 'scientist star'.²⁰ It took him just couple of years to achieve stardom as a scientist thanks to the Korean media.²¹

¹⁵ For the detailed story strongly supporting Hwang Woo-suk as a national hero, see for example, Ko Jun-hwan, *Hwang Woo-suk Is Caught in a Trap*, Dapgae Publication, 2006.

¹⁶ Hwang Woo-suk, "Patient-Specific Embryonic Stem Cells Derived from Human SCNT Blastocysts" *Science* 308, 2005, pp.1777-1783.

¹⁷ Hwang Woo-suk, press conference in Seoul, 24 Nov. 2005. At the press conference, Prof. Hwang admitted to having committed ethical lapses in procuring human egg cells, putting an end to global suspicion over his pioneering research. However, he claimed that he did not know about the ethical wrongdoings until long after they were done. Hwang apologized and resigned from all his official positions after admitting that he used eggs from paid donors and junior members of his research team. see, <http://www.donga.com/fbin/output?f=kas&n=200511240288&main=1> or http://search.hankooki.com/times/times_view.php?term=+&path=hankooki3/times/lpage/opinion/200511/kt2005112521091854040.htm&media=kt

¹⁸ Song Pyong-in "Hwang's research is compared to Industrial Revolution, Schatten said", available at www.dongascience.com, 20 May 2005.

¹⁹ Jin Hyun-joo, "Seoul Launches Stem Cell Hub," *The Korea Herald*, 20 Oct. 2005.

²⁰ See, for the public's detailed responses on the report on Hwang, Lee Chung-ung, *Science Needs Self-reflection, not Fanaticism* EJBooks, 2005, pp.209-243.

²¹ See, for example, Korean Society for Media Law, Ethics and Policy Research, "The Round Table II, People's Rights to Know and Journalism Ethics", *Journal of Media Law, Ethics and Policy Research* Vol.4(2), 2005, pp.394~400. In the debate of the Round Table II, Moon Jae-wan, a law professor of the

**The 'Real Hero' in the Age of No Heroes in Korea (Headline): In a chaotic and unpleasant society, we live to read the news covering Dr. Hwang. The miracle of a Korean reported top in the major media of the world. The story shocked the global scientific community”²²*

However, in the broad sense, the Hwang Woo-suk story did not just become an issue in November 2005. It began in 1999, when Dr. Hwang Woo-suk was highlighted as an important scientist by the press. Two years after “Dolly”, the world's first cloned animal, was introduced in February 27, 1997 through the journal *Nature*, Dr. Hwang created “Young-long”, a dairy cow cloned in the same way as Dolly in February 19, 1999. It was the first cloned animal in Korea and the first cloned cow in the world. This made Korea the fifth country in the world to succeed in animal cloning.²³

Dr. Hwang became world-famous following the publication of his study paper on the next-generation human cloning stem cells in the journal *Science* in February 2004.²⁴ In May 2005, Dr. Hwang's team reported in *Science* the production of human cloning stem cells had been enhanced in efficiency over the results of 2004, receiving the attention of the international press once again. In August of the same year, in *Nature*, he introduced the world's first cloned dog, “Afghan Snuppy”. After those two publications, Dr. Hwang was selected as “Supreme Scientist” to receive research funds of 3 million U.S. dollars per year.²⁵ He became “a national treasure” and a star scientist guarded by the National Intelligence Service and received support for his studies directly from Cheong Wa Dae, the Presidential Administration. Dr. Hwang, who received study funds of 300,000 U.S. dollars for the study of a cloned cow in 1998, received 27 million U.S. dollars in 2005 from the Ministry of Science and Technology alone. Donations from businesses came flooding in as well.²⁶ But later Hwang turned out to be a ‘stem cell faker’. Munhwa Broadcasting Corporation (MBC), one of the Korea's major broadcasters, accused Hwang of fabricating his work in a series of the investigative programme, *Editors Notebook* on 22 November and 15 December 2005. After the broadcast of the programmes, the nation's young scientists played a pivotal role in pinpointing manipulations at Hwang's 2005 *Science* paper on patient-specific stem cells at the website of the state-backed Biological Research Information Centre (BRIC, <http://bric.postech.ac.kr>) in December. The BRIC also claimed a cloned human embryonic stem cell photo in the 2004 *Science* paper exactly

Hankuk University of Foreign Studies in South Korea, said that the story of Hwang Woo-suk scandal by the media could be explained in three stages; 1. The Birth of a Hero, the Beginning of the Myth of Hwang 2. The Challenge against the Myth of Hwang 3. The Fall of the Myth of Hwang.

²² Choi Jung-ho, “The ‘Real Hero’ in the Age of No Heroes in Korea,” *Donga Ilbo*, 6 Feb. 2004, or see <http://www.donga.com/news/>.

²³ First Clone of Calf Born in Korea, *The Korea Times* 19 Feb. 1999.

²⁴ Hwang, Woo-suk, “Evidence of a Pluripotent Human Embryonic Stem Cell Line Derived from a Cloned Blastocyst.” *Science* 303, 2004, pp.1669-1674.

²⁵ Kim Tae-gyu, “Hwang Honored as ‘Supreme Scientist,’” *The Korea Times*, 24 June 2005.

²⁶ Kim Tae-gyu, “Support for Hwang Converge,” *The Korea Times*, 23 May 2005.

overlaps with that of a stem cell made by Mizmedi Women's Hospital of Korea, which was presented to another journal before Hwang's. In the wake of the reports by MBC and BRIC, a Seoul National University panel investigated the authenticity of stem cell research conducted by Hwang Woo-suk and concluded he fabricated the papers in January 2006.²⁷

The following is a summary and chronology of major developments associated with the controversy involving his research.²⁸

Table-1	
Chronology of Stem Cell Scandal	
Date	Contents
Feb. 1997	“Dolly”, the world's first cloned animal, is born. Ian Wilmut’s research team at Roslin Institute in Scotland publishes the creation by using a technique called somatic cell nuclear transfer through the journal <i>Nature</i> .
Feb. 1999	Hwang’s team publishes the creation of “Young-long”, a dairy cow cloned in the same way as Dolly. It is the first cloned animal in Korea and the first cloned cow in the world. Korea became the fifth country in the world to clone animal.
Feb. 2004	Hwang’s team succeeds in producing the world’s first human embryonic stem cells from cloned human embryos. The research is published in <i>Science</i> , a leading U.S. science journal
May 2005	Hwang’s team claims to have developed the world’s first human embryonic stem cells tailored to match the DNA of individual patients. The results are published in <i>Science</i>
June 2005	An investigative reporting programme of MBC, a major broadcaster in South Korea, receives a tip that there is a chance that Hwang’s team had violated ethics codes and his 2005 paper in <i>Science</i> on tailor-made stem cells is fraudulent.
Aug. 2005	Hwang’s team succeeds in developing “Snuppy”, the world’s first cloned dog. The work is published in the British science journal <i>Nature</i> .
Oct. 2005	Seoul National University (SNU), where Hwang is a veterinary professor, launches the World Stem Cell Hub.
5 Nov. 2005	South Korean police arrest a man and three women on charges of illegal ovum brokerage, the first such incident in the country.

²⁷ See, Main points of SNU investigation, The Korea Herald, 11 Jan. 2006, or Won Yong-jin et.al., ed., op.cit., pp.377~384.

²⁸ See, Chronology of Stem Cell Scandal, The Korea Times, 15 Dec. 2005, 23 Dec. 2005.

8 Nov. 2005	Roh Sung-il, an administrator at the MizMedi Hospital and a collaborator in Hwang's research, admits that the hospital has a history of buying ova.
13 Nov. 2005	Gerald Schatten, a U.S. professor at the University of Pittsburgh and a partner in Hwang's research, says he has cut all ties with Hwang out of suspicions of unethical research conduct.
21 Nov. 2005	Roh admits compensating donors of the ova used in Hwang's stem cell research. He stresses that Hwang had no prior knowledge of this.
22 Nov. 2005	South Korean TV network MBC broadcasts a programme that includes strong evidence that Hwang's team used ova extracted from its junior researchers
24 Nov. 2005	Hwang admits to ethical lapses and announces that he will resign from all public posts.
11 Dec. 2005	Hwang's research team asks Seoul National University to re-examine its 2005 paper on individual specific stem cells
14 Dec. 2005	Schatten asks <i>Science</i> to remove his name from the list of co-authors of the paper.
15 Dec. 2005	Roh Sung-il, a MizMedi Hospital administrator and Hwang's research collaborator, says he was told by Hwang that there are no individual-specific stem cells as claimed in the 2005 <i>Science</i> paper. Roh says they decided to ask the journal to retract the paper. MBC airs a follow-up programme on Hwang's work, questioning the authenticity of the research itself. The producers revealed that the DNA of several stem cells received from Hwang's team do not match that of the individual patients they supposedly were derived from.
16 Dec. 2005	Hwang holds a press conference and says that he has asked for approval of the paper's retraction from <i>Science</i> from its co-authors after admitting partial data manipulation. However, he argues that the team did produce the stem cells and hints that some coresearchers may have switched the stem cells provided to MBC with different stem cells from MizMedi Hospital.
18 Dec. 2005	SNU launches probe into Hwang's research.
22 Dec. 2005	Hwang files a petition for investigation at the Seoul Central District Prosecutors' Office, arguing that "his patient-tailored stem cells were changed with ordinary stem cells stored at MizMedi Hospital."
10 Jan. 2006	The SNU investigative panel determines that the production of nine patient-tailored stem cell lines was a fabrication

12 May 2006	The Korean prosecution confirms that the former Seoul National University veterinary professor Hwang fabricated data for his now discredited research papers that originally claimed to have cloned human stem cells and developed patient-specific stem cell lines. Hwang and five other scientists have been indicted on charges of fraud, embezzlement and breach of a bioethics law in the stem cell fabrication scandal.
June 2007	The trial of Hwang Woo-suk and five other scientists involved in the fabrication of stem cell research has been under way at Seoul District Court. The first hearing was held in 20 June 2006.

C. Overview of Chapters

First of all, this incident is considered to have a basis in the collective consciousness, or so called ‘group-think’ which had been seeking the advent of a national hero. This hindered people from thinking and talking rationally.²⁹ The group-think is closely connected to the Korean media’s wrongdoings in self-regulation.

On the base of this argument, Part II will explore four major characteristics of the Dr. Hwang scandal as well as the Korean media’s own self-regulated wrongdoing. Those four characteristics are: **1.** Most Korean media focused on selling patriotism to the people; **2.** Controversially they defended Hwang, saying that criticism of him was against national interests; **3.** There are common points between Hwang’s scandal and McCarthyism; **4.** Journalists are manipulated by news makers. In Part III and Part IV, this paper will attempt to explain the cause of the media’s fatal mistake which have mainly to do with Korean media’s culture and newsroom organization through a comparative case of the British media. So far, very little has been done in this direction. My aim is to provide a new perspective to this scandal with the direction. In Part V, I will suggest detailed methods to prevent an occurrence of the ‘2nd Hwang Woo-suk scandal’.

²⁹ Kang, Myung-koo, “Patriotic Passion and the ‘Sublime’ Science: Un-searching for Journalistic Truths”, Trust and Ethics in the Investigative TV Journalism, Institute of Communication Research, Seoul National University, May 2006, p.2.

Part II. What's Wrong with the Korean Media's Self-Regulation over the Stem Cell Scandal?

A. Selling Patriotism

“There is more science news in the media every year. Yet public understanding of science and technology is in many ways distorted. This is an age of science fantasy and science cults. While scientific rationality is valued as the basis of our ‘knowledge society’, science is invested with magic and mystique; we expect “magic bullet” and “miracle cures.”³⁰

Korean press reporting displays the problems pointed out in the study by science sociologist Dorothy Nelkin. The problem is that science writers frequently act as promoters of science and technology, depicting scientists as miracle workers who are constantly achieving “breakthroughs.” The following are examples:

**Hwang Picked as Korea's Top Nobel Prize Candidate (Headline): Korean scientists and doctors picked Seoul National University professor Hwang Woo-suk as the nation's most viable Nobel Prize candidate, according to a survey by a government agency. (The Korea Times 2 May 2005)*

**Another Medical Landmark (Headline): Professor Hwang Woo-suk and his research team have stunned the world once again with a breakthrough in stem cell cloning. In another world first, they have succeeded in producing 11 stem cell lines that are genetic matches of patients aged 2 to 56. (The Korea Times 20 May 2005)*

**Korea Advances One Step Closer to Stem Cell Therapy (Headline): Korean scientists have taken another gigantic step in their plan for gene therapy by advancing technologies of growing stem cells into specific cells. (The Korea Times 29 June 2005)*

The press in Korea, in line with Nelkin's analysis, very superficially covered only the implications of Professor Hwang's study:

**Prof. Hwang: Move Heart of Heaven Long and Bumpy Road to Doctorate (Headline): This is the first in a three-part story on the unprecedented success of stem cell research by Seoul National University Professor Hwang Woo-suk. This series will cover the past, present and future of the illustrious cloning scientist. (The Korea Times 26 May 2005)*

From then on, the press ‘stalked’ almost every movement of Professor Hwang as they gave undue value

³⁰ Dorothy Nelkin, *Selling Science: How the Press Covers Science and Technology*, W.H. Freeman, 1995, p.7.

to making him a 'star'. The Korean press covered Hwang's departure in the same way that they would report the travels of the Korean President.

***Prof. Hwang Leaves for US (Headline):** *South Korean stem cell scientist Hwang Woo-suk left on Wednesday for the United States to attend a stem cell event, his office said. Hwang is scheduled to deliver an address at a two-day academic gathering from Saturday at Baylor College of Medicine in Houston, with Gerald Schatten, a professor at the University of Pittsburgh School of Medicine in Houston, also attending. The researcher will be flying with Korean Air, which has granted him free first-class domestic and international flights for 10 years. Hwang will return home on Monday. (The Korea Times 8 June 2005)*

***Hwang Woo-suk to Visit Japan (Headline):** *Korean stem cell researcher Hwang Woo-suk will visit Japan next week to discuss possible joint research on human embryonic stem cells, the Korean Embassy in Japan said on Thursday. During the three-day visit from next Thursday, Hwang will meet with officials from the Japanese Ministry of Education, Culture, Sports, Science and Technology to discuss the joint research project, the embassy said. It did not give details on the research project, however. (The Korea Times 16 June 2005)*

As well as overpraising Dr. Hwang, the Korean media quoted foreign news sources using terms such as "breakthroughs", "significant advance" or "revolutions" when talking about his study. But the media managed to keep relatively silent about the more negative reports which focused on the ethical implications of his study.

***World Hails Hwang Woo-suk's Success in Human Cell Cloning (Headline):** *News reports emphasized the significance of the research, quoting scientists, medical experts and researchers who expressed their admiration for the Korean research team. Hwang's research is being called a "scientific breakthrough" in producing stem cells from cloned human embryos, which are specifically tailored for individual patients. The New York Times report said many experts were "extremely impressed" and predicted that the first therapeutic cloning treatment would come more quickly than they had imagined. (The Korea Times 20 May 2005)*

At the same time, they promoted researchers in the field as being recently popular as 'the second Hwang Woo-suk' to take a part in fanning the 'extreme achievement syndrome'. These headlines below show well enough how the Korean press took such a position.

***The Project of Making 'The Second Hwang Woo-suk' Launched in Seoul National University(Headline)** (Kim Jae-young and Kim Hun-ki, Donga Ilbo, 13 April 2005, <http://www.donga.com>)³¹

****"I Want to Be a Second Hwnag Woo-suk" (Headline)** (Yoon Doo-hyun, Park Soo-hyun, Lee Dong-hyun, Kim Sung-

³¹ See, Korean newspapers' article bank; <http://www.kinds.or.kr>

hoon, *Munhwa Ilbo*, 28 May 2005, <http://www.munhwa.co.kr>)³²

***“The Future is Mine”, Young Scientists Run for the Dream of Being a ‘Second Hwang Woo-suk’ (Headline)**

(*Bang Jong-hwan, Maeil Business Newspaper*, 5 April 2005, <http://www.mk.co.kr>)³³

By making Professor Hwang Woo-suk a hero, the Korean press manipulated people’s notion of national interests and patriotism:

***“You Koreans Should Take a Pride in Having the Greatest Scientist in the World” (Headline):** *My stem cell research is the pride of Korea. It resulted from not only our team’s devotional efforts, but also the Korean people given the great opportunity by God.*” (*sbs*, 25 June 2005)³⁴

***Cloning Star Calls Research Success a Blessing for Korea (Headline):** *Seoul National University scientist Hwang Woo-suk has said his team’s success in stem cell research is Heaven’s way of making up to Korea for the sufferings of history. “I think the fact that barriers to research have been dissolved in a short period of time is Heaven’s way of giving our nation, which has always been victimized by foreign invasions and ethnic struggle, a chance to hold our head up high.” (The Chosun Ilbo, 7 June 2005)*”³⁵

Not only did Professor Hwang himself actively urge patriotism, but also the people actively responded to it. “There is no border for science, but there is a nation for every scientist”³⁶ said Professor Hwang Woo-suk wrapping his study with patriotism. “I placed Taegeukgi, the national flag of Korea, at the very top of American biotechnology.”³⁷ Scientific and technological reports in Korea, as such, did not stop at ‘creating a hero’ and further at ‘creating a myth’.

³² Ibid.

³³ Ibid.

³⁴ Available at http://news.sbs.co.kr/section_news/news_read.jsp?news_id=N0311770147.

³⁵ Available at <http://english.chosun.com/w21data/html/news/200506/200506070023.html>.

³⁶ Hwang Woo-suk, Lecture on “Bioscience and National Development” Sponsored by National Police Agency, 11 Nov. 2004, “Seminar on Kwanhun Club”, 7 June 2005.

³⁷ Hwang Woo-suk, arrival press conference after the U.S. visit, 18 Feb. 2004.



***Dynamite (Cartoon Headline):**³⁸

The Nobel Prize Committee calls an emergency meeting after Prof. Hwang Woo-suk, dubbed the “king of cloning”, said he would publish the results of research on BSE-resistant cattle or genetically modified pigs for human transplants in the May 14 edition of international science magazine ‘Nature’. “We can announce the winner early this time”, they say. (The Chosun Ilbo, 12 May 2005)

***U.K. Journal Profiles Korea’s ‘Cloning King’ (Headline):** British scientific journal “Nature Medicine” profiles Korea’s “king of cloning”, Prof. Hwang Woo-suk of Seoul National University, as a man who will move heaven and earth to achieve his goals. “In the West, Hwang Woo-suk is an enigma. In his home country, he is a scientist with perhaps too much power. In either place, he is a stem cell star,” the monthly said in its May issue. (The Chosun Ilbo, 16 May 2005)³⁹

***Korea’s Nanotech Feats Outshine High-Profile Biotech (Headline):** Korea’s largely unsung achievements in nanotechnology are even more impressive in international comparison than those in biotechnology, which are stealing the headlines thanks to Prof. Hwang Woo-suk’s breakthrough in cloning human stem cells. (The Chosun Ilbo,

³⁸ Available at <http://english.chosun.com/w21data/html/news/200505/200505120032.html>.

³⁹ Available at <http://english.chosun.com/w21data/html/news/200505/200505160014.html>.

16 Sep. 2005)⁴⁰.

Global ethical standards are based on universal values. But South Korean media have been focusing unduly on the negative aspects of those standards. Many South Korean journalists report this issue on the premise that this allegation was first raised by a foreign publication. The attitude of the Korean press towards the issue of ethics on the human egg raised by a member of Dr. Hwang's research team in an editorial article of *Nature* in April 2004⁴¹ is the best example.

***British Magazine Nature 'Target to Downgrade Dr. Hwang' (Headline):** *Nature reported me in an emotional one-sided approach even if I denied its allegation of unethical gathering of eggs by the British science magazine. One of the reasons is that I submitted my paper to 'Science', a rival science magazine to Nature and that my paper became a hot topic, Dr. Hwang said.*⁴²

***Korea's Traditional Manner Clashes with Western Ethics (Headline):** *The scientific journal Nature's demand that Dr. Hwang verify that there was no ethical breach in the obtaining of ova for his research results from the ignorance of Korean's traditional manners and cultural norms. The Korea's unique lab culture should be recognized for its cultural difference.*⁴³

***"In-House Egg Donation Not Unethical" (Headline):** *Even if Korean stem cell pioneer Hwang Woo-suk got eggs from his junior researchers, it raises no ethical or, needless to say, legal concerns.*⁴⁴

At that time most Korean media did not understand completely what *Nature's* story meant⁴⁵ - "Most surprising is not Dr. Hwang's scientific capability, but where a lot of eggs were obtained." Moreover few Koreans know the World Medical Association Declaration of Helsinki, an international bioethics guideline established in 1964, which says that the physician should be particularly cautious if the subject is in a dependent relationship with the physician.⁴⁶ A survey shows that eight out of 10 Korean biotechnology researchers are not aware of the "Declaration of Helsinki".⁴⁷

⁴⁰ Available at <http://english.chosun.com/w21data/html/news/200509/200509160016.html>.

⁴¹ Cyranoski, David, "Korea's Stem Cell Stars Dogged by Suspicion of Ethical Breach", *Nature* 429.

⁴² Paik Seung-jae, British Magazine Nature 'Target to Downgrade Dr. Hwang', *Digital Chosunilbo*, 7 May 2004.

⁴³ Huh Jun-myong, Kim Sang-hun and Lee Kwang-pyo, "Korea Traditional Manner Clashes with Western Ethics," *Donga Ilbo*, 24 Nov. 2005 p.7.

⁴⁴ Kim Tae-gyu, "In-House Egg Donation Unethical," *The Korea Times*, 16 Nov. 2005, or see http://search.hankooki.com/times/times_view.php?term=+&path=hankooki3/times/lpage/200511/kt2005111517292310160.htm&media=kt

⁴⁵ Won Yong-jin et al., ed.,, op.cit., p.63.

⁴⁶ Available at <http://www.wma.net/e/policy/b3.htm>.

⁴⁷ Available at http://english.donga.com/srv/service.php3?biid=2005112564428&path_dir=20051125

Subsequently, most of the domestic press covered up the issue of truth and approached it from a nationalistic viewpoint, scrambling to cite cultural differences between the East and West. As a result, it lacked objectivity and balance, focusing on elucidations of Dr. Hwang. This is because they assumed an ultra-nationalistic attitude thinking that the stance of the foreign press, regarding Professor Hwang's stem cell study, was the product of jealousy. By striking a patriotic pose, they were in the end passive in pursuing the truth.

If this issue of ethics had been approached with sincerity from the view point of pursuing truth via global standards and values, the essence of Professor Hwang's act of fraud would have been discovered earlier. Also, the impact of this extraordinary research fabrication would have been lessened.

B. The Controversy of National Interest versus Reporting the Truth⁴⁸

While most of the Korean media tried to focus on selling patriotism to the people, they defended Hwang by citing national interests in response to those who attacked the media for overlooking the scandal.

**A Witch Hunt of Ordinary People (Headline): The national interest is rooted in our will and efforts to defend it; it is not a cliquish settlement of accounts to get a particular result. (Kim Dae-joong, The Chosun Ilbo, 6 December 2005)⁴⁹*

Most of the Korean press was busy protecting the myth created by themselves under the pretext of promoting national interest rather than taking steps to pursue the truth.⁵⁰ The media's hard-line position raised a controversy about the conflict between perceived national interest and reporting the truth in the country, sparking a fierce debate among ordinary people for the first time in Korean media history.⁵¹

**What is Truth? (Headline): Some people ask me why I emphasize the national interest in writing a story related to the Hwang scandal. I would like to reply that if the stem cell research is vital to the future of Korea, then indeed there*

⁴⁸ Media has historically cooperated, to some extent, with governmental attempts to limit dissemination of information related to such national interests as war and protection from terrorism. For example, the 1962 Cuban Missile Crisis has been recorded as one of the examples in relation to the controversy of national interest versus reporting the truth. See, Helen Thomas, *Watchdogs of Democracy? The Waning Washington Press Corps and How It Has Failed the Public*, Scribner, 2006, pp.64~70 or See, Blake D. Morant, *The Endemic Reality of Media Ethics and Self-Restraint*, Washington & Lee Legal Studies Paper Series Accepted Paper (No.4~22), Washington and Lee University, Nov. 2004. pp.22~23.

⁴⁹ Kim Dae-joong, *A Witch Hunt of Ordinary People*, *The Chosun Ilbo*, 6 Dec. 2005, or available at <http://english.chosun.com/w21data/html/news/200512/200512060028.html>

⁵⁰ The Citizens' Coalition for Democratic Media of Korea said that major media outlets and some broadcasters have undoubtedly exposed flaws to each other in the process of reporting on this case. See, Han Eun-jung, "Media Under Fire for Reckless Coverage", *The Korea Times*, 16 Dec. 2005.

⁵¹ Won Yong-jin et al., ed., *op.cit.*, p.111.

may be some excuse. But, if not, then science in Korea now lags behind those other developed countries due to this scandal, Korea can never catch up the developed countries. (Kim Kil-won, yonhapnews, 22 November 2005)⁵².

***Give Hwang Another Chance (Headline):** *This stem cell research is the first opportunity for the Korean nation to contribute to mankind since its foundation five thousand years ago. The fruit cannot be taken away by others after we planted the seeds. We should unite our divided national opinion first. Now is the time to encourage Professor Hwang and his research team rather than criticizing them on ethical issues.We should give them another chance. (Hong Huie-gul, JoongAng Daily, 25 November 2005)⁵³*

However one South Korean media outlet revealed the scientific fraud committed by Hwang. *The Editors Notebook*, an investigative programme by Korea's Munhwa Broadcasting Corporation (MBC), broke news of the scandal with some crucial information in October 2005. The programme raised a national controversy over whether the reporting was 'for or against national interest'.⁵⁴ MBC raised suspicions about how Hwang's research team built up his mysterious 'myth' that most Korean people had been admiring, claiming illegally traded ova. This allegation was almost the same as the report by *Nature* in 2004⁵⁵.

The programme created a storm in Korea as MBC came under fire for reporting against the national interest.⁵⁶ Many of the programme commercials were withdrawn by companies concerned about public opinion.

***Patience Brings Truth (Headline):** *Recently, Professor Hwang Woo-suk team's patient-specific cloned embryonic stem-cell research was caught in a furious debate. The Munhwa Broadcasting Co., which rashly tried to verify the results, confronted strong opposition from the public and apologized to citizens. Even an empirically- and experimentally-proven truth can be reversed like the flip of a hand in the field of science. If there is no contrary evidence with the current technology's best efforts, it will remain a truth. That is why this is a field for experts. We need to be patient and wait. (Lee Chul-ho JoongAng Daily 5 December 2005).⁵⁷*

⁵² Kim Kil-won, What is Truth?, Yonhap News Blog, 22 Nov. 2005, available at <http://blog.yonhapnews.co.kr/scoopkim/post/2005-11/#Post35774>.

⁵³ Hong Huie-gul, "Give Hwang Another Chance," JoongAng Daily, 25 Nov. 2005, available at <http://joongangdaily.joins.com/200511/25/200511252043430379900090109012.html>.

⁵⁴ Religious groups were divided over the ethical conundrum given by the stem cell pioneer Hwang Woo-suk. Catholics, Protestants and Confucians chose to denounce Hwang's research, while Buddhism, the nation's biggest religion, is carrying out a lonesome campaign for what it calls a "life-saving science". See, Kim Ki-tae, "Religious Groups Divided Over Hwang's Research", The Korea Times, 8 Dec. 2005.

⁵⁵ Cyranoski, David, loc.cit.

⁵⁶ See, Kwon Ji-young, "MBC Faces Crisis Over Report", The Korea Herald, 7 Dec. 2005 or "Fraud Claim Shakes Hwang's Online Supporters", or see <http://english.chosun.com/w21data/html/news/200512/200512160017.html>.

⁵⁷ Lee Chul-ho, Patience Brings Truth, JoongAng Daily, 5 Dec. 2005, available at

When the controversy was going on in the nation, a nationwide survey said that 74% of the people responded that the press should refrain from reporting the scandal's critical issues because of the national interest. In the same survey, 85% of the respondents said the controversial ethical procedures taken by Dr. Hwang should not be picked up any more by the press because his research targeted the treatment of incurable disease.⁵⁸

This concept of national interest is achievement-oriented, giving Korean media a framework for gauging the value of news, thereby laying an emotional foundation for what it expects science should do. In the case of this scandal, the national interest can be divided into two categories: an emotional perspective and an economic perspective.⁵⁹

From an emotional perspective Hwang's stem cell research was viewed as a potential for pushing the nation to a front-runner position in bioscience, ahead of other developed countries. By using emotionally charged language, the media took advantage of the rhetoric of nationalism and the national interest in their reporting of Hwang's story. The dominant economic perspective was based on the report by a government-sponsored technology institution that estimated that the size of stem cell market in the future as 3 billion U.S. dollars. This economic perspective reinforced the emotional perspective. By achieving the economic benefit of stem cell research, it could bring nationalistic pride. Such an achievement would also make Korea the hub of stem cell research in the world and Hwang would become a Nobel science laureate in the near future. These were the views which dominated Korean society at time of Hwang's scandal.⁶⁰

In the end, a panel of experts concluded in February 2006 that there was no evidence that Hwang had produced the first cloned human embryo and patient-specific embryonic stem cells lines as claimed by Hwang.⁶¹

Hwang was fired in March 2006 from his post as a professor at Seoul National University's veterinary department after admitting the fabricated data for two high-profile papers published in the academic journal *Science* 2004 and 2005. A general view was that Hwang was "dead as a scholar" - that is to say "the end of an academic career".

<http://joongangdaily.joins.com/200512/05/200512052233157109900090109012.html>.

⁵⁸ Kookmin Ilbo, 8 Dec 2005, available at <http://news.hanafos.com/politics/view.asp?ArticleNo=1657373>.

⁵⁹ Kang Myung-koo, op.cit., p.17.

⁶⁰ Ibid, p.18.

⁶¹ Summary of the Final Report on Hwang's Research Allegation, available at <http://www.useoul.edu/>.

In relation to this scandal, Korean journalism revealed its overall weakness of having deserted its proper duty by serving as “a loyal servant to the hero and the national interest” shown above. This result coincides with the weak ethics and frail spirit of science in our society, Korean sociologist Song Ho-keun explained:

“The gist of the problem is not whether Professor Hwang and his team used eggs sold by the destitute. It is time to give serious thought as to whether we as a nation did enough to provide the necessary environment and policies for a world-class scientist to carry over into his work. Early pioneers are likely to pay their dues, but in this case, the government should be the one to pay up. The government should come forward and admit that an honest mistake was made because of our backward system and regulations. That’s the best solution.”⁶²

However, the chief producer of the *Editors Notebook* of MBC, claims that the root cause of the problem lies in the ‘invisible alliance of domestic media, government and science society’.

“The political power, the ‘patriotically crazed’ masses and Hwang have been making every effort to cover up an extraordinary scandal of research fabrication, but the cartel of those groups has disintegrated in the end. Some day the hidden activities of this cartel will be brought to light.”⁶³

The alliance, likened to an ‘omnipotent power’ cannot be controlled by any organization, dealing a great harm to the society when it becomes merged under the name of a kind of Korean culture.⁶⁴

In relation to this issue, Korean people pointed out that the press was the primary party providing the cause. “What do you think is the reason that Professor Hwang’s stem cell study has been exaggerated and, the nation as a result has fallen into a great shock?” To this question, the highest percentage, 34.4%, responded that the press covered the issues of Professor Hwang Woo-suk in a sensational manner by promoting national interests. It was followed by 22.6% of respondents saying ‘government and Cheong Wa Dae took the lead in making Hwang Woo-suk larger than life and gave him extensive support without accurate verification’ and by 19.8% blaming ‘internal problems of the scientific world’.⁶⁵

⁶² Song Ho-keun, Place Blames Where It belongs, JoongAng Daily, 22 Nov. 2005, available at <http://joongangdaily.joins.com/200511/22/200511222211016479900090109012.html>.

⁶³ Won Yong-jin et al., ed., op.cit., p.99.

⁶⁴ The bond between scientists and society is powerful, can be seen as the ‘Science Technology Alliance’. This is a new alliance of vested interests, It has a lot in common with the ‘Military-Industrial Complex’ of the United States or the ‘Construction-driven Nation’ _ a term referring to Japan in the 1980s when it was dominated by an alliance of the construction industry and corrupted politicians. See, Kang Yang-ku, Kim Byung-su and Han Jae-kak, Silence and Fanatics , Humanitas, 2006, pp.33-64.

⁶⁵ Nam Bong-woo, Korean Press Fanned Hwang Woo-suk Scandal, Naeil Shinmun, 19 Dec. 2005 or available at <http://www.naeil.com/news/NewsDetail.asp?num=239736&sid=E&tid=9&type=1&field=> 2006.

This is a good example of how the press can distort the public perceptions when national interests are not controlled in proper ways.⁶⁶ When the national interest acts as an ideology, there is a possibility of suppressing public freedom.⁶⁷ This can be considered ‘a type of pollution’ and an anti-social hindrance impeding healthy communication.⁶⁸ This is because the national interest and the interests of most individuals do not necessarily correspond.⁶⁹

Therefore, the press is required to perform a role which figures out what is in the national interest through social discussion and agreement.

C. The Hwang Woo-suk scandal, McCarthyism⁷⁰ and the Dreyfus Affair⁷¹

**Wake up from the Fantasy (Headline): With the retraction of Hwang’s papers, the “Hwang Woo-suk legend” has collapsed. However, the social factors that gave birth to his legend are still intact around us. It can be generally described as “Hwang Woo-suk patriotism and national interests.” (JoongAng Daily, 16 Jan. 2006)⁷².*

From this perspective, the scandal of ‘Hwang Woo-suk’s myth’ is likened to and reminiscent of the whirlwind of McCarthyism that swept across the United States half a century ago, and it is also likened to and similar to the ‘Dreyfus affair’ that swept over France a century ago.

The ‘Hwang Woo-suk myth’, ‘McCarthyism’, and the ‘Dreyfus affair’, although they took place in different times and places, share a common point: the public was shocked as much by the behaviour of the press as they were by the actual stories. In all these cases the press reported by amplifying the sources

⁶⁶ Jeon Gyu-chan, op.cit., p. 18.

⁶⁷ Ibid

⁶⁸ Ibid

⁶⁹ Ibid

⁷⁰ McCarthyism describes a period of intense anti-Communist suspicion in the United States that lasted roughly from the late 1940s to the late 1950s. During the period, a variety of distasteful practices were used: aggressively questioning a person’s patriotism, making poorly supported accusations, using accusations of disloyalty to pressure a person to adhere to conformist politics or to discredit an opponent. See, <http://en.wikipedia.org/wiki/McCarthyism#Notes>

⁷¹ The “Dreyfus Affair” could not have developed as it did in a country wholly anti-Semitic, nor in a country devoid of anti-Semitism. The extent to which anti-Semitic prejudices had pervaded French society during the latter half of the 19th century was astounding. Nationalist politicians sought to capitalize on the new-found fervour for a wholly unified Catholic France during the 1890s and early 1900s. It involved the wrongful conviction for treason of a promising young French artillery officer of Jewish faith, Captain Alfred Dreyfus. “The Affair” deeply divided the country into *Dreyfusards* (supporters of Dreyfus) and *anti-Dreyfusards*. See, http://en.wikipedia.org/wiki/Dreyfus_affair

⁷² Byun Sang-keun, “Wake up from the Fantasy,” JoongAng Daily, 16 Jan. 2006 or available at <http://joongangdaily.joins.com/200601/16/200601162159223079900090109012.html>.

without checking the facts completely.⁷³ The press can create a star out of unknown individuals by using their immense power and conversely the star they put in the spotlight is able to manipulate the media in return.⁷⁴

***‘J’accuse!’ A Century Later, Dreyfus Affair Still Resonates (Headline):**

“From the fake cloning scientist, Hwang Woo-suk case in Korea, to the treatment of innocent individuals in Guantanamo, or the Dreyfus affair: all are very different scandals from different times and places. Yet all stem from the same mechanism: truth is covered up in the name of “national interest”, while most of the press does not play its checks-and-balances role.”⁷⁵

In other words, they are similar in the fact that the information sources, aware of the weakness of the press who are often blinded by the need for scoops, succeeded in manipulating the media with the results that the press became oblivious of its more important duty -to let people know the truth.⁷⁶ The summary tables are shown the relationship between McCarthyism, Dreyfus Affair and Hwang Woo-suk Scandal.

Table-2			
The summary of the relationship between McCarthy, Dreyfus and Hwang			
	Hwang Woo-suk Scandal	McCarthyism	Dreyfus Affair
Times	1990s~2000s	1940s to 1950s	1890s~1900s
Place	South Korea	The United States	France
News Source	Hwang Woo-suk	Joseph McCarthy	Esterhazy
Points	Gain fame with fabricated paper	Discredit an opponent with anti-Communism	Grow militarism through anti-Semitism
Media	Report claims to the public without checking the facts completely.		
Methods	Each exploits the media’s patriotism to promote their claims.		
Results	The public was shocked at the news. The news source became famous. The jingoism clashed with ‘reporting truth’. News sources won temporarily, but lost because of the uncovering of the truth afterwards.		

⁷³ Chang Haeng-hun, “The Comparison between ‘Hwang Woo-suk myth’ and ‘McCarthyism’”, Newspaper & Broadcasting of Korea, February 2006, pp.32~37.

⁷⁴ Lee Sung-ju, op.cit., pp.254~260.

⁷⁵ Pierre Joo, ‘J’accuse!’, A Century Later, Dreyfus Affair Still Reasonates, Omynews International, 3 Aug. 2006 or available at http://english.ohmynews.com/articleview/article_view.asp?menu=c10400&no=308879&rel_no=1.

⁷⁶ Lee Sung-ju, op.cit., pp.253~260.

One of the main reasons is that the Korean media lacked journalistic objectivity when it came to science news about South Korean scientists as they gave importance to the discoverers' nationality rather than to the scientific significance of the discovery.

According to the report carried out by the Korean Press Foundation, 75.4% of news stories on scientific achievements on major television networks were about discoveries by Koreans. The survey found that about 80% of all science coverage is focused on discoveries by Korean researchers. Of the stories about discoveries by foreign scientists, only two emphasized their nationality. About 48% of the broadcasts about local scientists stressed the fact that the achievements were made for the first time. However, none of the reports of foreign scientists' achievements highlighted this.⁷⁷

Especially after Hwang published his paper in *Science* in 2005, the glorification of Hwang by the press and the public had semi-fascist characteristics. Indeed, "no single criticism against him was allowed" at that time. Criticizing Hwang, then the nation's proud stem-cell pioneer, was equal to defaming Korea. Hwang himself was clever enough to take advantage of Koreans' deep-rooted nationalism, saying "There is no border for science but every scientist has a nation." Moreover after the paper on the world's first tailor-made stem cells turned out to be false, many citizens blamed the whistleblower of the paper fabrication story, saying "it's a national shame."⁷⁸

It has been half a century since the whirlwind of McCarthyism. However, considering the occurrence of the 'Plame affair' related to *the New York Times*⁷⁹ in the US, it is important for the press to take a cautious approach in its relationship with news sources or agenda setting, because it directly leads to peril for the press and the lessening of people's trust in the press.⁸⁰ Judith P. Miller, the former reporter of *the New York Times*, has also been characterized as a possible co-conspirator with the Bush Administration in the attempt to discredit former Ambassador Joseph C Wilson, who openly questioned the intelligence used to justify the 2003 invasion of Iraq.

In relation to *the New York Times* 'Miller gate', Helen Thomas, the oldest White House reporter in the US, pointed out that, when the press can wilfully create public opinion by agenda setting, it will lead to making the press powerful and to the risk of distorting democracy.⁸¹

⁷⁷ Kim Tae-jong, *The Korea Times*, 12 Jan. 2006, available at http://search.hankooki.com/times/times_view.php?term=hwang+woo-suk++&path=hankooki3/times/lpage/nation/200601/kt2006011217340411970.htm&media=kt.

⁷⁸ Min Kyong-bae, "The Frenzy of Internet", *Citizen and Journalism*, Vol. 67, 2006, pp.10~11.

⁷⁹ See, http://en.wikipedia.org/wiki/Judith_Miller_%28journalist%29.

⁸⁰ Kim Sa-seung, "What is the boundary between the protection of news sources and the manipulation by the news source," *Newspaper & Broadcasting*, Dec. 2005, pp.62~66.

⁸¹ Helen Thomas, *op.cit.*, pp.141~145.

In particular, Thomas argued that the McCarthy whirlwind was the result of newspapers neglecting the pursuit of truth and concentrating on setting agendas. She also reproached the White House for administering news management and manipulating the press.⁸²

“While all the presidents have in one way or another, managed the news, the effects of ‘news management’ upon modern decision-making is more pervasive.”⁸³

And therefore she emphasized that the press must prioritize the pursuit of truth rather than building up public opinion.

“We are the guardians of the people’s right to know, not of transient administrations who misuse and abuse their power, often to muzzle the press. It was Abraham Lincoln who said, ‘Let the people know the facts and the country will be safe.’”⁸⁴

The press, without realizing it, sometimes becomes the tool of psychological campaigns and no journalist can be safe from this trap. There are numerous traps into which the press can fall the very minute it lets down its guard. It is the reason why must be paid attention to media ethics.⁸⁵

Matthew Kieran explains that.⁸⁶

“Remaining true to the nature of the events is the overriding ideal of respectable journalism and news media organization. This is why good journalists do not approach news events and stories with a general overarching explanation in mind. ...Good journalists follow the particular events and threads of a particular story to apprehend what actually happened and why.”

D. Journalists Manipulated by News Sources

As illustrated in the scandal of Hwang Woo-suk, the press, when wilfully setting agendas and not pursuing the truth, takes a high risk of being reversely exploited by news sources. In particular, there is a significant risk of being used by dishonest information sources or clever manipulators. The case of

⁸² Ibid pp.57~85.

⁸³ Ibid p.59.

⁸⁴ Ibid p.201.

⁸⁵ Chang Haeng-hun, “Journalists taken advantage of by a news sources seeking for manipulation”, Newspaper & Broadcasting of Korea, Dec. 2006, pp.56~61.

⁸⁶ Matthew Kieran, News Reporting and the Ideological Presumption, Journal of Communication Vol. 47(2), 1997 p.86.

Professor Hwang's research fabrication illustrates this aspect well.

Many Korean scientists shy away from the media, saying that most reporting on science and technology is "very sensational and sometimes exaggerated, distorted" with superficial connotation.⁸⁷ On the contrary, Dr. Hwang had a very positive attitude towards the media.

*"Dr. Hwang's particular concern for journalists is very famous in Korean science journalist society. He has two mobile phones. One of them is used only for the media in order to be ready to answer a journalist's call. He answered the call even if he was giving a lecture."*⁸⁸

*"Professor Hwang tried to show extreme courtesy to journalists with whom he enjoyed a popularity bordering on stardom. - for example by bowing to them with his body bent almost by 90 degrees."*⁸⁹

At that time, science reporters had been considered as a "minority" in Korean journalism ranks. The reporters suddenly found themselves covering one of the hottest topics with the stem cell story and in particular the rise of Dr. Hwang's fame. Most Korean journalists who covered the stories of his stem cell study gave favourable assessments of Professor Hwang that he was modest and very kind and friendlier than any other scientist or news source.

The change of making science stories 'hottest topic' was so fast and dramatic that science journalists in Korea had failed to check facts and verify his claims. Many Korean journalists had treated science stories as if they were watching sports games on the basis of press releases and his explanation.⁹⁰ Those below are the headlines of major broadcasting companies.

**All Media in the World Say, "Hwang Has Climbed to the Top of Cloning" (KBS, 4 Aug 2005)*

**Korea Runs Over the First Hurdle (mbc, 20 May 2005)*

**The Korean Peculiar Chopstick Culture Produces a World Champion (sbs, 23 May 2005)*

**Hwang Wins 'Nobel Award of Korea' (YTN, 27 May 2005)⁹¹*

In the case of the reporting of science and technology, of course, it is not only Korea in the world that often describes science topics as "very sensational, exaggerated."⁹² A report by the Social Market

⁸⁷ Kang Yang-ku, Kim Byung-su and Han Jae-kak, op.cit., p.80.

⁸⁸ Ibid.

⁸⁹ Lee Sung-ju, op.cit., p.137.

⁹⁰ The Editorial of the Hankook Ilbo, 11 January 2006

⁹¹ Available at http://search.ytn.co.kr/NEW/view.php?s_mcd=0105&key=200505270734006947.

⁹² See, for example, Caroline Van Den Brul, Perceptions of Science: How Scientists and Others View the Media Reporting of Science, Sixth Guardian Lecture at Nuffield College, 22 June 1994.

Foundation (SMF), an independent research group, accused the U.K. media of sensationalizing such scientific issues as vaccination, blaming inaccurate reporting for the scare that led some parents to shun the MMR vaccine.⁹³

“Claudia Wood of the SMF said journalists tended to seek black and white stories and looked for certainties that could not be provided by science.”⁹⁴

In the case of the United States, Dorothy Nelkin explains:

“Every year the media devotes considerable attention to winners of the Nobel Prize. With stunning regularity, stories of the Nobelists focus on their national affiliations and stellar qualities, using language recycled from reports of the Olympic Games: Another strong U.S. show”; “Americans again this year receive a healthy share of the Nobel Prizes”⁹⁵

The problem is, as illustrated in the scandal of Hwang Woo-suk, the science journalists of Korea did not ask the questions they naturally had to ask as journalists.

Lee Eun-jung, a science writer of the Kyonghyang Daily of Korea, covering the scandal, said that Hwang knew very well how to use the media and a journalist in order to propagandize ‘his research’, by taking advantage of ‘Korean culture and Korean journalism practices’.

“The Korean science writers group has been holding a regular meeting every two weeks to gather information on the current science and technology with invited scientists. Hwang was one of the guests. After the contacts with science writers in 1998, he often invited me and other journalists to his lab to personally show experiments of his cloning study. He knows very well how to stimulate ‘the journalistic instinct’. It forged a close friendship between Hwang and the invited journalists.”⁹⁶

Having become known to Korean journalists, Hwang preferred holding a news conference to announce his research results rather than to present an academic paper to the science community. In order to set the ball rolling, Hwang produced a press release; it is allegedly said that Hwang discussed with a Korean journalist the matter of announcing “Young-long”, a dairy cow cloned in the same way as “Dolly” in 1999. He also asked the President to name a cloned cow. Before publishing papers on his research, he gave tips

⁹³ See, Media ‘Sensationalizing Science’, BBC website, 3 March 2006, available at <http://news.bbc.co.uk/1/hi/sci/tech/4771154.stm>

⁹⁴ Ibid.

⁹⁵ Dorothy Nelkin, op.cit., p. 15.

⁹⁶ Lee Eun-jung, Sciencetimes, 23 June 2005, or see <http://www.scieng.net/zero/view.php?id=sisatoron&no=2478>.

to selected journalists, saying that 'big stories' would soon result. He used journalists to fuel these 'big stories'.⁹⁷

He also made comments in his interviews to please the press. Most of all, Professor Hwang was welcomed by the press because of his eloquence. He was able to inspire confidence that Koreans could become the best in the world. He has a very good knowledge of science and technology as much as government officials or politicians would have.⁹⁸

"The publicity that Professor Hwang received reflected the fact that he had already proved himself to be a remarkably "media savvy" researcher. His apparent dedication to his work and to the public good, his Buddhism, and his photogenic appearance, all worked to make him an ideal subject for media interest."⁹⁹

Accordingly most Korean media neglected to monitor his research carefully, failing to play the media role of watchdog. Even if the flow of information is one-way, the relationship between the journalist and the news source should not be subordinated. One of the reasons is that journalists and Hwang voluntarily agreed to form a "symbiotic relationship" on the basis of Korean journalism culture.¹⁰⁰

Journalists must be on the alert and consistently aware of underlying ethics when dealing with news sources. Special caution is required when the mainstream press follows or compromises with agenda setting by netizens who are not well acquainted with the gate-keeping function of the press, such as accuracy or reliability because it may degrade its source's credibility.

The problem is that the relationship between journalists and news sources is indeed very ambiguous. It can best be described as a relationship of "not to be near or not to be distant," or "holding them at arms length." However, the explanation of "keeping a distance" is too simplistic. News sources are interested chiefly in having the journalists accept information advantageous to them in any way possible. Journalists pursue appropriate methods to decide whether the information is suitable for the recipients. Both sides are caught in a veritable 'tug-of-war' in order to satisfy their own interests. Journalists, the minute they lose this game, fail completely as the mouthpiece of news sources.

From this perspective, it is a very complicated issue of ethics to set the boundary between journalists and

⁹⁷ Lee Kun-young and Kim Yang-joong, The Hankyoreh Shinmun, 12 Jan. 2006.

⁹⁸ Lee Duk-hwan, Sciencetimes, 5 Dec. 2005.

⁹⁹ Robert Sparrow, "Trust Us...We're Doctors: Science, Media, and Ethics in the Hwang Stem Cell Controversy", Trust and Ethics in the Investigative TV Journalism, Institute of Communication Research, Seoul National University, May 2006, p.3

¹⁰⁰ Kang Myung-ku, op.cit., p.21.

news sources.¹⁰¹ In particular, considering the different realities of press culture in each country, it does not seem easy to cut out international standards of ethics.

However, considering that the path pursued by science and the press is fundamentally the same, there is a clear boundary to be understood by everyone. In other words, science fundamentally is a study to search for the truth. Therefore, scientists also have to be inquisitive at all times. Likewise, the press, as a principle of journalism, is also trying to search for the truth, and therefore must always have curiosity.¹⁰² They have to question themselves continuously and their news sources ceaselessly.¹⁰³

Part III explores the cause of the media's fatal mistake which has mainly to do with Korean media's culture and newsroom organization.

¹⁰¹ For a more detailed discussion on the ethical decision-making in newsroom, see for example the Poynter online ethic journal. Particularly, Bob Steele suggests, "Ask These 10 Questions to Make Good Ethical Decisions.", available at <http://www.poynter.org/column.asp?id=36&aid=4346>

¹⁰² Lee Sung-ju, *op.cit.*, pp.94~95.

¹⁰³ *Ibid.*

Part-III. Newsroom Culture and Organization in Korea

A. Korean Media Under the Development Dictatorship Culture

Why then did the press of Korea which had served as the foundation stone in the phenomenally fast democratization and economic growth following the Korean War¹⁰⁴ commit such a fatal mistake that could deprive them of their reputation as a trustworthy source of information?

The essence of Hwang Woo-suk scandal can not be explained simply by concluding that it was just a result of unethical relationship between journalists and news sources. In the words of Denis McQuail, who wrote on the media organization in its context:

“The institutional structures -for instance, size, forms of ownership and media industrial function -can be seen as having direct consequences for the conduct of particular media organizations-all the systematic activities within them -which in turn affects performance, in the sense of the relative amount and type of media content produced and offered to audiences.”¹⁰⁵

In Korea, media sociologist Kim Dong-gyu has written:

“Broadcasting products such as news articles, TV news, dramas, etc., which we see in our daily life, are close to a systematic product of a press organization rather than products of an individual producer or a newspaper man. Especially, a press organization focuses on professionalism of a production activity, while paradoxically strengthens an efficient management of the organization for efficiency of a gigantic and highly complicated organization.”¹⁰⁶

Within Korean broadcasting organizations, professional activities of pressmen and producers have been limited by a bureaucratic mechanism which emphasizes an organizational efficiency in the production process of broadcasting products. In particular, the case of Hwang Woo-suk has the characteristic feature that it was difficult to confirm what the facts were because the information provided by the parties concerned was extremely limited and the scientific world made different assertions. Such uncertainty brought confusion as the press came to a judgment on the hub of the story and the team of Dr. Hwang

¹⁰⁴ The Korean War, occurring between June 25, 1950 and a ceasefire on July 27, 1953, was a civil war between the states of North Korea and South Korea that were created out of the post-World War II Soviet and American occupation zones in Korea, with large-scale participation by other countries. See, http://en.wikipedia.org/wiki/Korean_War

¹⁰⁵ Denis McQuail, *Mass Communication Theory*, SAGE Publications, 3rd ed., 1994, p.185.

¹⁰⁶ Kim Dong-gyu, *The Organizational and Economic Approach to Broadcasting Product*, *Korean Journal of Journalism & Communication Studies*, Nov. 1992, pp.69-70.

actively made use of it.¹⁰⁷ With the uncertainty, this story became a large-scaled case unparalleled in the history of the Korean press.¹⁰⁸

Therefore, to be able to understand the essence of the Hwang Woo-suk scandal, it is necessary to examine the gate-keeping strategies and reporting policies used by the press in handling a major story that lasted over a long period of time. The press, as other general businesses, survives in the market through competition. Such reporting strategies can be considered as a kind of sales policy.¹⁰⁹

*Of course ethical journalism is under pressure, as are ethics in almost any walk of life, because we live in a world dominated by economic considerations and an economy driven by market forces.*¹¹⁰

In interviewing with journalists who covered the case of Hwang Woo-suk, Kim Hee-won concluded that journalists recognized the news which was out of line with public opinion was a greater risk than the news which failed to correspond with the facts. As a result, they wrote reports with the objective to avoiding a conflict with the public opinion. It was also her analysis that what influenced news production by press companies was market pressure, and press companies made rational choices accordingly.¹¹¹

*The journalists exists in two worlds: he or she enters a practice that is characterized by a commitment to truth-telling, and at the same time is an employee who works for a wage and is expected to produce a story of the kind demanded by his or her newspaper, magazine or TV station. The nature of such stories is determined by a market with which the journalists might have no sympathy.*¹¹²

Some press companies increased their influence by competitively producing news articles inclined towards Dr. Hwang in the early phase of the story. As Dr. Hwang's reliability waned, they employed a strategy of writing a story which is unfavourable for him. As such, they connived with what they thought the public wanted to hear.¹¹³

¹⁰⁷ Kim Hee-won, Korean Media's Press Strategies on the Cases of Uncertainty, Sogang University Graduate, 2006, pp.33~35.

¹⁰⁸ This scandal continued on for 6 months from 12th of November (U.S. Time) when Professor Gerald Schatten from the University of Pittsburg declared separation from Professor Hwang Woo-suk, the co-writer of the paper through the 12th of May 2006 when the Korean prosecution released the results of investigation. In particular, the period of extensive coverage on the issue to pour out several articles a day, lasted for over two months. See, *ibid*, pp.23~33.

¹⁰⁹ *Ibid*, pp.97~101.

¹¹⁰ Matthew Kieran, ed., *Media Ethics*, Routledge, 1998, p.12.

¹¹¹ Kim Hee-won, *loc.cit*.

¹¹² Andrew Belsey and Ruth Chadwick, ed., *Ethical Issues in Journalism and the Media*, Routledge, 1992, pp.27~28.

¹¹³ Kim Hee-won, *loc.cit*.

“A familiar media crime is to report something which is so out of context as to render it plain wrong. Journalism’s job may be to seek out the truth that those in power want to hide but its job is also to sell papers and beat off broadcast or broadband competition. It is under huge competitive pressure to tell the truth selectively.”¹¹⁴

The reason is that the Korean press has a tendency to cover cases by becoming more conscious of the “market recipient” rather than pursuing truth as the essential objective of good and honest journalism.

Thanks to the democratization of Korean society, the mass media in South Korea now enjoy an unprecedented degree of freedom and power. Yet they are also sometimes seen an example of an institution wielding power without responsibility. They operate in a world of cut-throat competition, not only domestically but internationally as well.¹¹⁵

It is because Korea still has a strong background of the “result-for-all policy,” remnants of former President Park Chung Hee’s development dictatorship culture.¹¹⁶

During the period of dictatorship under Park Chung Hee, scientific and technological activities were the tools of economic growth, the national objective of the time, and scientists were recognized as the best workers to achieve the modernization of the country. In order to achieve this goal, social responsibilities of scientists or consideration of their research procedures tended to be left out as secondary tasks. This policy continues today without significant changes. The Korean press still strongly supports such a policy.

In relation to this, Professor Choi Jang-jip, a political scientist of Korea, explains the Hwang Woo-suk scandal in the following manner:

“While the former Kim Dae-jung Government employed IT as the major driving force of economic growth, the current Roh Moo-hyun Government is employing the biotechnology industry as an important means for its neo-liberal growth strategy. The Roh Moo-hyun Government was a democratic government born out of fierce struggle against the vested interests in the furthering of the democratization process. However, paradoxically, the strong pursuit for neoliberalistic market economy system weakened the social basis for the Roh Moo-hyun Government. In the course of it, the Roh Government suffered because of the obsession to achieve certain results in order to make up for their waning popularity. This resulted in the Hwang Woo-suk scandal.”¹¹⁷

¹¹⁴ Julia Hobsbawm, ed., *Where the Truth Lies, Trust and Morality in PR and Journalism*, Atlantic Books London, 2006, p.120.

¹¹⁵ K.S. Venkateswaran, ed., *Media Monitors in Asia*, Asian Media Information and Communication Centre, 1996, p.96.

¹¹⁶ Park Chung Hee is generally credited as playing a pivotal role in the development of South Korea’s economy by shifting its focus to export-oriented industrialization. See, http://en.wikipedia.org/wiki/Park_Chung_Hee

¹¹⁷ Kang Yang-ku, Kim Byung-su and Han Jae-kak, op.cit., pp.243~244.

How is it still possible that the 'result-for-all policy' has survived this long in Korea? It is because there are 'two Koreas' existing within Korea.

*"Korea is going through a war against itself in this traumatic public drama. It is a war between two Koreas: The nationalistic-emotional-tribal Korea and the rational-objective-globalizing Korea."*¹¹⁸

In other words, while there is the 'New Korea', which outwardly is ranked as the 12th strongest economy in the world and is rapidly establishing market economy and democracy, there is also the 'Old Korea', which is inwardly inconsistent with global standards.

That is, 'Old Korea' is yet to escape from the traditional Confucian culture far distant from horizontal and interactive communication system. Its constituting members still tacitly share the 'old social culture'. Such a collision between 'New Korea' and 'Old Korea' may be the result of former President Park Chung Hee's development dictatorship paradigm still serving as an axis in contemporary Korean society.

B. Hierarchical Gate-keeping¹¹⁹ Practice

The keywords of 'hero, myth, national interests, national competitiveness and patriotism' as highlighted by most of the Korean press, originated from the Professor Hwang scandal. These keywords ended up fanning the 'result-for-all policy' culture. The society was busy evaluating results, thereby ignoring or neglecting ethical quality and transparency in science courses.

As a result, the press of Korea created a hero to satisfy mass psychology looking for a charismatic hero, making him a sacred being while avoiding criticism and verification as they were pressed down by the weight of political authority. On the flip side, journalists and news sources themselves were taken advantage of by the manipulation of public opinion to create the scandal and thus allowing it to last a long period of time.

To improve such a situation, most of the Korean press have introduced changes in their organizational systems.¹²⁰ However, a newsroom in charge of covering and reporting news is still operated by a

¹¹⁸ Jon Huer, Hwang and the Two Koreas at War, The Korea Herald, 17 Jan. 2006

¹¹⁹ The term 'gate-keeping' has been widely used to describe the process by which selections are made in media work, especially decisions whether or not to admit a particular news story to pass through the 'gates' of a news medium into the news channels. The concept originated in the research of the social psychologist Kurt Lewin into decisions about family food purchase. See, Denis McQuail, *op.cit.*, p.213.

¹²⁰ See Lee Young-hwan, "The introduction of 'Editor System' and strengthening of news planning and in-depth reporting", *Newspaper & Broadcasting of Korea*, March 2006, or Park Jae-young, "The

department-centred system under the direct control of a newsroom chief. The departmental heads system based on the leadership of the chief of the news division also remains in a perfect hierarchical order. In other words, a linear vertical structure, flowing in the order of a chief of a newsroom, a head of a department, a deputy head of the department, and frontline pressmen, has continued since the era of the Japanese occupation of Korea¹²¹.

This one-dimensional structure of the previous editorial divisions consisting of departments reveals a lot of problems and limits as society becomes more diversified and specialized.

First, the department-centred system lacks horizontal cooperation. Second, since long service results in promotion, the life cycle of frontline pressmen becomes too short for them to become truly professional pressmen. Third, complaints about personnel management can be raised between departments. Even a sideways movement to solve the problem can hinder the process of nurturing professional pressmen.¹²²

Such a vertical, hierarchical structure results in development of bureaucratic controls that influence gate-keeping of the desk.

“Once a direction about writing an article is reported, a deputy-head and a head of the department fix a theme whether it is ‘O.K. or not’. A frontline pressman cannot write a news article as he or she wants. It looks like a customized production. Although an article is written by a pressman, it has to meet the direction and philosophy of the desk in the end.”¹²³

It means that hierarchical decision of an organization, rather than individual autonomy of a news reporter or an editor, is the prime consideration in the overall process from news selection to reports and publication.

“The Korean newspapers run in perfect order still under the lead of a chief of a newsroom. They have a tendency not to go against the opinion of the chief. Even when the chief orders a rewrite of an article that already reached to the newsroom from a frontline pressman, he or she never makes any objection to the order and writes the article again as ordered.”¹²⁴

Redisplay of Journalists and Choice, Concentration of News” Newspaper & Broadcasting, Jan. 2005.

¹²¹ Korea under Japanese rule was the period of Japan’s *de facto* administrative control of Korea from 1910 to 1945.

¹²² Kim Dong-gyu and Kim Kyung-ho, The Qualitative Study about the News Material Collecting Organization and Habitual Practice of Korea Newspapers, Journal of Communication Science, August 2005, pp.43~44.

¹²³ Ibid, p.53.

¹²⁴ Ibid, p.45.

Such a “desk-centred” control system, where the chief of a newsroom is in absolute control along with the head of a department, functions as a guideline for pressmen to ‘write an article loyal to the instruction’. In relation to this, Kang Hyong-chul, a media scholar in Korea, pointed out why the Korean media do not have a consistent reliability from people:

*“In Korea, the press is in a more powerful position than any other established power block. If a pressman wants to help someone privately by writing a story on someone he/she likes for self-interest, the pressman can do it at ones pleasure.”*¹²⁵

It is because the head of a department has a strong authority to instruct, to cover a story, to order a rewrite of an article, and evaluate performance of each frontline pressman. In addition, the chief of a newsroom has the right to implement personnel management that controls heads of departments.

Thus, when ideas and philosophies of the divisional chief or the departmental heads are internalized in an overall news organization, it is possible to see a natural formulation of a mechanism where the unintended distortion of truth or the promotion of a specific line is naturally connected to news reporting.

C. Newsroom’s Three Characteristics; Seniority, Cohort Career Path¹²⁶, Apprentice System

Compared to general corporations in Korea that introduced a teamwork system to change a linear, vertical organizational structure to a nonlinear horizontal system, most of the Korean press organizations still maintain a vertical integrated structure as explained above. In particular, recent problems of manpower shortages reinforce the vertical structure, to what is thought to be a more efficient one.

In some sense, a hierarchical vertical structure is efficient in distributing limited human resources and materials in an effective way. What has supported the vertical structure includes the ‘Seniority System’ and the ‘Cohort Career Path’ or ‘Batch-centred’ practice that emphasizes the year in which an employee enters a company. The seniority system and the Cohort Career Path (batch-centred practice) still work as main factors in controlling an organization invisibly even in the current media environment, which is changing rapidly.¹²⁷

¹²⁵ See, “The Round Table II, People's Rights to Know and Journalism Ethics”, op.cit., p.418.

¹²⁶ The group of people who join a company together at a particular time. Normally their age is similar.

¹²⁷ Kim Dong-gyu and Kim Kyung-ho, op. cit., p.53.

This suggests that although most media organizations insist on evaluation of individual performance and professionalism externally, actual personnel dispatch and management in a news department depend mainly on the batch year of public employment rather than on individual performance. Such a culture strengthens and internalizes bureaucracy more firmly in an organization.

“The batch year of public employment serves as a kind of class. Competition between batches improves the efficiency of an organization, while a batch-centred practice causes closeness of an organization. This impedes communication in an organization and reproduces a clique culture.”¹²⁸

Even members of the organization are accustomed to various practices in such a hierarchical structure. The apprentice practice in which intern pressmen learn while working after entering the press plays a particular role in handing down and reproducing such a culture in an organization. The main reason is that there is no professional education system to develop journalists in the Korean society.

“Once joining the press as an intern, he or she is enforced to learn and follow unconditionally the know-how of seniors under a strict top-down system. The interns have to endure a rigorous training, for instance, they can return home once or twice a week on the weekend for 2 months out of total 6 months of intern training periods. After the 6 months, they become just one part of an assembly line, no longer an individual.”¹²⁹

In such a structure, it is relatively difficult to achieve democratic bottom-up communication in various decision-making processes of an organization. Since the demand of the organization becomes the first priority rather than individual autonomy, truth is easily distorted in the hierarchical gate-keeping process.

What is so serious is that the Korean press has failed to overcome these problems even after recognizing them and trying to establish horizontal communication. The reason would lie in the dual characteristics of the Korean press. The press pursues horizontal democracy externally but they have internal problems such as a lack of journalistic professionalism and a lack of an ethical code.

The ways journalists report and edit are shaped by the relations of power and by the institutional priorities of the organizations that employ them. These relations and priorities are not in equilibrium, but exist in an ongoing state of conflict. Thus, the institutional values of journalism are not grounded in a static set of rules but rather emerge from an evolving set of practices. These values are transmitted by the dynamics of concrete real-life situations.¹³⁰

¹²⁸ Ibid, p.54

¹²⁹ Ibid, p.55.

¹³⁰ Jeremy Iggers, *Good News, Bad News, Journalism Ethics and the Public Interest*, Westview Press, 1998, p.16.

In Part IV, I introduce a comparative case of the British media's newsroom culture and organization with the example of BBC News 24 in order to find detailed means to prevent an occurrence of a '2nd Hwang Woo-suk Scandal'.

Part IV. Newsroom Culture and Organization in the U.K.

A. Division of Labour and Specialization of Work

The United Kingdom is said to be a model of a “parliamentary system” and the birthplace of the Industrial Revolution. Parliamentarianism is praised, relative to presidentialism for its flexibility and responsiveness to the public.¹³¹ The Industrial Revolution was a major shift in technological, socioeconomic, and cultural conditions in the late 18th and early 19th century that began in Britain and spread throughout the world.¹³² The Revolution resulted in the ‘division of labour’, which is the specialization of cooperative labour in specific, circumscribed tasks and roles, intended to increase efficiency of output.¹³³

BBC News 24, the 24-hour-news channel, has an organization that meets “such a long history of democratic culture” and also embodies a current diversified and specialized social structure. In other words, quite differently from most of Korean media which is governed by a strict hierarchal structure and culture, the U.K. media operates on a “horizontal culture, division of labour and specialization”.¹³⁴ The observation results of BBC News 24 are below¹³⁵:

For example, in the case of BBC News 24, two fundamental structures of reporting and editing, which are core functions of a newsroom, complete each other like two wheels of a carriage. It is distinguished from the Korean system where one chief editor of a newsroom and one head of a department take the full initiative for writing, making and producing news content. The decision making process is of the vertical structure characteristic of Korean culture. The Korean system prioritizes efficiency and tends to have everything else sunk under it.

Whereas a departmental head of the Korean press plays a “multi-functional role”¹³⁶ with the authority to order an article rewritten or evaluate a frontline pressman, the U.K. system has several positions to govern such functions. In the U.K. newsroom, the authority of a divisional chief or a departmental head is delegated.

¹³¹ See, http://en.wikipedia.org/wiki/Parliamentary_democracy.

¹³² See, http://en.wikipedia.org/wiki/Industrial_Revolution.

¹³³ See, http://en.wikipedia.org/wiki/Division_of_Labour.

¹³⁴ In an interview with Kevin Bakhurst, a director of BBC News 24, on 12 December 2006.

¹³⁵ The observation and interview with Kevin Bakhurst, a director of BBC News 24, were made on 11~12 December 2006.

¹³⁶ In the case of YTN, a 24-hour-news channel in Korea, the head of a desk has a multi-role of assignment, copyediting, proofreading, and assessment. There are a couple of deputy desks to help the multi-jobs that the chief desk has to do. The multi-role is common in most Korean media.

Kevin Bakhurst, a director of BBC News 24, explains that his system is well equipped with a smooth structure that accepts horizontal communication as it increases the effectiveness of working within a democratic organization.

“It’s relatively easy to talk openly and freely to senior colleagues and chiefs about stories and any kind of problems. And we have a long tradition of discussion at any level.”¹³⁷

The decision-making process to produce ‘news items’ in BBC News 24, reflects well the culture of a ‘democratic system’ in the United Kingdom. Many Korean journalists want to adapt the Korean newsroom to this model.

“The decision making system of reporting in press companies is very similar to the system of reaching the truth through contrary evidence or positive evidence in science. The editorial meeting corresponds to peer review, the course of deliberation by a group of scientists. Selecting articles to be published through the procedures of subject selection, coverage and editorial meetings, etc. in the decision-making processes of the press is a similar principle to establishing a hypothesis in science.”¹³⁸

The description above can be applied to the BBC News 24 newsroom. Accordingly, errors must be corrected in detailed coverage and new articles must be selected if the original hypothesis is found to be incorrect. After the release of an article, the press undergoes the procedures of obtaining feedback from audience and readers. Needless to say, this process ensures rational counterevidence and free discussion.¹³⁹ In the U.K. newsroom, of course, hierarchy does exist, but the more important thing to note is that they have a two-way communication channel.

“Hierarchy exists in most of the British media, but it’s not always important and certainly stories are discussed in a collegiate atmosphere. That is the gist of British journalism society.”¹⁴⁰

On the subject of British journalism culture, Sean Maguire, Political and General News Editor of Reuters, explains:

“If someone asks me to tell just one point, what is British journalism’s prime value, I would like to mention, ‘the standards’, for which we should be dedicated to preserve its independence, integrity and freedom from bias in the

¹³⁷ In an interview with Kevin Bakhurst on 11th December 2006

¹³⁸ Lee Sung-ju, op.cit., p.61.

¹³⁹ In an interview with Kevin Bakhurst on 12th December 2006.

¹⁴⁰ In an interview with Luke Harding, a former Reuters Fellow and the Guardian’s Moscow correspondent, 11 November 2006.

gathering and dissemination of news and information. To secure the 'standards', it is very important to get 'horizontal communication' culture. The newsroom organization of Reuters¹⁴¹ reflects this 'standards and culture'."

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B. Producer-Centred System

This environment of 'standards' tends to bring the British media closer to 'content consumers' rather than try to satisfy 'government or the political power group, or media owner.'

In the case of YTN¹⁴³, a 24-hour-news channel in Korea, the newsroom is operated mainly by desks and reporters, who directly produce news. But in the BBC News 24, the newsroom is chiefly operated by producers who are closest to "content consumers." Such a producer-centred system (PD system) gives almost complete authority for deciding broadcasting commissioning, editing and programme operation to producers. Unlike YTN, a news reporter receives a coverage instruction and a report request from both of the news desk and a programme producer.

To support the 'PD system', there is a 'staff writer(sub-editor)',¹⁴⁴ who supplements news coverage and helps a producer through smooth communication with other teams as well as 'production associates' who help a producer. There is no such function in YTN in Korea. Furthermore, departmental heads of a newsroom are divided into an 'Assignment Desk,' which is responsible for assignment and harmonization between producers, camera crew, and a departmental head in charge of frontline coverage and reporting only. In the case of YTN, a departmental head should play a "multi-functional role." Most other Korean media newsrooms have a similar culture to YTN.

It should be particularly noted that there is a staff writer in BBC News 24, who works under a producer as a rewriter. The Korean press has no such system, though there was an attempt to introduce the 'writer system'.¹⁴⁵ The staff writer normally has no beat to cover a news source and the field¹⁴⁶ and just concentrates on writing a news article without other assignment. This is a system with a weakened

¹⁴¹ See, <http://about.reuters.com/aboutus/editorial/independence.asp>

¹⁴² In an interview with Sean Maguire, Editor of Political and General News Unit of Reuters, 26 January 2007.

¹⁴³ See, http://infor.ytn.co.kr/ytn/foreign/eng_ytn.html or <http://www.ytn.co.kr/>

¹⁴⁴ For this paper, I use the term 'staff writer' in place of 'sub-editor'. For more on the role of the sub-editor in the U.K., see for example, Elizabeth Wilson, *Working in Journalism*, Northcote House Publishers, 1997, pp.46~47.

¹⁴⁵ YTN failed to introduce a 'writer system' because of the strong objection from the staff reporters' organization and desks in 2005. The opponents claimed that 'the writer system' could result in "chaos in the newsroom process" which would lead to conflict among writers, reporters, desks and producers.

¹⁴⁶ A subject or area of a city that someone is responsible for as their job.

boundary between departments. This is a thorough division of labour and specialization to produce news content only for audience.

Along with a staff writer system, production associates play a role in tracking the flow of domestic and overseas news and gathering news sources as a kind of helper. Moreover, a senior producer has a right and responsibility to select news articles and adjust the length of items. He/she suggests an opinion for supplementary news coverage as a central axis of a newsroom. In addition, there are several executive producers who are in charge of the overall operation of several programmes, similar to the role of a chief of a newsroom in Korea.

Such a diversified and specialized system restrains one-way communication and improves work efficiency. In particular, the editorial meeting of a newsroom can provide an opportunity for all related parties in content production, including ordinary reporters or producers, to participate in the meeting and suggest creative ideas. Therefore, it can play a role as an important venue for horizontal communication.

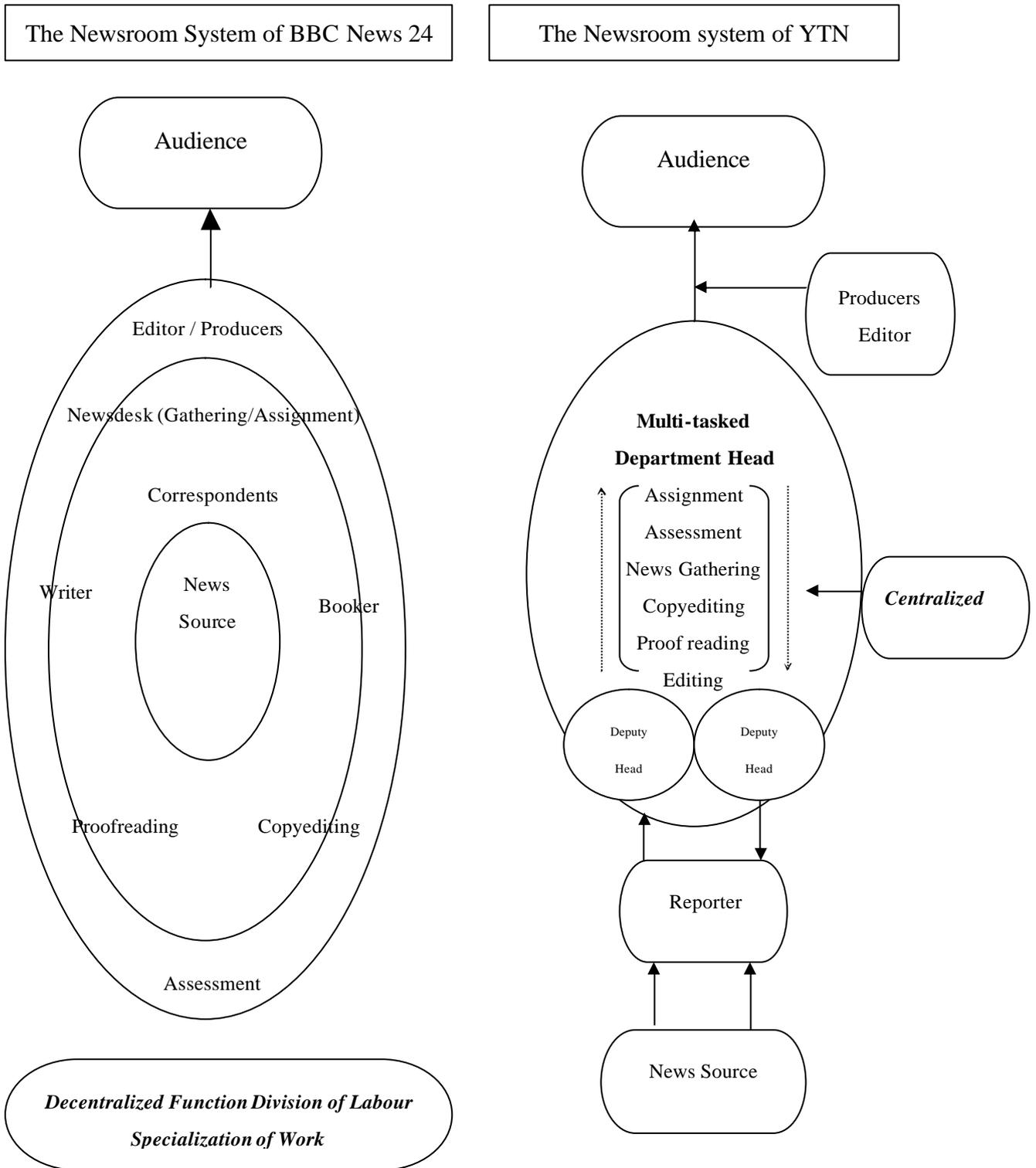
In other words, while members of a media organization in Korea are linked together in a vertical, subordinate relationship for the purpose of content production, there is a concept of partnership, which encourages a cooperative working environment in the U.K.

To improve such a democratically horizontal culture, BBC News 24 has a system of fair competition and equal opportunity employment,¹⁴⁷ which is also different from Korean system. Korean hiring practice is similar to applying to a Korean university, consisting of a written examination and interviews. However, the U.K. press has no such examination. In order to obtain employment at a prestigious media organization such as BBC, the Guardian or Financial Times, etc., an applicant normally starts in a local news organization. After working as a journalist for a local news organization, he/she can naturally transfer to a medium-sized organization. Finally, he/she will acquire sufficient experience to move to a national broadcasting station. The system serves as a natural way to prevent the Korean style culture such as a batch-centred operation. Thus, evaluation by performance and fair competition can be obtained. The summary tables below are shown the differences between the U.K. and Korean media by comparing the BBC News 24 and YTN.

¹⁴⁷ See, <http://www.bbc.co.uk/jobs/workexperience/index.shtml>

Table-3		
The comparison of the newsroom function between the U.K. and Korean media		
	BBC News 24	YTN
Division of Labour	Clearly Defined	Ambiguous
The Role of Desk	Mainly Assignment	Multi-tasked
Specialization of Work	High	Low
Decision-making Process	More Horizontal	More Hierarchical
Power and Authority	Decentralized	Centralized
Boundary between Departments	Weak	Very Strong
Who Control Contents	Chiefly Producer-Centred	Mainly Desk-Centred
Story Choice	More Open	More Closed
Writer System	Functioning	Non-functioning
Recruitment of Journalists	Normally Career Premium Based on Experience	Mainly Written Test and Interview
Move to Other Media	Open	Nearly Closed
Staff Competition	Merit Based	Seniority Premium
Cohort Career Path	None	Important
Prior Review of scripts for Live Presentation	Lightly Checked	Almost Full Checkby Desk

Figure-1, the comparison of the newsroom work flow between the U.K. and Korean media



C. Self-regulation of the U.K. Press

In most Korean news channels, most scripts for live broadcasts should pass through the multi-functional news desk first except in such instances as 'a breaking news report'. However, only an outline of the news content is produced in advance in BBC News 24. Except in some special cases, it is normal practice not to preview scripts or rewrite them. A fully professional journalistic practice provides autonomy to a reporter in live broadcast situations. Of course, the most precious possession of British broadcasting system is its independence.¹⁴⁸ Accordingly, it seems that a principle of complete self-regulation is applied as a journalist.

This is because U.K. reporters keep in mind the journalistic codes of ethics by the Press Complaints Commission, which emphasizes a distinction between fact and opinion. If any distortion or wrong information is found, ethics rules clearly states that they should be immediately corrected. When any news organization violates these rules, then PCC provides specific and practical means to punish a violation of an ethical principle.¹⁴⁹

James Painter, an Executive Editor of BBC World Service, said that even special stories or scoop cannot be reported when more than two facts are not confirmable according to the reporting philosophy of BBC.¹⁵⁰

In particular, there are institutions which connect the public and the world of science, which is in general more difficult for journalists as well as the public to access and cover.¹⁵¹ As science becomes closer to industrial interests so it needs to open up to society as well.¹⁵² The U.K. science community has been making efforts to improve the public's attitude toward science through an educational reform.¹⁵³ Moreover, for accurate news reporting about the science and the medical field, the U.K. science world and the press have cooperated and established the Science Media Centre.¹⁵⁴ This centre, an independent

¹⁴⁸ European Institute for the Media, *Television Requires Responsibility*, Vol 2, Bertelsmann Foundation Publishers. 1995, p.372.

¹⁴⁹ See, <http://www.pcc.org.uk/cop/practice.html>

¹⁵⁰ In an interview with James Painter, an Executive Editor of BBC World Service, 23 Jan. 2007.

¹⁵¹ The U.K. has the longest history of the science popularization business. The early establishment of the Royal Society in 1662, the Royal Institute in 1801, and the British Association for the Advancement of Science in 1831, have contributed to science popularization. For example, M. Faraday, a boy bookbinder who took a public lecture by a chemist, H. Davy in the Royal Institute, made a great contribution to the science of electromagnetism and electrical culture.

¹⁵² Tony Gilland et al., ed., *Science: Can We Trust the Experts?*, Institute of Ideas, Hodder & Stoughton, 2002, p.73.

¹⁵³ See, for example, Tony Gilland, et al., ed., *What is Science Education for?* Academy of Ideas Ltd., 2006.

¹⁵⁴ See, <http://www.sciencemediacentre.org/index.html>

organization,¹⁵⁵ provides news articles related to the science and the press or the broadcasting stations, helps journalists covering news and corrects any false reports.

“In between big stories, we are busy building up our database of contacts on the areas of science most likely to feature in the news. This allows us to be pro-active and puts us in a position to facilitate more scientists to engage with the media when their subjects hit the headlines.”¹⁵⁶

In Korea, there is a non-profit organization, the Korea Science Foundation, which is similar to the Science Media Centre. It was established in 1972 to improve public understanding of science and technology,¹⁵⁷ but the organization is funded fully by the government and so it has not yet led a major role in bridging the gap between the public and science because of credibility problems unlike the Science Media Centre.

“Our aim is to ensure that when a major science story breaks, we can quickly offer news desks a list of scientists available to comment, a summary of the main scientific points involved and details of which press officers or websites to go to for further information. The feedback from journalists has been very positive.”¹⁵⁸

Fiona Fox, Director of the Science Media Centre, adds¹⁵⁹:

“So we think the SMC’s role is clear - to persuade, cajole, train, support and facilitate scientists to have their say in these media and public debates - while they are in the headlines. As Ian Hargreaves says in an influential report on science and the media:

“To the question ‘who is misunderstanding whom?’ we answer that all players in this particular drama have too long a history of misunderstanding each other. Unless we can do better, we will weaken our ability to make wise judgments about science, undermining science and our ability as a society to make progress. Nothing less is at stake.”

The centre prepares very specific interview methods or expressions to prevent any exaggeration or false reports of scientific news as observed in the Hwang Woo-suk scandal. These guidelines could be very useful to prevent misunderstanding between the media and scientists. Here are examples:¹⁶⁰

¹⁵⁵ The Science Media Centre is housed within the Royal Institution but is independent from it. Media groups, industry, professional associations and individuals fund the Centre with donations capped at 5% of the running costs to preserve its independence. The team at the Centre is guided by a Science Advisory Panel and a Board.

See, <http://www.sciencemediacentre.org/aboutus.htm>

¹⁵⁶ See, <http://www.sciencemediacentre.org/aboutus.htm>

¹⁵⁷ See, http://www.ksf.or.kr/eng/introduction/IDX_002.jsp

¹⁵⁸ See, <http://www.sciencemediacentre.org/aboutus.htm> bid

¹⁵⁹ Fiona Fox, “Science and the Media: Adapting the Best Science to Headline News”, The Reuters Institute for the Study of Journalism seminar series, 17 Wed. Jan. 2007.

***Don't say, These risks are unquantifiable or unknown**

Try, It's difficult to say, because... ', or 'at the moment, it's not absolutely clear, but we are trying to find out by doing X, Y and Z.

***Avoid ducking the question.**

Give a reason if you can't discuss a subject, and never say "No comment."

***Stay calm. Be honest, frank and open.**

'The risks are all clearly laid out on our website/leaflet etc.'

***People will want strong proof against intuitively plausible links.**

I know it seems to make sense, but research has shown the exact opposite.

D. Why the Democratic Culture of News Room is Important

Philosopher Karl R. Popper said that all scientific theories are by nature conjectures and inherently fallible, and that all refutation of old theory is the paramount process of scientific discovery. Should any new theory survive such refutation, it would have had a higher verisimilitude.¹⁶¹

"This picture of science-as a procedure whose rationality consists in the fact that we learn from our mistakes-is not quite good enough.....Science starts only with problems. Problems crop up especially when we are disappointed in our expectations. ...The conscious task before the scientist is always the solution of a problem through the construction of a theory which solves the problem."¹⁶²

These conjectures are controlled by criticism: that is, by attempted refutation, which include severely critical tests. They may survive these tests: but they can never be positively justified: they can be established neither as certainly true nor even as 'probable'. Criticism of our conjectures is of decisive importance.¹⁶³

In order to take a scientific step towards higher verisimilitude, it is very important for the media to create a working atmosphere that acknowledges 'trial and error'. Particularly now in an age of new media the media should pay attention to the roles and activities of internet blogs and website communities as a part

¹⁶⁰ http://www.sciencemediacentre.org/downloads/communicating_risk.pdf

¹⁶¹ http://en.wikipedia.org/wiki/Conjectures_and_Refutations

¹⁶² Karl R. Popper, *Conjectures and Refutations: the Growth of Scientific Knowledge*, Routledge, 1974, 5th ed, p.222.

¹⁶³ *Ibid*, preface.

of major news sources as illustrated in the Hwang scandal.¹⁶⁴ The website community are chiefly run by young Korean scientists, who played a pivotal role in pinpointing manipulations in Hwang's papers through an on-line two-way communication. It is the first time in the Korean scientific community that this has occurred and should be considered as a model for how the on-line communication may play a 'peer review role'.¹⁶⁵

This principle most successfully functions within the frame of democracy. Theories established by scientists, articles written by journalists, decisions made by judges and policies developed by political parties; theories, like humans, are fallible. In order to arrive at some truth, in order to make progress, we must be allowed room to experiment, space for trial and error.

Zahid Hussein emphasizes the importance of the relationship between communication and democracy:

*"Communication and democracy are two sides of the same coin. Without communication, there is no democracy and without diversity, democracy is a farce. Although the head and tail of a coin are different from each other, differentness of each face reinforces the force and presence of each, binding them inseparably and integrally together into a wholesome whole."*¹⁶⁶

According to this principle, everyone can be subject to criticism. Criticism begins with an open mind. In other words, we must believe we can learn from mistakes. So the press must always be open to criticisms from its members, readers and news sources and learn from their mistakes.¹⁶⁷

Both science and the media are based on this principle of democracy. Once this principle is ignored, the essence of science and press starts to be damaged. In order for the press system to function properly, the inside of media companies must be opened up. As free criticism of scientists is the driving force of scientific advance, free criticism in and outside of media companies enriches the press.¹⁶⁸

¹⁶⁴ See, footnote 41.

¹⁶⁵ A group of young Korean scientists alleged that Hwang's team and his research partner Roh Sung-il fabricated photos of stem cells for their own papers submitted to international journals. The claim, posted on the website of the state-backed Biological Research Information Centre (BRIC), <http://bric.postech.ac.kr>, showed that photos from different human embryonic stem cells published in three science journals overlap each other. See, http://search.hankooki.com/times/times_view.php?term=+&path=hankooki3/times/lpage/tech/200512/kt2005121916411411780.htm&media=kt

¹⁶⁶ Zahid Hussein, "Communication and Democracy Are Two Sides of the Same Coin," The PDF combined files of the International Conference on the Media and Democracy in the Knowledge Society in Seoul, 27~29 September 2006, p94, See, the download of PDF, http://www.kpf.or.kr/promo/promo_notice_list.php?board_id=promo_notice&mode=view&row_id=26&num=27&page=1&query_field=&query_key=&sub_type_parm=&s_title=&s_desc=&s_writer=

¹⁶⁷ Lee Sung-ju, op. cit., pp.56~74.

¹⁶⁸ Ibid.

In Hwang Woo-suk's case, most Korean press mass-produced sham articles because they, while shouting out democracy on the outside, ultimately failed to lead their organization through a democratic system as explored above.

The primary reason for this extraordinary scandal certainly includes the failure of a 'peer review' process publication like *Science* to detect this kind of scientific fraud. This also applies to the Korean media. Most mainstream media in Korea made a similar set of mistakes in gate-keeping the stories related to Dr.Hwang. It was because Hwang's particular skill at manipulating media could be easily done in Korean media society.

Part V. Recommendations and Conclusions

The Hwang Woo-suk scandal publicly disgraced the Korean media. They made suggestive reports to attract an audience which only served to manipulate the public opinion. The primary responsibility lies with the media.

The main reason is that the media has weak internal communication processes that do not correspond and/or complement its external activity of promoting democracy. A production organization in a newsroom repeatedly reproduces the past organizational practice by regarding efficiency in the rapid collection of information to production and distribution as their primary value. In other words, the Korean press puts the first priority on efficiency, all the while sacrificing other important values. Such a 'results-centred' reporting style breeds a system that supports bad reporting and should be eliminated as soon as possible.

First, the Korean media's vertical structure which ranks from a chief of a newsroom to a departmental head, a departmental deputy head and frontline pressmen must switch over to a horizontal team-based structure of genuinely professional journalists who have a self-regulation capability. The horizontal structure should achieve a division of labour and specialization on the basis of the BBC News 24 in the U.K. to delegate the power authority in order to induce cooperation and checks. Particularly, the multifunctional desk-centred system of the Korean news room should be divided into several parts individually such as 'staff writer system' while the producer-centred system should be introduced simultaneously as these systems will contribute to authority decentralization and harmony between different departments.

Secondly, the Korean media seniority system and cohort career path, batch-centred organizational operation should be discarded since they impede horizontal communication in an organization while preserving a clique culture. To do so, it is necessary to improve selection and recruitment methods as well as professional training for pressmen.

Thirdly, the beat-centred news gathering process¹⁶⁹ should be eliminated to prevent inappropriate relationships between reporters and news sources. Such beat-centred production practices cause a

¹⁶⁹ In Korean media society, the beat is mainly segmented on the base of an area of a city or a government department, not on the base of a particular subject such as economy, environment or science. The journalists are responsible for the beat as their job. There is press corps, a sort of journalists association, in most beats. Traditionally, the relationship between news source including government and reporters has been characterized as a 'symbiotic relationship'. But the corps had been often criticized for playing a key role in supporting the government policy rather than pursuing the truth. See, Park Dong-suk, A Qualitative Study on the Relations between News Source and Reporter: On the Problems of Beat

negative effect of ‘media manipulation by news sources’ since the source delivers news in a unilateral way as shown throughout the Hwang Woo-suk scandal. To discard such beat-centred practice, journalists need to be specialists who conduct rigorous investigative journalism

Fourthly, most of the Korean press already has a well-established media ethical code; for example, a newspaper code, a broadcasting code, the code of the journalists association and so on. However, as shown in the Hwang Woo-suk scandal, such ethical codes seem to remain just as ‘pieces of paper’. But ethics are an absolutely fundamental factor for survival of the press as well as journalists. In this perspective, it is necessary for all journalists to learn from the past and make a concerted effort to handle their own ethics properly.¹⁷⁰ By strengthening the ethics training of journalists perhaps a better relationship can be forged between a news source and the media.

Fifthly, improved collaboration between the press and members of the scientific community should be forged to deliver accurate science reporting to the public. Currently, the policy of promoting scientists’ communication with the public¹⁷¹ or the ‘policy of active intervention on the press’, which the Royal Society of London, the British Science Media Centre and so forth are conducting to make a bridge between scientists and the public, can be a basis for the work to prevent a second Hwang Woo-suk scandal.

Sixthly, today so-called ‘citizen’s journalism’ has been developing worldwide with the help of new media in the form of internet blogs and so on. As more people use the web to find and interpret the results of scientific research, the scientific community needs to focus on how social and spatial dynamics of web dissemination might affect public understanding of science.¹⁷² Particularly in the case of science reporting, the role of media should be enforced to be a form of two-way communication with its audience or web users who can provide feedback in the form of peer review.

Reporting System, The Korean Journalism Research, Bang Il Young Foundation, 2001. pp.229~278.

¹⁷⁰ Ted Gup, a journalism scholar, argues the reason why journalists should take an interest in such an abstract issue as “who is a journalist?” is that “a journalist works for the public and ultimately answers to the public alone.....The question today, as before, goes to the heart of who is worthy of public trust and cognizant of the special responsibilities that go along with that trust.” See, Ted Gup, “Who’s a Journalist?”, What’s Next?, Media Studies Journal, The Freedom Forum, Spring/Summer 1999.

¹⁷¹ Scientists’ communication with the general public has been recognized by certain prestigious scientific societies as a valuable and needed action in the United Kingdom. For example, the Royal Society of London added the Michael Faraday Award to its list of prestigious prizes. This award is given each year to the scientist who has made the most significant contribution to the public understanding of science. The Society said in 1985, “*It is clearly part of each scientist’s professional responsibility to promote the public understanding of science.*” See, JoAnn Burkholder “Uncertain Ground: The Boundary Between Science and the Media,” Module X: Science and the Media: Ethical Issues, NC State University, http://www.fis.ncsu.edu/Grad/ethics/modules/science_media_ethical_issues.pdf p.14.

¹⁷² Richard J. Ladle, Paul Jepson and Robert J. Whittaker, Scientists and the Media: the Struggle for Legitimacy in Climate Change and Conservation Science, *Interdisciplinary Science Reviews*, 2005, Vol.30(3) p.234.

Seventhly, Korean journalism successfully fought its way to freedom against a military dictatorship. Now it confronts another kind of barrier; the universal beliefs of people in such basic values as patriotism and humanism.¹⁷³ The Korean press must respond to the world by dealing with Korea's own cultural, ethical and legal issues concerning contemporary science and the global standard from the perspectives of 'global standards' rather than of nationalism to fulfil its proper mission to pursue the truth. It is because the 'global standards of ethics' are no different from unwritten laws in today's era of globalization.

*"If credibility is the cornerstone of a strategy to maximize audience size and profits, then ethical codes, which promote trustworthiness and reliability, become compulsory rules in the operation of contemporary media."*¹⁷⁴

Table-4	
The Ways to Improve the Quality of Korean Media	
1	The linear and vertical coverage structure must switch over to a horizontal team-based coverage structure of genuinely professional journalists who have a self-regulation capability.
2	The seniority system and cohort career path, batch-centred organizational operation should be discarded and it is necessary to improve the recruitment, selection and training of pressmen.
3	The beat-centred news covering process should be eliminated to prevent inappropriate practices between reporters and the press.
4	It is necessary for all journalists to learn from the past and make a concerted effort to handle their own ethics thoroughly.
5	Improved collaboration between the press and members of the scientific community should urgently be made to deliver accurate science reporting to the public.
6	Particularly in the case of science reporting, the role of media should be enforced to be a form of two-way communication with its audience or web users who can provide feedback in the form of peer review.
7	The Korean press must now deal with Korea's own cultural, ethical and legal issues concerning contemporary science and the global standard from the perspectives of 'global standards' rather than of nationalism.

Reform of a newsroom is a matter of culture and practice. If a culture of bad practice is allowed to continue, the Korean press will see its second Hwang Woo-suk scandal sooner than they would like. If so,

¹⁷³ Kang Nam-jun, Kim Hee-jin and Youn Sug-min, "Patriotism, Belief in Science, Trust in Journalism: the Nature of Public Attitude Changes in the Stem Cell Scandal", Trust and Ethics in the Investigative TV Journalism, Institute of Communication Research, Seoul National University, May 2006, p.19.

¹⁷⁴ Blake D. Morant, op.cit., p.51.

not only the existence of the Korean press will be threatened, but also Korea itself may lose its reputation as a legitimate member of the global village in the era of globalization.

Reference

Books and Documents

- Adam Smith, *An Inquiry into the Nature and Causes of the Wealth of Nations*, the Online Library of Liberty, Liberty Fund, 2005.
http://olldownload.libertyfund.org/EBooks/Smith_0141.02.pdf
- Andrew Belsey and Ruth Chadwick, ed., *Ethical Issues in Journalism and the Media*, Routledge, 1992.
- Denis McQuail, *Mass Communication Theory*, SAGE Publications, 3rd ed., 1994.
- Dorothy Nelkin, *Selling Science: How the Press Covers Science and Technology*, W.H. Freeman, 1995.
- Elizabeth Wilson, *Working in Journalism*, Northcote House Publishers, 1997.
- European Institute for the Media, *Television Requires Responsibility*, Vol.2, Bertelsmann Foundation Publishers, 1995.
- Helen Thomas, *Watchdogs of Democracy? The Waning Washington Press Corps and How It Has Failed the Public*, Scribner, 2006.
- Jeremy Iggers, *Good News, Bad News, Journalism Ethics and the Public Interest*, Westview Press, 1998.
- John Eade and Darren O'Byrne, ed., *Global Ethics and Civil Society*, Ashgate Publishing Limited, 2005.
- Julia Hobsbawm, ed., *Where the Truth Lies, Trust and Morality in PR and Journalism*, Atlantic Books, 2006.
- K.S. Venkateswaran, ed., *Media Monitors in Asia*, Asian Media Information and Communication Centre, 1996.
- Kang Yang-ku, Kim Byung-su and Han Jae-kak, *Silence and Fanatics*, Seoul: Humanitas, 2006.
- Karl R. Popper, *Conjectures and Refutations: the Growth of Scientific Knowledge*, Routledge, 5th ed., 1974.
- Ko Jun-hwan, *Hwang Woo-suk Is Caught in a Trap*, Seoul: Dapgae Publication, 2006.
- Korean Society for Media Law, Ethics and Policy Research, "Round Table II, People's Rights to Know and Journalism Ethics", *Journal of Media Law, Ethics and Policy Research* Vol.4(2), 2005.
- Lee Chung-ung, *Science Needs Self-reflection, Not Fanaticism*, Seoul: EJBooks, 2005.
- Lee Sung-ju, *The Land of Hwang Woo-suk*, Seoul: Bada Publishing Co., 2006.
- Lei Xiong, *Bioethics and Media's Responsibility-A Chinese Perspective*, *Bioethics and Journalism*, Seoul: the 9th International Conference on Public Communication of Science and Technology, The Korean National Commission for UNESCO, 17~19 May 2006.
- Matthew Kieran, ed., *Media Ethics*, Routledge, 1998.
- Tony Gilland et al., ed., *Science: Can We Trust the Experts?*, Institute of Ideas, Hodder & Stoughton, 2002.

Tony Gilland, et al., ed., *What is Science Education for?* Academy of Ideas Ltd., 2006.

Won Yong-jin et al., ed., *The Fall of Myth, the Ghost of National Interest*, Seoul: Hannarae, 2006.

Papers

Blake D. Morant, *The Endemic Reality of Media Ethics and Self-Restraint*, Washington & Lee Legal Studies Paper Series Accepted Paper (No.4~22), Washington and Lee University, Nov. 2004.

Caroline Van Den Brul, *Perceptions of Science: How Scientists and Others View the Media Reporting of Science*, Sixth Guardian Lecture at Nuffield College, 22 June 1994.

Chang Haeng-hun, "Journalists Taken Advantage of by a News Sources Seeking for Manipulation," Newspaper & Broadcasting of Korea, Korea Press Foundation, Dec. 2006.

Chang Haeng-hun, *The Comparison between 'Hwang Woo-suk myth' and 'McCarthyism'*, Newspaper & Broadcasting of Korea, Korea Press Foundation, Feb. 2006.

Cyranoski, David, "Korea's Stem Sell Stars Dogged by Suspicion of Ethical Breach", Nature 429, 2004.

Hwang, Woo-suk, "Evidence of a Pluripotent Human Embryonic Stem Cell Line Derived from a Cloned Blastocyst." Science 303, 2004.

Hwang, Woo-suk, "Patient-Specific Embryonic Stem Cells Derived from Human SCNT Blastocysts" Science 308, 2005.

Jeon Gyu-chan, "The Korean media criticized for the propaganda on the "false national interests", Newspaper & Broadcasting of Korea, Korea Press Foundation, Jan. 2006.

JoAnn Burkholder et al., *Science and the Media: Ethical Issues*,

<http://www.fis.ncsu.edu/Grad/ethics/modules/>

http://www.fis.ncsu.edu/Grad/ethics/modules/science_media_ethical_issues.pdf

Kang Nam-jun, Kim Hee-jin and Youn Sug-min, "Patriotism, Belief in Science, Trust in Journalism: the Nature of Public Attitude Changes in the Stem Cell Scandal", Trust and Ethics in the Investigative TV Journalism, Institute of Communication Research, Seoul National University, May 2006.

Kang, Myung-Koo, "Patriotic Passion and the 'Sublime' Science: Un-searching for Journalistic Truths", Trust and Ethics in the Investigative TV Journalism, Institute of Communication Research, Seoul National University, May 2006.

Kim Dong-gyu and Kim Kyung-ho, "The Qualitative Study about the News Material Collecting Organization and Habitual Practice of Korea Newspapers", Korea: Journal of Communication Science, August 2005.

Kim Dong-Gyu, "The Organizational and Economic Approach to Broadcasting Product," Korean Journal of Journalism & Communication Studies, Nov. 1992.

Kim Hee-won, "Korean Media's Press Strategies on the Cases of Uncertainty," Seoul: Sogang University

- Graduate, 2006.
- Kim Sa-seung, “*What is the Boundary between the Protection of News Sources and the Manipulation by the News Source*”, Newspaper & Broadcasting of Korea, Korea Press Foundation, Dec. 2005.
- Lee Young-hwan, “*The introduction of ‘Editor System’ and strengthening of news planning and in-depth reporting*”, Newspaper and Broadcasting of Korea, Korea Press Foundation, March 2006.
- Matthew Kieran, “*News Reporting and the Ideological Presumption*”, Journal of Communication Vol. 47(2), 1997.
- Min Kyong-bae, “*The Frenzy of Internet*”, Seoul : Citizen and Journalism, Vol. 67, 2006.
- Park Dong-suk, *A Qualitative Study on the Relations between News Source and Reporter: On the Problems of Beat Reporting System*, Seoul : The Korean Journalism Research, Bang Il Young Foundation, 2001.
- Park Jae-young, “*The Redisplay of Journalists and Choice, Concentration of News*” Newspaper & Broadcasting of Korea, Korea Press Foundation, Jan. 2005
- Richard J. Ladle, Paul Jepson and Robert J. Whittaker, *Scientists and the Media: the Struggle for Legitimacy in Climate Change and Conservation Science*, Interdisciplinary Science Reviews, 2005, Vol.30(3) p.234.
- Robert Sparrow, “*Trust Us...We’re Doctors: Science, Media, and Ethics in the Hwang Stem Cell Controversy*”, Trust and Ethics in the Investigative TV Journalism, Institute of Communication Research, Seoul National University, May 2006.
- Tatsuro Hanada, “*The Domination of Populist Culture over Science and Journalism*”, Trust and Ethics in the Investigative TV Journalism, Institute of Communication Research, Seoul National University, May 2006.
- Ted Gup, “*Who’s a Journalist?*,” Media Studies Journal, The Freedom Forum, Spring/Summer 1999.
- Zahid Hussein, “*Communication and Democracy Are Two Sides of the Same Coin*,” The PDF combined files of the International Conference on the Media and Democracy in the Knowledge Society in Seoul, 27~29 Sept. 2006.

Articles

- Bang Jong-hwan “*The Future is Mine, Young Scientists Run for the Dream to be a ‘Second Hwang Woo-suk’* Seoul: Maeil Business Newspaper (<http://www.mk.co.kr>), 5 April 2005.
- Byun Sang-keun, “*Wake up from the Fantasy*,” Seoul: JoongAng Daily, 16 Jan. 2006.
- Cho Hong-sup, *The Root of ‘Scientism’ in Korea*, Seoul: The Hankyoreh Shinmun, 12 Jan. 2006.
- Choi Jung-ho, “*The ‘Real Hero’ in the Age of No Heroes in Korea*,” Seoul: Donga Ilbo (<http://www.donga.com/news/>), 26 Feb. 2004.
- Han Eun-jung, “*Media Under Fire for Reckless Coverage*”, Seoul: The Korea Times, 16 Dec. 2005.
- Hong Huie-gul, “*Give Hwang Another Chance*”, Seoul: JoongAng Daily, 25 Nov. 2005

- Huh Jun-myong, Kim Sang-hun and Lee Kwang-pyo, “*Korea Traditional Manner Clashes with Western Ethics*,” Seoul: Donga Ilbo, 24 Nov. 2005.
- Jin Hyun-joo, “*Seoul Launches Stem Cell Hub*,” Seoul: The Korea Herald, 20 Oct. 2005.
- Jon Huer, *Hwang and the Two Koreas at War*, Seoul: The Korea Herald, 17 Jan. 2006.
- Kim Dae-joong, “*A Witch Hunt of Ordinary People*,” Seoul: The Chosun Ilbo, 6 Dec. 2005
- Kim Jae-young and Kim Hun-ki, “*The Project of Making ‘The Second Hwang Woo-suk’ Come Launched in Seoul National University*”, Seoul: Donga Ilbo, 13 April 2005.
- Kim Ki-tae, “*Religious Groups Divided Over Hwang’s Research*”, Seoul: The Korea Times, 8 Dec. 2005.
- Kim Tae-gyu, “*Cloning Scientist Rebuffs Nature Journal’s Claim*,” Seoul: The Korea Times, 9 May 2004.
- Kim Tae-gyu, *Hwang Honored as ‘Supreme Scientist’*, Seoul: The Korea Times, 24 June 2005.
- Kim Tae-gyu, “*In-House Egg Donation Unethical*,” Seoul: The Korea Times, 16 Nov. 2005.
- Kim Tae-gyu, “*Support for Hwang Converge*,” Seoul: The Korea Times, 23 May 2005.
- Kim Tae-jong, *Science Journalism Marred by Nationalism*, Seoul: The Korea Times, 12 Jan. 2006.
- Kwon Ji-young, “*MBC Faces Crisis over Report*”, Seoul: The Korea Herald, 7 Dec. 2005.
- Lee Chul-ho, “*Patience Brings Truth*,” Seoul: JoongAng Daily, 5 Dec. 2005.
- Lee Duk-hwan, *Science and Media in the Case of Hwang Woo-suk Scandal*, Seoul: Sciencetimes, 5 Dec. 2005.
- Lee Eun-jung, *Brucella Vaccine Scandal and Prof. Hwang Woo-suk*, Seoul: Sciencetimes, 23 June 2005.
- Lee Kun-young and Kim Yang-joong, *The Tragedy of the ‘Result-for-All Policy’*, Seoul: The Hankyoreh Shinmun, 12 Jan. 2006.
- Nam Bong-woo, *Korean Press Fanned Hwang Woo-suk Scandal*, Seoul: Naeil Shinmun, 19 Dec. 2005.
- Paik Seung-jae, *British magazine Nature ‘target to downgrade Dr. Hwang’*, Seoul: Digital Chosunilbo, 7 May 2004.
- Pierre Joo, “*‘J’accuse!’ A Century Later, Dreyfus affair Still Resonates*”, Seoul: Oymynews International, 3 Aug. 2006.
- Song Ho-keun, *Place Blames Where It belongs*, Seoul: JoongAng Daily, 22 Nov. 2005
- Song Pyong-in, “*Hwang’s research is compared to Industrial Revolution, Schatten said*,” Seoul: www.dongascience.com, 20 May 2005.
- U.K. Journal Profiles Korea’s ‘Cloning King’*, Seoul: The Chosun Ilbo, 16 May 2005.
- Yoon Doo-hyun, Park Soo-hyun, Lee Dong-hyun, Kim Sung-hoon, “*I want to Be a Second Hwnag Woo-suk*,” Seoul: Munhwa Ilbo (<http://www.munhwa.co.kr>), 28 May 2005.
- “*All Media in the World Say, ‘Hwang Climbed the Top of Cloning’*”, Seoul: KBS, 4 Aug. 2005
- “*Another Medical Landmark*”, Seoul :The Korea Times, 20 May 2005.
- “*Chronology of Stem Cell Scandal*,” Seoul: The Korea Times, 23 Dec. 2005.
- “*Cloning Star Calls Research Success a Blessing for Korea*,” Seoul: The Chosun Ilbo, 7 June 2005.

“*Dynamite (Cartoon)*,” Seoul: The Chosun Ilbo, 12 May 2005.

“*First Clone of Calf Born in Korea*,” Seoul: The Korea Times, 19 Feb. 1999.

“*Hwang Picked as Korea’s Top Nobel Prize Candidate*,” Seoul: The Korea Times, 2 May 2005.

“*Hwang Wins ‘Nobel Award of Korea’*,” Seoul: YTN, 27 May 2005.

“*Hwang Woo-suk to Visit Japan*,” Seoul: The Korea Times, 16 June 2005.

“*Korea Advances One Step Closer to Stem Cell Therapy*,” Seoul: The Korea Times, 29 June 2005.

“*Korea Runs Through the First Hurdle*,” Seoul: mbc, 20 May 2005.

“*Korea’s Nanotech Feats Outshine High-Profile Biotech*,” Seoul: The Chosun Ilbo, 16 Sep. 2005.

“*Main points of SNU investigation*,” Seoul: The Korea Herald, 11 Jan. 2006.

“*Prof. Hwang Leaves for US*,” Seoul: The Korea Times, 8 June 2005.

“*Prof. Hwang: Move Heart of Heaven Long and Bumpy Road to Doctorate*,” Seoul: The Korea Times, 26 May 2005.

“*The Korean Peculiar Chopstick Culture Snatches the World to Be a Champion*,” Seoul: sbs, 23 May 2005.

“*Time for Critical Reflection*,” Seoul: The Korea Times’ editorial, 19 Dec. 2005.

“*World Hails Hwang Woo-suk’s Success in Human Cell Cloning*,” Seoul: The Korea Times, 20 May 2005.

“*You, Korean Should Have a Pride of Having the Greatest Scientist in the World*,” Seoul: sbs, 25 June 2005.

Interviews

Fiona Fox, “Science and the Media: Adapting the Best Science to Headline News”, The Reuters Institute for the Study of Journalism seminar series, 17 Jan. 2007

James Painter, the Director of BBC World Service, 23 Jan. 2007.

Kevin Bakhurst, a director of BBC News 24, 12 Dec. 2006.

Luke Hardin, a former Reuters fellow and Guardian Moscow correspondent, 11 Nov. 2006.

Sean Maguire, Editor of Political and General News Unit of Reuters, 26 Jan. 2007.

Websites

<http://about.reuters.com/home/>

<http://blog.yonhapnews.co.kr/>

<http://bric.postech.ac.kr>

http://en.wikipedia.org/wiki/Main_Page

<http://english.chosun.com/w21data/html/news/>

<http://english.donga.com/srv/service>

<http://news.hanafos.com/>
<http://www.infor.ytn.co.kr>
<http://news.sbs.co.kr/>
http://search.hankooki.com/times/times_view.php?term=+&path=hankooki3/times/lpage/200511/kt2005111517292310160.htm&media=kt
[http://search.hankooki.com/times/times_view.php?term=+&path=hankooki3/times/lpage/opinion/200512/kt2005121919215554050.htm&media=kt.](http://search.hankooki.com/times/times_view.php?term=+&path=hankooki3/times/lpage/opinion/200512/kt2005121919215554050.htm&media=kt)
http://search.hankooki.com/times/times_view.php?term=+&path=hankooki3/times/lpage/tech/200512/kt2005121916411411780.htm&media=kt
[http://search.hankooki.com/times/times_view.php?term=hwang+woosuk++&path=hankooki3/times/lpage/nation/200601/kt2006011217340411970.htm&media=kt.](http://search.hankooki.com/times/times_view.php?term=hwang+woosuk++&path=hankooki3/times/lpage/nation/200601/kt2006011217340411970.htm&media=kt)
http://search.hankooki.com/times/times_view.php?terms=code%3A+kt&path=hankooki3%2Ftimes%2Fpage%2Ftech%2F200405%2Fkt2004050917134611780.htm
<http://www.bbc.co.uk/jobs/workexperience/index.shtml>
<http://www.donga.com/fbin/output?f=kas&n=200511240288&main=1>
http://search.hankooki.com/times/times_view.php?term=+&path=hankooki3/times/lpage/opinion/200511/kt2005112521091854040.htm&media=kt

<http://www.fis.ncsu.edu/>
<http://www.fis.ncsu.edu/>
<http://www.kinds.or.kr>
[http://www.kpf.or.kr/datas/pdsindex/simimg/200601171253443.pdf.](http://www.kpf.or.kr/datas/pdsindex/simimg/200601171253443.pdf)
http://www.ksf.or.kr/eng/introduction/IDX_002.jsp
<http://www.mk.co.kr>
<http://www.munhwa.co.kr>
<http://www.naeil.com/news>
<http://www.nso.go.kr/eng2006/emain/index.html>
<http://www.pcc.org.uk/cop/practice.html>
<http://www.sciencemediacentre.org/aboutus.htm>
<http://www.sciencemediacentre.org/>
[http://www.scieng.net/zero/view.php?id=sisatoron&no=2478.](http://www.scieng.net/zero/view.php?id=sisatoron&no=2478)
[http://www.useoul.edu/.](http://www.useoul.edu/)
<http://www.wma.net/e/policy/b3.htm>