

Quest for building world-class universities in South Korea: outcomes and consequences

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Abstract The purpose of this study is to provide an overview of the Korean government's policies for building world class universities (WCUs) and their implications for Korean higher education institutions. Primarily through an extensive literature review, but also through a discussion of field interviews and the experiences of one of the authors as a public official in education policy making, this study examines the Korean government's policies to establish WCUs, as well as the outcomes and consequences of these policies. Using the framework suggested by Salmi (The challenge of establishing world-class universities. The World Bank, Washington, DC, 2009), the study seeks to answer the following research questions: (a) What policies has the Korean government implemented to build WCUs since the late 1990s? (b) How has the government's quest to build WCUs transformed the Korean higher education system? Specifically, how have HEIs in Korea responded to the policies implemented? (c) What issues and challenges has the Korean higher education system confronted in its quest to build WCUs?

Keywords World-class university · Global university ranking · Policy analysis · Higher education · South Korea

Introduction

Since the mid-1990s, building world class universities (WCUs) has become a global policy trend in both developed and developing countries. This trend is closely related to the advent of a knowledge-based economy. Higher education institutions (HEIs), particularly

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elite and research-oriented ones, have become recognized as key players in the economic growth and productivity of their respective countries. With their capabilities of producing and disseminating advanced knowledge and technological innovation, WCUs are considered to make a palpable impact on commerce and trade, at both the local and the international level. As Altbach (2009) correctly pointed out, research-oriented universities are now considered “the key to gaining entry into knowledge economy” (p. 16).

As higher education becomes more global, international university rankings have also gained broader visibility around the world. The increasing recognition of international university rankings reflects the major role that universities play in the contemporary knowledge economy, by making significant contributions to the advancement of knowledge through research and teaching on a global scale (Salmi 2009, p. 12). While international rankings are an increasingly popular way of systematically identifying and classifying WCUs (IHEP 2007), there has been continuing debate about what constitutes a WCU, and how its quality may be measured. Nevertheless, the term, *World-class University*, has become a catchphrase for many countries and universities that aspire to build higher-quality colleges and universities.

In this process, Asian countries with rapid economic development, and with strong governments capable of controlling their higher education systems, have adopted ambitious policies for the creation of WCUs. Recognizing a need for the significant investment of time, capital, and human resources required to develop a WCU, many have sought the most efficient approach to achieve their goals within the shortest possible time frame and with limited investment of resources. For example, in China, the “211 Project” and “985 Project” are the two major efforts, initiated by the government to increase the quality of higher education. With the “211 Project,” beginning in 1993, the Chinese central and local governments funded 100 universities/disciplines with an investment of \$20 billion U.S. dollars (Shi 2009; Zhao and Sheng 2008). Through the “985 Project,” commenced in 1998, the Chinese government devoted further financial resources to creating a few world-class universities, this time targeting doctoral education in selected key disciplines (Shi 2009). Other Asian countries, such as South Korea (hereafter Korea), Japan, and Singapore, have all implemented special projects designed to enhance the research productivity of selected HEIs. These countries have tended to employ the *selection and concentration* approach to the allocation of research funding, focusing on a few selected universities. While this principle is subject to intense controversy regarding its equity and effectiveness, it is reasonable to say that it is the most widely used policy option worldwide as illustrated by the various ‘excellence initiatives’ implemented throughout the world (Salmi 2009). The underlying assumption of this policy is that in countries with mass higher education systems, *selection and concentration* is the most efficient funding distribution method for building WCUs within a short period of time.

Using Korea as a case study, this paper seeks to provide a detailed overview of governmental policies in building WCUs, as well as of their outcomes and consequences. The guiding research questions are as follows:

1. What policies has the Korean government implemented to build WCUs since the late 1990s?
2. How has the government’s quest to build WCUs transformed Korean higher education? Specifically, how have HEIs in Korea responded to the policies implemented?
3. What issues and challenges has the Korean higher education system confronted in its quest to build WCUs?

The case of Korea

Until the mid-1990s, building WCUs was not a topic of much interest for the Korean government, nor for Korean society in general. The overall quality of HEIs and the level of economic development in Korea, at that time, were not up to par for global competition in the higher education market. However, with continued economic growth supported by political democratization and the rapid development of the higher education system throughout the 1980s and the early 1990s, Korea's GDP ranked eleventh worldwide by 1996. In this regard, Korea's economic and educational capacity to build WCUs came to maturation during the mid-1990s. Although hit heavily by the Asian financial crisis of the late 1990s, Korea paradoxically found the groundwork for strong social support of educational reform for economic recovery in this crisis. This support was strong enough to enable the government to implement its policy to build WCUs by concentrating its limited financial resources on a selected few universities. Before financial crisis, this had previously met fierce resistance within the conservative university community, where a more equal distribution of public money was demanded.

It was during the same period that newly industrialized countries (NICs) in Asia, including Korea, experienced significant pressure to develop their capacity for knowledge and technology production. Relying on *knowledge imports* or *copying* from developed countries had initially proved an effective strategy. However, developed countries began to restrict transferring advanced technology to developing nations to avoid losing their edge in an increasingly competitive global economy. With the establishment of the WTO in 1995 and subsequent moves to protect intellectual property, the cost for developing countries of importing knowledge and services could only skyrocket. The Korean impetus to build WCUs does not, therefore, bear significance simply as an educational policy, but equally or even more importantly, as an attempt to achieve technological independence from advanced economies, by developing advanced technologies and human resources within the domestic sphere (Hanson 2006).

Concurrently, the increasing popularity of global university rankings since the early 2000s has accelerated Korea's efforts to build its own WCUs. Globally, university rankings represent a powerful brand image of Korean higher education and of Korea in general. Global rankings have also affected individual HEIs. Whether they like it or not, these institutions are increasingly subject to comparison, and slipping in the league tables can be disastrous for institutions seeking a superior reputation in the global higher education market. Watching HEIs lose their top rank in the global league tables is humiliating for government and institutions alike. In this sense, building WCUs can function not only as a strategy for enhancing the competitiveness of the national economy, but also as an important political symbol, often manipulated by both government policy makers, and the HEIs themselves.

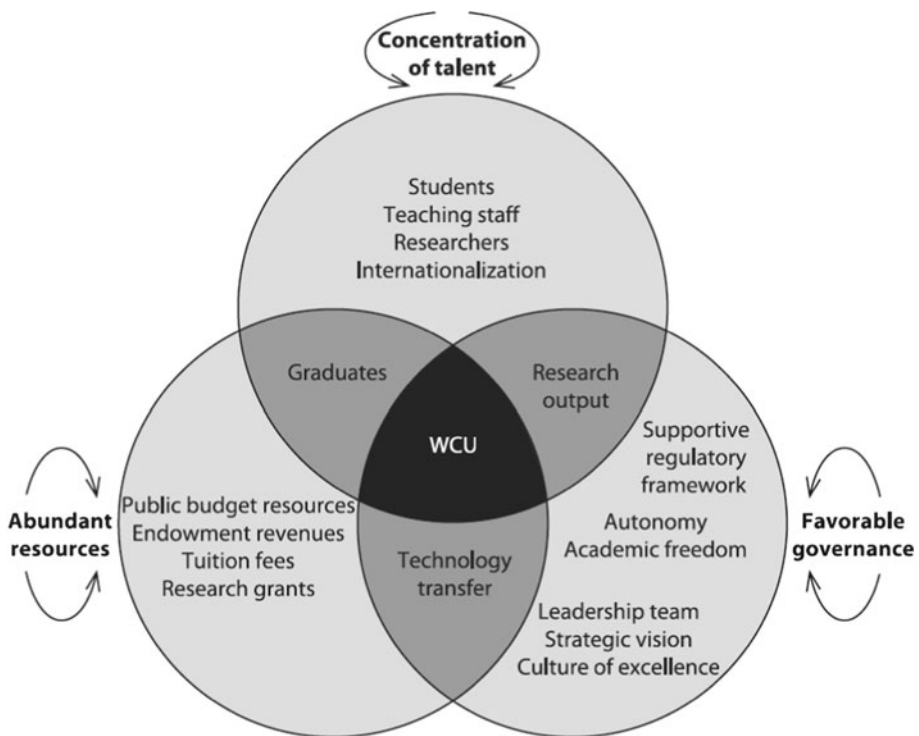
Analytical framework and method

In order to study WCU-related policies and their outcomes and consequences in Korean context, we need to first establish what constitutes a WCU. As Altbach (2004) aptly pointed out, however, the problem of any research into the WCU phenomenon is that "everyone wants one, no one knows what it is, and no one knows how to get one." Moreover, the term sometimes refers to nothing more specific than international status, or

indicates “a meaningless search for excellence even where none exists” (Deem et al. 2008, p. 21).

Nevertheless, a handful of recent scholars have attempted to define the components of a WCU. Altbach (2004), for example, listed excellence in research, high quality faculty, internal self-governance, academic freedom, and adequate facilities and funding. Mohrman, Ma, and Baker (2008) introduced the concept of the *Emerging Global Model*, including global mission, research intensity, worldwide recruitment, and global collaboration with similar institutions among its eight characteristics. Salmi (2009) attributed the superior results achieved by a WCU, “highly sought graduates, leading-edge research, and technology transfer,” to “three complementary sets of factors: (a) a *high concentration of talent* (faculty and students); (b) *abundant resources*, to offer a rich learning environment and to conduct advanced research; and (c) *favorable governance*, encouraging strategic vision, innovation, and flexibility, and enabling institutions to make decisions and to manage resources without being encumbered by bureaucracy” (pp. 19–20). He further emphasized that it is these three factors in combination and their dynamic interaction that make the crucial difference.

In an effort to frame our investigation, this study employs Salmi’s conceptualization of a WCU (2009), as we believe it to be the most comprehensive and well-organized of its kind (illustrated in Fig. 1).



Source: Created by Jamil Salmi.

Fig. 1 Characteristics of a world-class university (WCU): Alignment of key factors. *Source:* Salmi (2009, p. 32)

The analysis in this paper is based primarily on an extensive review of the literature, including relevant previous studies, government documents, policy papers, and statistics gathered at national and institutional levels. Interview data has also been included, deriving from 19 interviews with professors and administrators at three universities in Korea: Seoul National University (SNU), Korea University, and the Korea Advanced Institute of Science and Technology (KAIST). Interview questions included the definition of a WCU, its impact on their work, efforts made within their own institution to become a WCU, and the impact on organizational culture. Interview analysis focused on the questions asked, generating the initial codes. Codes were then added, revised, and combined for emerging themes, such as the change involved in perceiving their institutions as a WCU.

Overview of the government policies to build WCUs in Korea

According to Salmi (2009, p. 39), there are three strategies for building a WCU, which can be used either individually or in combination. First, governments can upgrade a small number of existing institutions with potential to excel (picking winners). Second, they can merge existing institutions to create a single WCU, through a synergistic effect (hybrid formula). Third, they can create a new WCU from scratch (clean-slate approach).¹ Since the late 1990s, the Korean government has primarily employed the first approach to upgrade existing, elite Korean institutions to the upper hierarchy in global rankings as WCUs. The policy initiatives launched by the Korean government can be categorized into three: (1) the “Brain Korea 21” project (BK 21); (2) the “WCU” and “Study Korea” projects; and (3) the incorporation of SNU, the top national university in Korea. In the following section, these four policy initiatives will be discussed, with reference to Salmi’s characterization of a WCU.

Providing abundant resources: “Brain Korea 21”

Securing abundant resources is a vital prerequisite in the effort to establish WCUs (Salmi 2009). In Korea, the single most important momentum toward this condition was introduced by the BK 21 project in 1999, when Korea had a serious debate about the solution to the economic crisis and the best means of re-igniting economic development. The primary focus of the project was to produce top-quality research outcomes, while educating highly skilled individuals in advanced science and technology. In terms of its budget, BK 21 was the largest government-initiated project in the education sector. Through this unprecedented financial investment, the government sought to rectify the chronic problem of under-investment in the higher education system.

The vision of BK 21, “stronger with enhanced human capital,” clearly outlined the two primary objectives of the Korean government. One was to establish 10 research-oriented universities with global competitiveness by the year 2012, to raise Korea from 12th in 2005 to one of the top 10 countries in the world, in terms of number of papers listed in the Science Citation Index (SCI). The other goal was to make Korea one of the top ten most advanced countries in the world, in terms of knowledge transfer from university to industry

¹ The most recent attempt to “create a new WCU from scratch” in Korea was the establishment of the Pohang University of Science and Technology (POSTECH) by a POSCO (Pohang Iron & Steel Company) in 1986. Rhee (2011) provides a good overview of the creation of POSTECH, subsequent developments and challenges of establishing a new institution in order to build a WCU.

(up from 21st in 2005, according to IMD). As this vision statement illustrates, the introduction of BK 21 marked the first point in Korean history when the issue of establishing WCUs moved to the forefront of the national agenda for higher education.

To achieve these objectives, the Korean government invested KW 1,306 billion, or US\$1.2 billion, during the first phase of the BK 21 project (1999–2005), and will have invested a total of KW 1,847 billion, or US\$1.7 billion, during the second phase (2006–2012). In principle, the BK 21 project welcomed research proposals from almost any academic discipline. However, this was largely a political decision to conciliate researchers in the humanities and social sciences. In reality, the project clearly emphasizes the development of outstanding, world-class technologies that might directly support the future economic competitiveness of Korea. As a result, the great share of the funding has been allocated to universities with proven excellence in science and technology research.

Mobilizing talented students and researchers: “Study Korea Project” and the “WCU Project”

Another important characteristic of WCUs is the concentration of talent (Salmi 2009), which needs to be understood from both the domestic and the international perspective. From a domestic perspective, Korean HEIs indeed manifest a *high concentration of talent* in their high quality students and faculty. In the highly stratified systems of HEIs, a few selective Korean universities have been successful in recruiting the best domestic students. In addition, Korea has the highest reported change index in international student enrollment since 2000 (OECD 2011). Many of them return to Korea with doctorates, and are hired as faculty members at Korean universities. This is particularly true at highly selective universities, where the majority of faculty members earned their doctoral degrees from renowned institutions abroad.²

However, from the international perspective of recruiting outstanding international faculty and students, Korean HEIs, like many other Asian universities, have a long way to go. To overcome this absence of international talent, the Korean government implemented two initiatives: “Study Korea Project” and the “WCU Project.” Study Korea Project was launched in 2004, and then expanded in 2008, with the aim of increasing international enrollment to more than 100,000 students by 2012 (Byun and Kim 2011). While the project is expected to achieve this quantitative measure, there is no substantial evidence that this would actually improve the quality of Korean HEIs, in terms of recruiting the best and brightest international students.

The WCU Project, which was introduced in 2008, aims to recruit internationally well-known faculty, with whom Korean HEIs might develop world-class academic departments and, eventually, world-class universities. Due to its short history, it is difficult to examine its outcomes yet. Nevertheless, it is certainly intriguing to see how the government has attempted to reverse brain drain by “importing” distinguished international researchers.

For this project, the Korean government plans to invest US\$750 million, or KW 825 billion, over 5 years from in 2008. Following three selection rounds, the WCU Project has funded a total of 140 programs at 33 universities thus far. Most of these participants are in the Seoul metropolitan area, which is especially attractive to international scholars due to its established educational, cultural, social, and economic environment.

² Around one-thirds (33.2 %) of the current professors at Korean four-year universities earned their doctorates from U.S. universities (KEDI 2010).

Achieving appropriate governance: “Incorporation of SNU”

Simply investing money and nurturing research capabilities is insufficient to attract top talent and build a WCU. An equally important element to turning an institution a WCU is appropriate governance. According to Salmi (2009), appropriate governance primarily concerns “the overall regulatory framework, the competitive environment, and the degree of academic and managerial autonomy that universities enjoy” (p. 26). In a country like Korea, where the central government has a high level of control over higher education, appropriate governance is particularly important; because individual institutions’ responsiveness and adaptability to the external environment will improve if they can enjoy greater autonomy. Thanks to a series of reforms begun during the mid-1990s in Korea, private universities now enjoy considerable freedom in a wide range of their activities (Byun 2008). Accordingly, private universities, such as Korea University, are often the subject of reports about the innovations taken by the visions of transformative presidents.

For public universities, however, the situation has changed only very recently. This is mainly due to their legal status as a government entity, which entails highly restrictive institutional autonomy. All organizational, financial, and personnel matters in public universities are subject to the legal and budgetary regulations by the government. In addition, after the “June 10 democratization movement” in 1987, the spirit of participatory democracy was translated into the internal governance of universities, a change marked by the election of a university president, and a strong faculty senate. As Park (2004) pointed out, this change in the internal governance further complicates their decision-making process, and may hinder forward-looking reforms in public universities.

The administration of President Lee, which came into power in 2008, is trying to address this issue by incorporating national universities. The establishment of national universities as school corporations, independent of national governmental structure, will give them a strong capacity for strategic leadership and autonomous management. Several Asian countries (e.g., Japan, Malaysia, and Singapore) have already changed the legal status of their national universities, in the hope that incorporated universities might become more competitive and entrepreneurial (Mok 2007). Impressed by the experiences of these countries, and also by the success of KAIST,³ the Korean government also decided to change the legal status of its national universities. Unlike the strategy adopted by other Asian countries taking sweeping action to incorporate all national universities at once, however, the Korean government took a gradual approach. It incorporated at first only a few of the leading national universities, such as SNU, with others following after, according to their preparedness for change.

After a period of intense debate and political turmoil, the “Seoul National University Incorporation Act” was finally passed in the national assembly at the end of 2010, and took effect at the beginning of 2012. The Act is expected to fundamentally alter the relationship between the government and SNU, as well as the internal power dynamics between the central university administration and the faculty senate which is the current supreme decision-making body at SNU. While skepticism still exists about whether these changes will make a significant difference to the institution, incorporation is arguably at least a springboard for SNU to start thinking about how to become *world-class*, without cumbersome government intervention or excessive faculty involvement in its internal governance.

³ KAIST was established by the government in 1971 as a separate legal entity.

Achievements and outcomes of the WCU policies: where do we stand now?

In the previous section, we discussed Korean government's policies to establish WCUs. However, have Korea's efforts to build WCUs paid off? It is difficult to measure the extent to which government policies have achieved any significant outcomes. Nevertheless, our analysis, based both on statistics from various sources and on qualitative interview data, reveals some significant changes and improvements as described below.

International university rankings

According to the Academic Ranking of World Universities, conducted by Shanghai Jiao Tong University (SHJT Ranking), SNU is the only Korean university to have ranked consistently in the top 200 since 2003 through 2011. Another eight to ten Korean institutions have been ranked in the top 500 during this period: in 2011, for example, ten Korean institutions appeared in the top 500 of the SHJT ranking, including SNU, KAIST, Yonsei University, Korea University, and POSTECH. Furthermore, since 2004, SNU and KAIST have consistently ranked among the top 200 universities in the Times Higher Education World University (THEWS), and POSTECH, Yonsei, and Korea University have all appeared in the top 200 for several years. Particularly worthy of remark are the recent leaps made by KAIST (from 160 in 2004 to 69 in 2009) and POSTECH (233 in 2006 to 28 in 2009), institutions specialized in science and engineering, in the THEWS.

Research productivity

Since the implementation of the BK 21 project, there have been dramatic increases in research productivity, as measured by the number of published journal articles (Byun and Kim 2011).⁴ During a period of just over a decade, the number of papers published in SCI journals by Korean scholars has almost quadrupled, from 10,739 in 1998 to 39,843 in 2010.⁵ Korea also ranked 11th in the world for the number of papers published in SCI journals in 2009, with an increase rate of 8.65 % from 2008, second only to China (13.13 %) (NRF 2010). When examining the performance of the top five universities alone, we can observe a similar trend. As shown in Table 1, the number of papers published in SCI/SCOPUS journals by scholars from these elite institutions increased from 4,240 in 2007 to 4,810 in 2010. SNU had achieved particularly remarkable progress over these 3 years, from 1,341 in 2007 to 1,767 in 2010, showing a 31.8 % increase.

International students and faculty in Korean higher education

The volume of international students in Korea has expanded noticeably over the past 10 years, particularly since the introduction of the Study Korea Project in 2004. The number of international students at Korean HEIs has increased almost five-fold, from 16,832 in 2004 to 83,842 in 2010. As Table 2 shows, the top five, highly selective

⁴ Shin (2009) also found similar results based on his evaluation study regarding the effects of BK 21 on research productivity. However, he argued that, although BK 21 project contributed to the growth of papers published in SCI journals by Korean universities, the growth rate of research publications was not different from that of the US and Japan, indicating that the gap between leading Korean research universities and world-class universities in the US and Japan was not decreased during the study period (1995–2005).

⁵ www.index.go.kr.

Table 1 Number of papers in SCI/SCOPUS journals: top 5 Korean universities

	2007	2008	2009	2010
SNU	1,341	1,671	1,603	1,767
Yonsei University	1,275	1,007	1,121	1,189
Korea University	897	783	858	931
KAIST	508	492	533	592
POSTECH	219	374	327	331
Total	4,240	4,327	4,442	4,810

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www.academyinfo.go.kr

Table 2 Number of international students in Korea: top 5 universities, 2008–2011

	2008	2009	2010	2011
SNU	1,494	1,448	2,238	2,490
Yonsei University	2,148	2,763	3,409	3,997
Korea University	1,690	1,753	2,074	2,432
KAIST	275	507	510	507
POSTECH	76	81	107	139

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universities in Korea have also seen a gradual increase in the enrollment of international students over the past four years. The achievement of Yonsei University is particularly noteworthy, showing an almost two-fold increase of international students during this short period, from 2,148 in 2008 to 3,997 in 2011.

The number of international faculty at Korean HEIs has also increased dramatically over recent decades, and has seen more than a three-fold rise from 1,226 in 2000 to 3,807 in 2009 (KEDI 2010). These statistics indubitably reflect the influence of the vigorous efforts toward internationalization by both the government and the HEIs of Korea since the early 2000s. The WCU Project, begun in 2008, deserves special attention for its explicit emphasis on importing prominent scholars from abroad: through the WCU project alone, 342 internationally prominent scholars, including nine Nobel laureates, had been recruited to Korean universities by February 2011 (Jang et al. 2011).

As Table 3 illustrates, the number of international faculty members at the top Korean universities is greatest at Korea University and Yonsei University, two highly selective, private institutions. On the other hand, at SNU the number of foreign faculty members remains relatively small, suggesting that government regulations on the employment and compensation of national university staff may hinder the recruitment of foreign professors at this prestigious institution.

Table 3 Number of international faculty in Korea: top 5 universities, 2008–2011

	2008	2009	2010	2011
SNU	10	32	49	65
Yonsei University	88	97	112	87
Korea University	108	132	132	128
KAIST	20	29	45	47
POSTECH	25	21	19	20

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Changes in perception of HEIs and confidence in their quality

Although faculty members, especially those in science and engineering, generally agreed that their institutions may not yet be considered WCUs, they did believe that Korean universities are coming closer to WCU status. Indeed, a few interview participants stated that certain academic disciplines have already reached world-class level. For instance, a scientist at SNU said that their department does not necessarily prefer hiring new faculty members with foreign degrees. Specific criteria (e.g., number of publications in top-tier journals) are more valued than the origin of an individual's doctorate qualification.

We have new faculty members who received their doctorates from domestic institutions. My institution does not distinguish those who received doctorates from domestic versus those from abroad at all. Whether they graduated from POSTECH, SNU, Yonsei, or Korea University, highly qualified candidates apply for positions here. I don't think we discriminate domestic doctorates from those from abroad. As far as I remember, such discrimination was very persistent before.

This response represents a theme that was repeated throughout the interviews, clearly manifesting the growing confidence that Korean faculty have in their education, their research capability, and their own graduates. Another professor observed that students at his institution tend to debate whether they want to pursue a graduate degree in Korea or abroad. They consider Korea to be a less risky option in terms of career opportunity. For example, those who pursue an advanced degree abroad face the possibility of working with an advisor who is inactive in research, something they may not find out in advance. Many faculty interviewees also named a few Korean scholars who are considered world-class in the quality of their research, or who play a major role in their discipline globally (e.g., acting as editor for a top-tier, international journal). Given that faculty quality is one of the most important factors for a WCU, the interviewees' acknowledgment of their colleagues' achievements indicates that they perceive this aspect of Korean higher education being world class. Their confidence, however, is not shared by all disciplines: in many social science departments, recruitment of faculty with doctorates from overseas is still strongly preferred.

In addition to the individual human element, interview participants also expressed confidence in the quality of Korea's research environment, both at their own university and at Korean universities in general. While acknowledging that Korean HEIs are not yet world class, they thought that top-ranking, elite Korean universities offer more opportunities and a better research environment than some universities in North America. A professor in physics at KAIST explained:

I have not regretted choosing KAIST. The only friend of whom I think, "Ah, s/he has been more successful than me," is at Stanford. However, compared with my friend at Florida, s/he has a totally different experience from me in the size of funds, invitations to speech, and conferences. S/he is very smart, but does not have students and cannot do research well, so finds difficulty in getting tenure. Therefore, if you are at SNU, KAIST, or POSTECH, for example, you are in a better position than those abroad.

One scientist at SNU, once a professor at a Canadian university, explained that people outside Korea now perceive Korean universities differently than before:

When I told people [at my previous Canadian university] that I was moving back to Korea, they asked me very carefully why I was suddenly going back. I answered that I was returning to my Alma Mater [SNU]. Then they congratulated me profusely, saying that they had heard that SNU is a great institution. So I think it is getting better. It seems like the prestige of SNU has improved recently. But how far? In my opinion, our research performance is similar to, or sometimes even better than, some top institutions in the U.S. But our overall infrastructure, or system, still needs a little improvement.

It is worth noting, however, that many faculty members pointed out the disadvantages of Korean HEIs, compared to American universities, in building WCUs, particularly in terms of financial support, educational systems, and cultural barriers. Nevertheless, it is clear that, at least in fields such as science and engineering, Korean institutions have already reached world-class status, according to the perceptions of individuals both in Korea and abroad.

Issues and challenges

Judging from the statistics and interview findings discussed above, Korea's quest to create WCUs has borne substantial fruit. However, there has been considerable argument against special treatment for a handful of elite universities, as well as defiance against the Western-biased concept of WCUs. The following section will explore some of the most critical issues associated with WCU-related policies, on which controversial debates continue within Korean society.

Legitimacy of special treatment for selected elite universities

Some believe that the present concentration of support is inherently unfair, as it favors only those institutions that have accrued advantages in the past (Gallagher 2011). Thereby it effectively entrenches the stratification of the existing system, in which the rich get richer, while the poor become poorer. Others argue that over-emphasizing the attainment of world-class status for a few elite universities may divert energy and resources from more important goals that would better address national, regional, and local needs (Altbach 2004). Nevertheless, many countries continue to provide strong support for their top universities, in order to enhance their competitive edge to recruit international talent and facilitate high-tech research. This trend is based on the belief that “the bulk of resources need to be dedicated to those institutions which serve the bulk of the demand, and that they should be resourced sufficiently to be good at what they do and build up distinctive strengths” (Gallagher 2011, p. 30).

Taking this standpoint, the Korean government has invested almost exclusively in a handful of elite institutions over the past decade or so, based on the principle of *selection and concentration*. Institutions were selected for funding according to so-called critical mass criteria set by the government (e.g., the number of professors in the department). The top five recipients of financial support from BK 21 and the WCU Project are SNU, KAIST, Yonsei University, Korea University, and POSTECH. The total amount of funding these institutions received was 45.8 % of the entire project budget, a proportion that presents clear evidence of the selection and concentration principle employed by the Korean government. Although 74 of the 222 four-year institutions in Korea received BK 21

support, almost half (43.1 %, or \$164.8 million) of the BK 21 average annual budget (\$382.2 million), was concentrated on the top five institutions. This concentration of funding is even more obvious in the WCU Project. A total of 36 institutions, fewer than those participating in BK 21, received funding from the WCU Project. Again, five institutions received 52.8 % of the entire project funding, or \$75.6 million out of a total budget of \$143.1 million.

Critics have argued that this not only widens the gap between the haves and the have-nots among HEIs, but also expedites the migration of research talent from local to metropolitan institutions, particularly those in Seoul. Eventually, this tendency would devastate the capability of local governments to introduce technological innovation. The policy challenge confronting the Korean government, therefore, is how to balance the establishment of globally relevant WCUs with the development of other important local and national interests. As Gallagher (2011) pointed out, the key is “to achieve coherence within the national higher education system through a balance of complementary capabilities that work together, not apart, in meeting society’s needs” (p.55).

Dominance of science and engineering

Government policies to build WCUs exercises another, more subtle, and yet profound influence on the Korean higher education system. Global university rankings, in particular the SJTU ranking, place particular emphasis on research performance in the area of science and engineering. As a result, and as corroborated by the previous section, Korean universities that perform well in these international league tables, such as KAIST and POS-TECH, tend to be specialized institutions with strong natural science and engineering faculty. Other institutions, such as SNU, Yonsei University, and Korea University, with long and prestigious histories, as well as strong social sciences and humanities faculty, have also now turned their attention to the science and engineering field. This strategy allows universities to compete effectively with specialized institutions in order to obtain greater government funding and higher global rankings. In both BK21 and the WCU Project, the number of projects and budgets approved by the government was highly concentrated in science and technology. For example, the number of projects in science and technology took 75 % of all projects in each phase of BK21 and 88 % in the WCU project. Similarly, the amount of budget in science and technology took 90 % and 84 % in Phase 1 and Phase 2 of BK21, respectively, and 93 % in the WCU Project (www.nrf.org).

The dominance of science and engineering in the distribution of government funding greatly affects international university rankings, and is gradually changing the status and recognition of particular departments within universities (Ishikawa, 2009). Therefore, the gaps between disciplines will continue to grow in Korea, unless government policy takes a drastic change in direction, which is highly unlikely.

Commercialization and quantification of scholarship

The push by the Korean government for WCUs has focused primarily on a few tangible output indicators, such as the number of articles published in internationally circulated journals (including SCI) and the number of international students and researchers at Korean institutions. Many believe, however, that this approach will in fact cause long-term damage to the Korean higher education system. For instance, Korean scholars, like their counterparts in other Asian countries, are encouraged to publish in English, in order to communicate with a wider audience and build strong publication records for internal

evaluation. Many Korean universities even offer financial incentives to publish as many papers as possible in English, in order to improve university rankings both domestically and internationally.

Under such organizational pressure, and within this commercialized rewarding system, many faculty members may be influenced by commercial motivation, rather than by genuine academic curiosity, and consequently choose topics that have a greater likelihood of achieving short-term, tangible outputs, rather than long-term outcomes with greater academic potential. Carried to its utmost, this kind of atmosphere encourages researchers to cheat the system, by using others' ideas without due credit, or by falsifying their data. Therefore, an organizational atmosphere of high rewards for quick and quantifiable results can negatively affect professorial behavior, and will certainly be detrimental to the development of *true* scholarship.

A government funding system that assesses the performance of HEIs according to quantitative measures can also be problematic. For instance, the major performance indicators employed by BK 21 include the number of articles published in SCI and the percentage of English-medium courses. To obtain more government funding, universities are forced to concentrate on fulfilling the quantitative criteria set by the government, and thus push faculty members to produce as many publications as possible, often regardless of quality (Byun and Kim 2011). Given that an ultimate goal of establishing WCUs is to enhance the competitiveness of Korean higher education, putting more emphasis on the quantity than the quality of research is, needless to say, undesirable.

A new dependency culture and the U.S. hegemony

Some critics argue that “the quest for world-class universities as predominately defined by the Anglo-Saxon world have not only created a new dependency culture but also reinforced the American-dominated hegemony” (Mok 2007, p. 438). As we have discussed, the Korean government and HEIs have made considerable efforts to establish WCUs. In doing so, they have employed every possible strategy to better position existing institutions in the global university rankings, which reflect the norms and values of the world's dominant research-oriented academic institutions—especially those in the United States. In this sense, the more that Korean HEIs seek higher positions in the international league tables, the more strongly they adhere to Western academic paradigms. For instance, Korean universities, like many other universities in Asia, stress the importance of their professors' publications in internationally circulated, scientific journals (Altbach 2009). Consequently, publications in local languages may be considered less important than those published in English, regardless of their value and contribution to scholarship. Ironically, this could lead to the stifling of domestic scholarship.

Yet, the Korean government and universities seem almost blinded to these issues. Instead, they have focused on benchmarking international norms and standards. They have emphasized using English in academia, importing U.S.-style curricula and textbooks, and developing academic alliances mostly with institutions in the U.S. and other English-speaking countries. Indeed, these are only a few examples that illustrate how higher education systems in different parts of the world have been affected by, and have responded to so-called *global standards*. These ubiquitous ideals merely imitate the norms and values of Western, research-oriented universities, particularly located in the U.S., while visionary thinking and proper contextualization are cast aside.

Concluding remarks

This paper used the framework provided by Salmi (2009) to discuss the Korean government's efforts to build WCUs, and their outcomes and consequences.⁶ Overall, these policies, which include BK 21, the WCU Project, and Study Korea, as well as the incorporation of SNU, appear to have produced more favorable conditions for Korean universities to become WCUs. However, behind the apparent success of these policies lie many critical problems and challenges. While the WCU policies in Korea appear successful in upgrading a few institutions to almost world-class quality, they simultaneously risk encouraging unbalanced development, low quality, and the Westernization of education and scholarship. In this regard, policy makers and governments responsible for policies to build WCUs must carefully assess the needs and resources, as well as the long-term implications of building WCUs in their own national context. After all, it is not necessarily desirable to create “a few winners” at the expense of sacrificing “a lot of losers” (Deem et al. 2008, p. 91). In addition, care should be also exercised not to neglect the simple fact that different nations and regions face different realities, and that academic work must assume different roles and natures accordingly (Mok 2007). As argued by Mok, following global practices and ideologies without proper contextualization may easily lead us to enter “the processes of recolonization” (p. 448).

Finally, the quest for building WCUs is not a unique phenomenon, confined only to Korea, but is common to many countries across Asia, as, indeed, in other parts of the world. Therefore, the development of strategies to establish WCUs, and the assessment of their impact on individual HEIs and the higher education system, are likely to emerge as important research topics in future comparative studies of higher education. In this light, this paper can serve as a point of reference for scholars and policy makers around the world who are actively seeking to learn from other countries' experiences.

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⁶ From an institutional perspective, Altbach and Salmi (2011) provides an excellent collection of 9 case studies covering 11 universities including POSTECH in Korea, where the authors in the book tried to uncover the complicated transformation process that those institutions striving to become WCUs are undergoing.

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