



The Hurdles to Being World Class: Narrative Analysis of the World-Class University Project in Korea

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This study examines the Korean Government's policy scheme of setting up the World-Class University (WCU) Project by investigating the perceptions of major actors, including WCU scholars and government officials. In-depth interviews were held with 18 WCU scholars and three government officials. Our findings suggest that the limits of the governmental scheme have marginalized the organizational capacity of the selected departments, and that most of the limits have stemmed from strong institutional pressure on the departments. In institutional environments, such as the governmental guidelines for micro-management, there is a conflict between regulation from the Government and universities. Moreover, harmful political dynamics between the Korean Ministry of Education, Science, and Technology and other audit and finance-related governmental institutions have worked against the selected departments. Common observations throughout the study indicate that the objective of the project is not sufficiently focused on the global definition of the WCUs, and that the strategy and regulation of the project are some way from representing an optimal form of world-class work.

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Introduction

As a plausible strategy and conceptual foundation to improve higher-education systems, the 'world-class university' (WCU) concept has become a common catch phrase over the last decade, not simply as a means of improving the quality of teaching

and research, but more importantly, of developing the capacity to compete in the global education marketplace through the acquisition and creation of advanced knowledge (Altbach, 2004; Salmi, 2009). Although there is a lack of a clear definition for the WCU concept and much difficulty in normatively prescribing ways to reach such level (Mohrman, 2005; Deem *et al.*, 2008), the notion has entered the everyday language of many universities, the media, and governmental policies (Altbach, 2004).

Despite the tensions that Marginson (2009) raises around the concept, the Korean Government and university leaders are increasingly eager to secure a higher-education system of international stature, in part to provide top-quality education for the country's future leaders, and in part to earn greater respect in the global community. Under such intense social interest and pressure, the Korean Ministry of Education, Science, and Technology (KMEST) adopted the WCU concept in a national funding scheme accordingly titled the WCU Project, in which 33 universities participated during 2008–2013 (KMEST, 2011).

Although the concept of WCU has been defined rhetorically as a university innovating the education and research climate by acquiring top faculties with the highest research capacity by KMEST (2008, 3), in reality it means being a top-ranked university in international university rankings. At the time of the start of the project, only one Korean university was ranked in the Top 100 in the Times ranking, and none was listed in the Shanghai Jiaotong rankings of Top 100 universities (Kim, 2008). University ranking, with its process of externalization and relativization of activity, has the potential to feed into incentives for improved performance (Marginson, 2009). The WCU Project reflects the Government's conscious strategy to concentrate resources on a handful of institutions that possess the greatest potential for success in international academic competition (KMEST, 2008). Two working papers (Choi, 2008; Kim, 2008) for the preparation of this project have straightforwardly set one of the goals of this project as increasing the international rankings of the top Korean universities.

However, the concept has never been discussed among Korean academics and policymakers. It was suddenly proposed by the new Government, which needed a different agenda from the previous one. The core of the project was to invite world-class scholars from overseas to selected departments and universities, expecting them to shake things up. Since its inception, the name of the project — WCU — has aroused a lot of confusion and tension, for example, over the goals of the project, the potential of the selected departments, and the quality of the invited scholars. The underlying assumption of the project's operational structure was that domestic universities would benefit from bringing in competitive foreign faculty. It was hoped that these foreign faculty members would stimulate Korean faculty and student research and education, and ultimately, produce world-class-level research by forming collaborative teams with Korean partners and the invited faculty. However, the selected departments have been confronted with much criticism from inside and outside their departments and universities. First and foremost, questions have



remained, such as how the foreign scholars might be supported in adapting to the Korean university culture, and how much academic freedom the participants would be able to enjoy, considered a major characteristic of WCUs (Salmi, 2009).¹ Historical legacies of Korean higher education, such as the Government's tight oversight on institutional management and the power it wields through spot-check audits and inspections (Shin *et al.*, 2007), may work against the project scheme.

Although the promises of the WCU Project might seem to be attractive, little is known about how or whether popular and political support to nurture WCUs will lead to substantive and sustainable change. Previous government-funded projects, namely, the Brain Korea 21 (BK 21) projects, which were the first to reform selected Korean universities into research universities, have been criticized for their micro-management (Kim, 2007). In a sense, the micro-management of KMEST is the product of a strong accountability system within the Korean Government. In the Korean political context, KMEST, which is the core operator of this project, must secure a hefty budget for 5 years and defend any alarmingly low level of performance or administrative and financial flaws of the universities. Other powerful political actors: the National Assembly, the Board of Audit and Inspection, and the Ministry of Finance, have frequently watched over the supervision of KMEST and the performance of the departments. It is uncertain whether the governance of this huge project has changed from the frequently criticized micro-management practices found in several previous government-funded projects (Byun, 2008; Shin, 2009) to a more advanced system, in which well-organized teams of domestic and foreign faculty overcome cultural differences and institutional hurdles, thus generating quality improvements in teaching and research, so that the final goals of the project are attained.

This paper examines the Korean Government's policy scheme of setting up the WCU Project, through investigating the perceptions of major actors among participating WCU scholars and government officials. It is guided by the following research questions:

1. How does the scheme of the WCU Project work for the selected departments in universities? Is it well-suited to the efforts of participating departments?
2. What challenges do participating departments encounter as they attempt to evolve within the wider institutional environment² of the Korean higher-education system?
3. What are the identified institutional environments that widely surround and influence participating departments? How do the institutional environments hamper the operation of these departments?

WCU Project

From December 2008 to October 2010, 140 departments of 33 universities were selected to receive special grants for research excellence under the WCU Project,

with a total of 5 years' funding set aside at 825 billion KRW (US \$750 million). The funding scheme for participating WCU departments, which were selected in a very competitive screening process presided over by the Korean Government, was unprecedented in Korea in that most of the research topics led by the departments were convergence-oriented, linking research with advanced technology development. The three distinct project types were also the result of the idiosyncratic nature of the funding scheme: Type 1 invited five or more foreign scholars to newly establish an independent and special-purpose academic department at a participating university; Type 2 invited two to three foreign scholars to teach and research in existing departments; and Type 3 invited one distinguished-class foreign scholar (someone who is recognized at the level of a Nobel laureate) to each selected department³ (Table 1).

One major underlying assumption of this multi-billion award project is that the quantitative growth strategy of the BK21 project (especially in its second round) has certain limits to increasing the research capacity and the universities' rankings, since the project places much more focus on producing research manpower and publications within an inferior research environment (Ha *et al.*, 2012) (Table 2).

The WCU Project has some similarities with the BK21 project: there is an annual performance review, the science citation index (SCI) serves as a major performance indicator, the participating unit is a department, and provision of funding is open to graduate students. However, whereas the BK21 project is basically for the provision of research grants for graduate students, post-doctoral staff, and junior faculty with regular SCI publications as major performance indicators, the WCU Project is for boosting convergence-oriented research and development, of which major performance indicators are publications of Top 10 and 1% journals, especially Nature, Science, and Cell publications, which are highly esteemed. While the main purpose of ordinary research and development projects is to develop high-tech and advanced knowledge, as led by one individual and/or a group of researchers, the WCU Project purposes to educate graduate students and develop convergence technology and

Table 1 Annual distribution of WCU resources by type

Type	No. of institutions	No. of project teams (%)	No. of foreign scholars (%)	Government subsidy (%)	Average subsidy per project team (100 million KRW)
Type 1	19	34(24.3)	206(60.2)	106.9 billion KRW (69.1)	32
Type 2	18	44(31.4)	72(21.1)	35.8 billion KRW (23.1)	8
Type 3	26	62(44.3)	64(18.7)	12.1 billion KRW (7.8)	2
Total	33	140(100)	342(100)	154.8 billion KRW (100)	-

Source: KMEST (2011).



Table 2 Comparison of WCU to the BK 21 projects

	<i>2nd BK 21 project</i>	<i>WCU project</i>
Objectives	Improving educational and research capacity of the selected universities and department	Attaining more WCUs through innovating research practices and culture
Period	2006–2012 (7 years)	2008–2013(5 years)
Budget	2 trillion KRW(in total) 290 billion KRW(annual)	825 billion KRW(in total) 165 billion KRW(annual)
Strategies	Selection of competent departments and provision of grant and stipend to graduate students	Provision of research fund (including salary for the foreign scholars and lab facilitation) to the high-performing departments, which invite renowned foreign scholars
Participating departments	564 departments of 72 universities	140 departments of 33 universities

Source: National Assembly Budget Office (2011).

cutting-edge knowledge. In the ordinary research and development schemes, researchers enjoy a relatively wide range of autonomy in spending grants, but in the WCU, tight regulation on the execution of the project was applied to foreign scholars in the country and uses of the research grant, and annual monitoring of research performance was conducted. There is criticism that the governmental funding for the university has multiple policy objectives from diverse political actors that are hard to reconcile, but have to be met (Ha *et al.*, 2012). For example, one of the objectives of the WCU Project and the origin of the project, developing cutting-edge convergence technologies in the selected universities, has to be sought by simultaneously producing sufficient compatible publications in high-impact journals at the request of harsh measures of accountability for the government funding scheme from other political actors involved.

A considerable part of the gap between Korea's top universities and the most competitive universities around the world is attributable not only to the practice of the Korean political and academic community placing more weight on the quantity of published journals rather than on their quality, but also to the lack of stimuli for Korean faculty to pay keen attention to newly arising questions and creative issues in their fields. As such, from the perspective of the Korean government, some kind of 'shock therapy' was needed for Korean faculty (KMEST, 2008). The WCU Project was born to address this need by exposing Korean faculty to exemplary foreign academic researchers and educators.

Despite such strategies and the distinctive funding scheme of the WCU Project, the environment that surrounded the selected academic departments remained uncertain. A typical Type 1 academic department, which has at least five foreign scholars and receives 0.7 billion KRW (US\$ 6.4 million) in financial support from the Government, is expected to produce research outcomes of relevant quality and distinguished scientists through an innovative research process and upgraded

teaching. Departments were examined annually by the Government after providing adequate descriptions of how and what they had accomplished. The major focus of the annual evaluation was on two factors. The first was how many high-quality papers had been published in the Top 1 or 10% of journals, measured by the frequency of citation. The second was the extent to which invited foreign scholars were utilized in improving the departments' teaching and research. This was verified by visible research outcomes achieved through cooperation between the Korean and foreign scholars (KMEST, 2010a).

KMEST and the National Research Foundation of Korea (hereafter the NRF) constituted the main administrative framework of the WCU Project. KMEST directed project planning, made final decisions on the selection of departments, and conducted performance evaluations. The NRF was, overall, in charge of administrative affairs such as applications, selection screening, and executing and managing Government funds.

Theoretical Background

As interest in WCUs has increased, several studies have introduced and described the development of WCUs in their own countries (e.g., Yonezawa, 2003; Shin and Harmon, 2009; Mok and Cheung, 2011; Yan, 2011; Yang and Welch, 2012). For example, Yang and Welch (2012), using Tsinghua University as an example, reported that China has invested in top universities that are designated as having a key role and focal investment in the nation. However, academic freedom and institutional autonomy are still problematic because of tight state control. In contrast, reviewing the Western community of WCUs in England, Germany, and the United States, Yan (2011, 61) argued that the top research universities, which had been nurtured by their governments, were 'the products of autonomy, freedom, and competition and are the by-products of the institutional environment created by government policies'.

Through diverse research funding schemes, governments not only shape the broad context of faculty scholarship but also influence the micro-level organizational nature and conditions of research (e.g., KMEST, 2008). Furthermore, with increases in governmental funding, institutions, departments, and faculty confront new layers of bureaucracy in their work and unintended consequences in the course of implementation, including impoverishment of research performance (Hearn and Lacy, 2009; Tammi, 2009). Despite some improvements in quantifiable measures (Shin and Harmon, 2009), research on governments' roles in research and graduate education found that governmental impact on organizational innovation has been limited (Liefner, 2003; Byun, 2008).

Korean higher education has long been under continued bureaucratic control. Like the BK21 project, some governmental funding schemes have been successful in



the growth of research publications within a short time. However, they did not significantly lessen the rankings gap between Korean universities and world-class research universities (Byun, 2008; Shin, 2009). Despite rising concern and questions about the performance-based funding framework used in past projects, no explicit alternatives for replacing the framework have been suggested.

One of the main strategies of the WCU Project was to motivate active research faculty, encourage the dissemination of research, and nurture competitive graduate departments and research groups by inviting capable international scholars to join them. This was an answer to the pitfalls of previous projects. Productivity- and efficiency-oriented managerialism involved in past projects have been accused of causing value conflicts among faculty within institutions (Levin, 2006). Another factor, critical to the success of the WCU Project, is research collaboration between Korean and invited scholars. The benefits of this type of international research collaboration include the sharing of knowledge, transfer of knowledge and skills, intellectual companionship, and enhancing the potential visibility of work (Katz and Martin, 1997; Beaver, 2001).

One of the main questions of the project is whether WCU departments can overcome their traditional institutional university environments while establishing new performance creation patterns. Institutional theory contributes to providing new insights into the organizational dynamics of the project. To successfully challenge the existing and robust institutionalized definitions of the government-funded project team (*sa-up-dan*), the newly established departments have to make significant inroads in redefining the operation of the project, both at the team level and in the wider environment. However, institutional theory predicts that 'organizations fail when they deviate from the prescriptions of institutionalizing myths: quite apart from technical efficiency, organizations which innovate in important structural ways bear considerable costs in legitimacy' (Meyer and Rowan, 1977, 353). In other words, organizations that challenge institutionalized conceptions of effective operation may be seen as ineffective and risk their legitimacy (Huerta, 2002; Huerta and Zuckerman, 2007).

Scott and Meyer (1983, 149) stress that institutional environments are 'characterized by the elaboration of rules and requirements to which individual organizations must conform if they are to receive support and legitimacy'. With an enhanced capacity to inspect research and education productivity, university departments face a much stronger demand for technical performance improvement. However, at the same time, they do not experience a decline in demands for institutional conformity (Rowan and Miskel, 1999). With demands for external funding and global competition for higher rankings, all the participating departments are facing formidable legitimacy challenges (Gumport, 2000).

The national context and historical legacies constitute the organizational decisions and structures of universities (Ramirez, 2006). The existence and legitimation capacity for external demands are crucial to the creation and stabilization of all sorts

of everyday university structures, and the WCU departments do not generally spring from local soils if they are not prefabricated and available in the institutional environment (Meyer and Rowan, 1977). Therefore, the departments are especially likely to track the types of isomorphic change identified by DiMaggio and Powell (1991).⁴ The departments, which are generously funded by the Government, face serious organizational uncertainty with the addition of foreign scholars, as well as solving scholastic puzzles for convergence-oriented research issues. They must receive the demands for isomorphic changes and struggle with overcoming the influence of institutional conformity. At the individual level, university life and careers are heavily patterned around exogenous definitions. In the WCU Project context, it is meaningful to see how the key members of the WCU teams, the international scholars who have not been acquainted with the Korean institutional environment, respond and adjust to them. It is also worth comparing their responses with those of their Korean partners, who are more familiar with the general influence of the environment.

Policymakers utilized rankings both to introduce policies for institutional differentiations and stratification, and to legitimize the introduction of such policies in their national system (Vaira, 2009). The logic of the WCU Project is that once nationally excellent departments are created by inviting world-class scholars, then the university with more of such departments is supposed to be world class, with an accompanying improvement of its international ranking (Choi, 2008; Kim, 2008; KMEST, 2008). However, it is highly questionable that a university with a handful of departments that have world-class faculties and research performance can become a WCU (e.g., within the 200th ranking) within 5 years (National Assembly Budget Office, 2011).

Methods

An interpretive and qualitative approach was applied to establish a holistic understanding of how institutional forces persist and limit the efforts of individual WCU-participating departments that are attempting to acquire world-class-quality status. As this study aimed to understand the processes that WCU-participating departments undertook and to make sense of the experiences that these departments and their major actors endured, a qualitative design was ideally suited for such kind of 'lived', 'felt', or 'undergone' experiences (Merriam, 1998, 6). Exploring phenomena by means of a qualitative methodology is needed because there is little existing research on the organizational dynamism between university departments and their environments from the perspective of institutional theory, and its complexity needs to be better understood (Lincoln and Guba, 1985).

A mixture of intensity and snowball sampling strategies were used to select appropriate participants for this study. As Patton (2002) recommends, intensity



sampling was carried out in order to obtain information-rich cases for in-depth study. To initiate this process, two key informants, both managers of WCU teams, were first contacted. The key informants were chosen for their thorough knowledge of the project and their ability to provide relevant and specific information for the study. The key informants were asked to recommend departments and individuals for interview: those who have been actively participating in and conducting the project and who possess information-rich cases that manifest the phenomena of interest. On the basis of the information provided by the key informants, participants were selected who fulfilled the following criteria: (a) participants were limited to full-time faculty affiliated with academic departments that were participating in the WCU Project; (b) participants had sufficient knowledge, experience, and insights with respect to the project, and were capable of providing the information most relevant to this study; and (c) instead of relying on only one institution or a single case, participants represented diverse institutions, academic backgrounds, and areas of expertise.

A total of 21 WCU scholars and policymakers were selected for interview on the basis of the above criteria. Five invited foreign scholars (all of whom had been selected or invited to conduct education and research at a Korean university), thirteen Korean scholars, and three government officials (one from KMEST and two from the NRF) were interviewed. The Korean scholars were from 10 different higher-education institutions, and the foreign scholars were from five different institutions. The participants were mainly responsible for sustaining and enhancing the excellence of research and education of their departments and universities. Table 3 presents the profiles of each of the 21 participants interviewed.

The first interviews for the WCU faculty were conducted in January 2012, and additional interviews for the policymaker and executors took place in June 2015. All interview sessions were audio-taped and immediately transcribed verbatim. The constant comparative method of qualitative data analysis, which was originally developed by Glaser and Strauss (1967), was adapted for this study. Constant comparison refers to constantly examining and comparing data in order to find consistent and recurring themes and patterns, and then organizing the data into meaningful categories.

For this study, two strategies were used to ensure trustworthiness. First, data triangulation was utilized by means of multiple data sources and methods. Instead of relying on the interviews as the only data collection method, documents related to the WCU Project, departments, and universities were gathered and analysed. In addition, in order to construct a holistic understanding of the project, observations such as visits to research labs, the WCU departments, and offices of the officials were undertaken by the researchers. Second, in order to critically review and examine the findings, the researchers asked a number of trusted colleagues to review the interpretations of the results.

**Table 3** Profile of study participants

<i>Name</i>	<i>Nationality</i>	<i>Institution (type)</i>	<i>Major/Role</i>
Braun	Germany	K University (private)	Brain informatics
Sung	Korea	K University (private)	Brain informatics
Kitzawa	Japan	S University (public)	Hybrid materials
Cho	Korea	S University (public)	Hybrid materials
Patel	United States	K University (private)	Brain motivation
Min	Korea	K University (private)	Brain motivation
Kawasaki	Japan	G University (public)	Material science
Choi	Korea	G University (public)	Material science
Lim	Korea	K Institute (public)	Nanotechnology
Chung	Korea	K Institute (public)	Energy science
Hyun	Korea	K Institute (public)	Marine science
Yoon	Korea	U University (public)	Nano-bioscience
Jeong	Korea	U University (public)	Nano-bioscience
Tae	Korea	U University (public)	Nano-bioscience
Smith	United States	S University (public)	Pharmacy
Woon	Korea	S University (public)	Pharmacy
Kwan	Korea	S University (private)	Interactive science
Jin	Korea	Y University (private)	Economics
Young	Korea	KMEST	Department Head
Choi	Korea	NRF	Project manager
Hyung	Korea	NRF	Project manager

Results

Impact of project design and centralized regulation

The project design of providing capable departments with foreign scholars for 5 years and paying them considerable salaries and collateral research support, for example, installing laboratories and facilities, was a critical issue for interviewees. Along with the growth of governmental funding to universities came increased regulation. The Korean government has increasingly regulated universities' and project teams' operation of various projects. The WCU Project was not an exception.

First, the duration of the project seemed to be too brief to achieve the goal of the project, which was to create more WCUs in Korea.⁵ From the perspective of the foreign scholars, the Government's WCU strategy had its bright side, thanks to the high 'energy and enthusiasm' of the Korean participants, but they also pointed out the need to apply a longer-term approach in order to reap genuine rewards. As a German scholar, Dr. Braun, suggested, 'it's a little bit naive to think, from the Government point of view, that you can actually build something in five years or ten years. Harvard, MIT, and Stanford were not built in five years'. A Japanese scientist, Dr. Kitazawa, noted that the short-term funding scheme evaluated researchers severely and might have had a negative and discouraging impact on their research.



Second, both invited scholars and domestic professors took issue with the micro-management from various sources, including the tracking of invited scholars' sojourn in Korea, multi-step performance evaluations (e.g., unscheduled checks on the teams as well as annual and mid-term evaluations), reviews of legal and administrative congruence of project budget expenditures, accounting for minimum educational conditions (e.g., staff/student ratio and degree of freshmen recruiting). As the essence of the project lay in the utilization of foreign scholars, the Government's intention was to have foreign scholars sojourn in Korea for as long as possible and induce them to interact more with Korean scholars and students. This type of governmental micro-management has been criticized for its lack of consideration of the teams' unique situations, academic freedom, and heavy administrative burden. However, Young of KMEST spoke in defence of the lack of trust in the universities' discretionary use of Government funding, stating that regulation was unavoidable, especially for this super-governmental funding project.

The third issue is the uncertainty that arose when the rules and regulations of KMEST and the NRF were not in accordance with the regulations of individual universities or the expectations of the foreign scholars.⁶

This contradiction generates misunderstandings among participants and creates a 'dual life', which demands that the scholars abide by both the Government's rules and the university's rules. The time spent dealing with conflicting administrative messages was time taken away from doing the very research, teaching, and networking that the project intended to foster. Two issues were raised by this contradiction: one is the level of preparation by KMEST and the NRF, and the other is the cooperation and support of the university administration. Young of the Ministry confessed that there had been a lack of preparation for the design of the project. She further admitted that the selected departments were politically isolated in the universities because many administrators and professors have difficulties with providing exorbitant salaries and research facilities for international scholars, who just stay for 4 months a year.

There has often been conflict between Government regulation and the departments of universities around university funding schemes. This has resulted from fairness and transparency in the selection process and the Government's strong control over the operation of the project teams. For the KMEST not to be penalized by the inspection authorities, frequent interventions and administrative guidelines are generated, and these have exerted much more influence than laws. More seriously, even university faculty and administrators act in response to the regulative patterns of governmental officials (Shin *et al.*, 2007).

Unintended consequences of quantity-driven evaluation

All department heads and foreign scholars who participated in this study stated that they or their organizations were under onerous pressure to generate a considerable

number of high-impact papers.⁷ The policymaker, Young, argued that she had no choice but to increase the quantitative criteria without consensus or trust in pure peer review. Such pressure to publish in top journals and respond to quantity-driven evaluation seems to have worked against the supportive image of the project. Dr. Sung, the department head at a private university, related the difficulties he had in persuading foreign scholars in his department whenever he talked about ‘quantitative evaluation’, recalling that the talks only brought about ‘woeful responses’ from the foreign scholars. Dr. Braun, a biologist invited to Sung’s department, complained that he did not know ‘who defines the top 10% journals’, which was one of the major evaluation criteria to measure the effectiveness of the departments and to decide on whether to provide continuing support to them. He said that this regulation was ‘misleading’ and made people ‘disregard other important issues that should be evaluated because they can see this as a waste of time’. He continued to say that ‘it doesn’t really matter if the Korean Government says I’m a good professor or not. I’m already here, so I cannot be so bad’.

The governmental focus on stronger criteria has led to an increase in the numbers of high-impact journals. The numbers for Top 10% and 1% journals increased from 303 and 12 (2009) to 1,218 and 39 (2012), respectively (Jang *et al.*, 2014). Choi, one of the executors of the NRF, stressed that the publications are ‘qualitatively’ different from those of BK21 and other projects because most of them arise from the ‘close cooperation between domestic and international scholars’. However, the problem is that the criteria did not fully take account of the differential characteristics of the project. Requiring publication in the Top 1% and 10% journals is unreasonably applied, with little consideration given to the particularities of the disciplinary fields. Furthermore, a quite strong tendency is found among participants to align their research activities with the indicators. Dr. Chung, a professor of computer-aided design, suggests, ‘when a similar journal is found on the Government’s list, faculty members move away from the journals they have been acquainted with so far and switch to publishing in that listed journal, so as to get a better evaluation’. In particular, the evaluation framework, which favors participants becoming corresponding authors, is the cause of a keen sense of difference and annoyance for foreign scholars. The annual evaluation guidelines from the NRF include how many papers are co-published by the domestic and international professors. However, a problem that the invited faculty had with corresponding authorship was that their names were being put on research that they really did not contribute to.

The major sources of demanding this quantity-driven strategy are not KMEST or the NRF. They are the National Assembly, Finance Ministry, and the Board of Audit and Inspection. KMEST and the NRF must show visible evidence to them for this super-governmental funding project. Hyung of the NRF reported the numbers of high-impact-factor journals that the selected departments produced to these sources on a regular basis. Acquisition among the related governmental bodies seems to be a



key factor for the continuation of the project, which lacks sound reason for spending such a huge amount of money, especially for international scholars.

The trials of achieving legitimacy and efficiency

Most of the participating departments struggled with irreconcilable expectations of achieving a position in the new knowledge community and losing moral legitimacy, core purposes, and values that are no longer recognizable. Legitimacy and efficiency are closely intertwined in that inefficient organizations have difficulty in maintaining legitimacy, especially in societies that highly prize rationality and efficiency (Perrow, 1986). Whereas the legitimacy of WCU departments is achieved by the maintenance of their Government's support, their efficiency is achieved by efforts to build core technology in education and research through full utilization of invited scholars.

WCU scholars also provided varying interpretations of what a WCU signifies. As Dr. Kawasaki suggested, "world-class" means that several aspects must be at world level. Some of these, such as education, research, and university-industry cooperation are "internationally acceptable", meaning "the world level should have a very close network to world society". Fortunately, it does seem that many of the WCU departments gained and continued to garner recognition from within and without the universities. In response to stress imposed by the WCU, many team leaders had become conscious of this notion. A Korean team leader, Dr. Jeong, described world class as 'being an influential power research group in the same field', whereby 'its research theme and methods globally prevail over other groups as soon as it starts'. He continued to say that his team had been doing comparative analyses of publications in high-impact journals between his group and other world-class groups, such as Harvard, MIT, and Stanford.⁸

Despite their many shortcomings, biases, and flaws, university rankings enjoy a high level of acceptance among stakeholders and the wider public because of their simplicity and consumer-type information. University rankings are not going to disappear; indeed, the number of rankings is expected to increase, although they will become more specialized (Marginson, 2011). Reflecting this trend, WCU evaluation indicators also showed considerable similarity to the indicators of international university ranking surveys, and extensively reflected the general features of WCUs (i.e., KMEST, 2008, 2010a, b; Salmi, 2009).

Institutional instability

For foreign scholars, the regulation for them to sojourn in Korea for a minimum of 4 months in succession per year places limitations on their efforts to enhance their education and research capabilities. In the first year, only 140 scholars kept the 4 months' sojourn rule and 97 failed. The failing scholars' average sojourn period was 1.83 month (The Board of Audit and Inspection of Korea, 2010). Facing serious

criticism from the National Assembly, the Board of Audit and Inspection, and the media regarding extraordinary salaries⁹ for international scholars, KMEST tried to set tighter sojourn regulations for the international scholars. Dr. Seo related difficulties in leading his project team, pointing out that ‘since foreign scholars have their own research responsibilities in their home countries, they are little able to engage in genuine in-depth research here in Korea and are, instead, busy with meeting requirements to give lectures in time’. Dr. Hyun similarly noted that if the WCU evaluation could look into ‘how effectively foreign scholars supervise students and help to nurture them into competent doctoral researchers, rather than checking whether they have faithfully provided lectures and assessments, it would grant more flexibility to foreign scholars and also prove more beneficial for the department’.

Another issue pointed out by critics is the institutional instability that rests unresolved for the WCU Project. There is a prevalent concern among participants that the WCU Project might face discontinuity when a new Korean government steps in. Project teams naturally tend to focus their energy on avoiding the worst evaluation results, that is, project closure. Dr. Cho noted, ‘we thought that we had published all our papers in the top 10% of international journals, but then last May the list of top journals altered all of a sudden; so now we’ve switched to publishing papers only in those top-listed journals’. However, this practice of Korean researchers publishing their papers only in high-impact-factor journals was not readily understood or accepted by many invited scholars.

The pressure for international ranking was clear to the Korean project leaders. This pressure directly stemmed from one significant policy objective of the WCU Project, that is, to boost the international rankings of the participating universities (KMEST, 2008). Dr. Cho defined ‘world class’ as having a ‘high reputation among scholars, which all the international rankings give weight to’. Yoon noted that growing into a WCU means ‘to become an institution of high reputation’ for which ‘the foremost task is to raise the quality of university staff to top global standards’. Dr. Sung described the background of his team’s participation in the project, confessing that the vice president of his university pressed him to apply for the project because ‘this project is best for upgrading our university in terms of improving research infrastructures’. He continued, ‘so this project is not only for our team, but much more for our university’.

Implications and Conclusion

Our research suggests that the limits of the government scheme have marginalized the organizational reformation of the selected departments, and most of the limits have stemmed from strong institutional pressure for the departments to comply with the guidelines set by the Government. The institutional environments have worked against the departments by forming multiple dimensions: strong governmental guidelines for



micro-management, continuous conflict between the regulation of the Government and universities, uncertainty about continuity, and harmful political dynamics between KMEST and other audit and finance-related governmental institutions.

The quantitative and regulation-oriented scheme of the Government only worked within the narrowly defined conception of WCUs by creating an influx of foreign scholars, a tremendous amount of funding for research and development, and the production of a considerable amount of papers in high-impact-factor journals. Although the selected WCU departments seem to faithfully comply with the prescribed guidelines, common observations throughout the study indicate that the objective of the project is not sufficiently focused on the global definition of the WCUs, and that the strategy and regulation of the project is some way from being an optimal form of world-class work. The Government expects all the participating departments to perform very well, but it provides insufficient support and even interferes with departments' judgments about their generation of endogenous capacity and strategies. These regulatory requirements can create barriers to the departments' attempts at achieving global standards, as suggested by previous WCU research (Wang, 2001; Finkelstein, 2003; Deem *et al.*, 2008; Salmi, 2009).

Some disconnect between exogenously imposed properties and practices of local adaptation arise from the strong influence of the institutional environment, leading to isomorphic change or superficial conformity among organizations (DiMaggio and Powell, 1991; Meyer *et al.*, 2007). One of the strong institutional arrangements of the project, a critical criterion in the evaluation of the competition and performance evaluation, is the number of publications, especially in high-impact-factor journals. The background behind this quantity-driven strategy is very political. KMEST, the governmental unit behind the project, is persistently audited by key budgetary and audit-related governmental institutions, such as the Finance Ministry, the National Assembly, and the Board of Audit and Inspection. Consequently, KMEST has no choice but to explicitly set visible goals that are easily quantifiable, such as number of publications. This requirement for 'numbers' and 'impact factor', in combination with criteria at the institutional level, seems to work to diminish innovation among research groups, generating conceptual and socio-psychological conflict among participants. More seriously, an unchanged governmental scheme and ensuing responses of the participating departments seem to marginalize education for graduate students.

From an institutional theory point of view, a considerable degree of bureaucratic control is imposed even in departments that aspire to become world-class institutions. This presents a major hindrance to their progressive capabilities. In particular, a powerful institutional environment that affects government-funded projects is assessed as strongly limiting the ability to create reformation through the new human resources' input: the invited scholars. Though the majority of participants agree with the objectives and strategies of the project, a number of problems seem to be restricting the innovative advancement of departments: representatively centralized



regulations, quantity-driven evaluation, and the isomorphic need to comply with legitimacy. Underlying such bureaucratic control measures rests a powerful political environment that has worked its way deep into the roots of the Korean large-scale higher-education reform project.

WCU departments faced dual demands, one from legacy systems embedded in the Korean context and the other from the international expectations of research universities. However, the demands from the former seemed to offset the effects, goals, and achievements of the project. WCU departments faced a dynamic organizational environment that created tensions between the participating faculty, the departments, and the Government funding agencies. The manner in which stakeholders navigated and mitigated these tensions largely determined the relative success of the programme. The participant perspectives detailed above note tensions that caused substantial friction among the various stakeholders. Participants and departments struggled with regulatory discord, entrenched cultural practices, and conceptions and measures of success. While this is contextually bound to this particular Korean context, such explanation could readily apply to most governmental-university change management implementations.

Our study results confirm the difficulty of establishing WCUs driven by the project-based efforts of a government. In the Korean higher-education context, the WCUs, which can be defined as institutions which attain excellence in research and education with academic autonomy, and within favourable institutional environments and cultures, should be developed more on the basis of active collaborations among the Government, universities, and academics than government-led financing projects on the principle of selection and concentration.

Future policy directions, therefore, should be directed towards reducing the effects of unfavourable institutional environments. The foremost task is to re-establish Korea's principles with regard to academic and university autonomy, as a seawall to mitigating the impact of the environment. Already, numerous higher-education researchers have identified 'academic autonomy or academic freedom' (Wang, 2001; Salmi, 2009) and 'self-governance' (Finkelstein, 2003) as the two key elements that should be characteristic of WCUs. In the current situation, however, where technical innovation and university development heavily depend on government financing for higher education, the academic autonomy of universities is often threatened by several authorities. This lack of autonomy is the chief obstacle for universities seeking to become world-class institutions, but it will not be easy to soften the impact of institutional environments on universities all at once.

Study findings and implications provide a clear lesson for the Korean Government and universities. From a short-term perspective, the Government should modify all the regulatory frameworks so that they are positively aligned for the many universities and their departments to leap forward to world class. From a long-term perspective, it is important for universities and departments to develop their own capacities and endeavour to acquire world-class quality. It is of particular importance to continually



pursue excellence in research as a way of fostering a favourable environment, and to employ excellent faculty in continuity (Hobbs, 1997). While it will be necessary to exert powerful leadership, establish bold visions, and strategically plan objectives, keen attention must also be paid to concretizing those visions and objectives through appropriate programs (Salmi, 2009). At universities that maintain a highly challenging and strong-willed reform vision, a positive cycle is created, where passion gives birth to strategic goal setting, reform plans are constantly reviewed and monitored against the strategic goal, and those reform plans lead to advanced outcomes. Change initiatives like the WCU Project need to promote this positive cycle of reform in order to have a lasting impact on participating organizations.

Notes

- 1 University organizations that have complete autonomy are also more flexible because they are not bound by cumbersome bureaucracies and externally imposed standards, notwithstanding the legitimate accountability mechanisms that bind them. As a result, they can manage their resources with agility and quickly respond to the demands of a rapidly changing global market (Salmi, 2009).
- 2 Hereafter, what we mean by 'institution' is a well-established and structured pattern of behaviour of relationships that is accepted as a fundamental part of a culture, with 'institutional environments' characterized by the elaboration of rules and requirements to which individual organizations must conform in order to receive legitimacy and support (Scott and Meyer, 1983).
- 3 Among the invited WCU scholars, there were nine Nobel laureates and three Field laureates. In addition, 13 were members of the National Academy of Engineering, 14 were members of the National Academy of Sciences, and 10 were members of the National Academy of the United States (KMEST, 2010b).
- 4 DiMaggio and Powell (1991) identified the following mechanisms of institutional isomorphic change: (a) coercive isomorphism results when organizations are persuaded, forced, or coerced to change by other organizations on which they are dependent; (b) mimetic isomorphism is related to organizational uncertainty or ambiguity, which results in the imitation or mimicking of legitimate organizational structures in the institutional environment.
- 5 The WCU Project is one of the major university reform agendas of the newly elected president, and the timeline of the project is exactly set for the duration of the Government.
- 6 The most common issue was the salary level of the invited scholar. Although there is a governmental guideline to pay around 300 million KRW per year (KMEST, 2008), it was very hard to find any reference for individual universities, especially the national ones, paying almost three times more than the amount received by full professors of the universities.
- 7 The significant indicators for the mid-term evaluation of the selected departments include SCI publications, domestic–foreign scholar joint publications, aggregate of impact factors published in top 10% SCI journals, number of Top 1% journal publications, and number of citations per person in SCI publication journals (KMEST, 2010a).
- 8 Another indicator for the mid-term evaluation is comparison with other world-class departments of developed countries, including validity of selection of the relevant departments and the plan to catch up with them in terms of research (mostly publications and impact factors) and education (KMEST, 2010a).
- 9 An international scholar receives a salary of 300 million KRW (approximately US\$272,700) and an additional 100 million KRW (approximately US\$90,900) for research per year (KMEST, 2008). According to a survey (<http://www.kyosu.net/news/articleView.html?idxno=26096>), the annual average salary of a full professor from Seoul National University amounts to 97,390,000 Korean won (approximately US\$88,536).



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