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Issues, Concerns and Prospects 23

Hyunjoon Park
Kyung-keun Kim *Editors*

Korean Education in Changing Economic and Demographic Contexts

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Series Editors Introduction

Republic of Korea is a high-income developed country, being one of the G-20 major economies and a member of the OECD. It is one of the Asian Tigers and for several decades has had one of the world's fastest growing economies.

A frequently asked question concerns how Korea has achieved such truly miraculous economic growth and development over the past 50 years, moving from being an impoverished, largely agricultural country to one which is highly industrialised, with an expanding service sector, and which has become one of the richest and most developed countries in the world.

A country's economy does not exist in isolation to other aspects of the society in question, such as the characteristics of the society, its political organisation and education system. Education and schooling systems do not exist in isolation to the society in which they are located, but reflect the needs, and seek to serve the needs, of a particular society, at a particular time.

Korea has a very effective education system, if academic results are used as the criteria for making such a judgement. For example, Korea is towards the top achievers with regard to the high PISA results achieved and performs very well in various other international competitions which seek to measure academic achievement.

One of the matters which this book examines is how Korea has promoted, implemented and achieved best and innovative practices as they have successfully sought to strengthen and upgrade their education system. Educational change in Korea is also of great interest to other countries in the region, as they examine and learn from the Korean experience regarding, for example, how stumbling blocks have (or have not) been overcome in education for development.

The contents of this important and insightful book focus on the current contours of Korean education, educational reforms in a changing economy and the educational challenges created by demographic changes.

As the authors of this volume point out, Korean education is at a critical point of transition, chapters in the book examining possible pathways Korean education may take as it moves in directions that take it away from the traditional model.

Many countries in Asia and beyond are interested in learning more about 'the Korean Experience', and how such major progress has been achieved over such a

relatively short period of time. The book is particularly important and valuable in helping explain, in English, the success of the Korean education system, since many surveys of Korean education are only available in the Korean language.

As the authors point out, this volume should appeal to a wide range of readers who are interested in the impact of economic and demographic change on education and schooling. The lessons learnt from the Korean experience are not just relevant for Korea, but also for other countries in the region (and beyond) as they seek to achieve educational innovation for development. Like several other countries in Asia, Korea has experienced unprecedented growth and change over the past several decades which have important implications for the organisation and content of education and schooling. Examples of such change, which are examined in this book, include the move to a more multicultural society, partly due to there being an increasing number of foreign migrants including more international marriages with foreign spouses; more single-parent families; and the changing role of adolescents in society, all of which have important implications for the education of children, youth and adults in Korea. There has also been a decline in fertility rates, while at the same time a greater proportion of the population is living longer than ever before.

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Preface

As will often be heard in various chapters of this volume, Republic of Korea (hereafter Korea) has now become a world leader in the proportion of young people with college education, coming from being an impoverished nation that had only a handful of its population with a college education just a few decades ago. Further, the world has been impressed by the record of Korean students in international competitions of academic achievement. Regardless of whether or not we agree with the way in which the Korean educational system has educated its children, this remarkable achievement, along with the problems it has also generated, can be of interest to both researchers and the general public outside of Korea in attempting to understand their own educational systems from a comparative perspective.

One of the editors of this collection has been teaching Korean education (and other issues) at a university in the United States and was often frustrated to know that there are not many surveys of Korean education available in English either for class study or for the general public. In particular, he was looking for a survey that can offer up-to-date and comprehensive reviews of Korean education with particular consideration of recent changes in economic and demographic environments and their effects on Korean education. The opportunity of collaboration with the other editor, who has been teaching Korean education for more than 15 years in a university in Korea and has published numerous articles and several single-authored or coauthored books on Korean education, led both editors to realize the potential of an edited book that can cover the diverse issues Korean education is currently facing and also introduce the various efforts of Korean educators and policymakers toward dealing with those challenges.

For this purpose, several scholars whose expertise in a specific field of educational research is well known met together in a small conference hosted by the first editor in August 2009 at the University of Pennsylvania, with financial support from the Center for Korean Studies at the University. Soo-yong Byun (Chap. 3, also coauthor of Chap. 2), Shin Arita (Chap. 5), and Min-Kyung Lee (Chap. 10) attended the conference along with the editors, Kyung-keun Kim (coauthor of Chap. 2) and Hyunjoon Park (Chap. 9). At the conference, the authors presented their drafts and received useful comments from discussants who were not Korean education

specialists but were first-rate scholars of US, Chinese, and Latin American education (Grace Kao, Emily Hannum, and Jere Behrman, all at the University of Pennsylvania). In other words, the authors benefited from the discussants' comparative perspective to put the Korean education in context. After the conference, each author incorporated the comments and suggestions of the discussants as well as those of other scholars and students who attended the conference. In making their revisions, the authors particularly highlighted the broad relevance of the Korean case for the emerging issue of economic and demographic globalization and education.

After the conference, the editors decided to extend an invitation to five other scholars to join the project. All based in Korea, these scholars, some senior and some junior, have produced important work on topics of Korean education that have eventually been grouped into three broad themes in this volume. Each chapter by these authors, Jae-Hee Ahn (Chap. 4), Hyunsook Yu (Chap. 6), Yeo-Jung Hwang (Chap. 8), Kihun Kim (Chap. 7), and Yoon Young Kim (Chap. 11), went through rounds of revision with comments and suggestions from both editors. Although these authors did not participate in the original conference, the editors emphasized the same framework of approaching Korean education through comparative lenses and standards of quality for these additional chapters in the review process. With the addition of these five chapters that cover diverse and timely issues of Korean education, the timeliness and breadth of the volume has been further enhanced.

This collection therefore features a total of ten chapters on Korean education that are divided into three sections. The four chapters in the first section, "Current Contours of Korean Education," address the current situation in Korean education, focusing on two indicators: academic performance and educational attainment. The following section of the volume, "Educational Reforms in a Changing Economy," introduces growing concerns as to whether the traditional Korean model can adequately meet the educational demands of the emerging knowledge-based economy and suggests educational reform measures that aim to modify the educational system in line with these demands. Then, the third section of the volume, "Demographic Changes and Educational Challenges," presents three chapters that address different aspects of recent demographic changes and their implications for Korean education. In addition to the three thematic sections, editors have included an introductory chapter at the beginning of the volume as a preview of issues and contexts of Korean education dealt with across the ten chapters.[1]

Although the studies included in this volume mainly deal with the Korean case, they should appeal to a wide range of readers who are generally interested in issues of recent economic and demographic changes and their implications for education. Indeed, Korea is not the only country in the world that has been experiencing growing economic inequality and rising immigration in recent years. In particular, its neighboring countries including Japan and Taiwan are going through similar

[1] For editing the volume and writing the introductory chapter, Hyunjoon Park (the first editor) acknowledges support from the Academy of Korean Studies Grant funded by the Korean Government (MEST) (AKS-2010-DZZ-2101).

economic and demographic changes, albeit in different degrees. For instance, East Asian countries have long had very minimal inflows of foreign populations and have maintained cultural homogeneity. Since the mid- to late 1990s, however, international marriages in Taiwan and Japan as well as in Korea have steadily increased, although the trend seems to be leveling off or declining since its peak in the mid-2000s (Jones 2012; Bélanger 2010). In particular, in Taiwan international marriages accounted for 32 % of all marriages in 2003 (Jones 2012). Not only foreign spouses but also unskilled labor workers from China and South East Asian countries have increasingly entered Japan, Korea, and Taiwan to fill labor shortages in manufacturing and other primary industries caused by the declining fertility and changing economic structure in the three East Asian countries (Kaneko 2009; Bélanger 2010). Therefore, challenges to Korean education caused by such changes in economy and demography, and efforts with which Korean education deals with those challenges, will provide an interesting case study for other East Asian countries that are currently facing similar challenges associated with economic and demographic changes.

Hyunjoon Park and Kyung-keun Kim

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Contents

Chapter 1
Introduction: Korean Education in Transition

Hyunjoon Park and Kyung-keun Kim

In this introductory chapter, we preview the major findings and discussions from each chapter in an attempt to briefly introduce the current situation, the major issues, and the changing economic and demographic contexts of Korean education. We do not want to simply repeat major findings of each study which readers can easily find in each chapter. Instead, we address concerns and issues that underlie studies collected in the same section. In other words, we attempt to address emerging themes across different chapters. In this way, we hope to answer some questions such as why we have organized this volume into three different sections and how each chapter in each section is related to the others.

Current Contours of Korean Education

The first question that any reader who is interested in an educational system could ask would be "How is this educational system doing?" As described in several places in this volume (see particularly Chap. 5 by Arita and Chap. 6 by Yu), Korean higher education has expanded at an outstanding rate to the point that now eight out of ten high school students in Korea make the transition to higher education (either universities or junior colleges). Moreover, international comparisons of student educational achievement consistently show outstanding performance of Korean students (e.g., Park 2013). For an educational system that could educate only a small proportion of students up to college level just a few decades ago, this is a remarkable

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record that deserves serious attention from educational researchers and policymakers across the world.

In assessing an educational system, however, researchers and the public are concerned not only with the productivity of the educational system, which is often indicated by the overall level of the population's educational attainment or students' academic performance, but also with the degree of inequality in educational outcomes as regards major social factors such as family background and gender. How successful is an education system in maintaining only small disparities in educational attainment and achievement among its population? Only when the two aspects of an educational system are simultaneously considered, can the whole picture of the strength and weakness of an educational system be revealed. Therefore, the four chapters collected in the first section of this volume have assessed how Korean education fares regarding the degree of educational differential by family background and gender. In other words, this first section scrutinizes Korean education by paying attention to its problematic issues as well as to its successes.

As Kim and Byun's study (Chap. 2) illustrates, families' socioeconomic conditions significantly shape children's academic performance in Korea, as in most contemporary societies. Kim and Byun also pay attention to regional differences in the average test scores and in the way in which the socioeconomic composition of a school's student body is associated with its average scores. Because this study does not compare the degree of inequality by family background and region across countries or over time within Korea, we are unable to directly comment on how the influences in Korea are comparable with corresponding influences in other countries or on how the influences have become stronger or weaker over time within Korea. However, the authors provide a useful overview of regional differences in high school admission policies in contemporary Korea and attempt to assess achievement gaps by region as well as individual students' family background.

This inequality in student outcomes by family background in Korean education may be exacerbated by the high level of students' participation in private tutoring and cram schooling, often called shadow education activities (Stevenson and Baker 1992). Strong pressure on academic success and high competition for top universities have driven students' and parents' demand for private tutoring and cram schooling in order to gain an edge in the critical college entrance exam. According to Byun's study (Chap. 3), eight of ten middle school students in his sample for the analysis attended a cram school after regular schooling. The proportion demonstrates how pervasive shadow education activities are in Korean education. However, obviously not all parents can afford expensive tutoring or cram schooling, resulting in significant socioeconomic differentials in the quality (and perhaps also quantity) of private tutoring or cram schooling students receive. In other words, it seems plausible that differentials in the opportunity for shadow education activities between students from affluent and poor families may mediate socioeconomic inequality in student achievement. As Byun (Chap. 3,) argues: "shadow education may play an important role in the reproduction of educational and social inequalities in contemporary Korean society by linking family background to children's educational outcomes."

Another important aspect of social determinants of educational outcomes is gender of students (Park 2007a). In Chap. 4, Ahn provides evidence of a significantly reduced gender gap over time in doctoral levels. Specifically, according to the statistics presented in Fig. 4.1 of her study, women accounted for only 13 % of the total number of doctoral degrees awarded in domestic institutions in 1990. By 2011, however, the proportion of women had increased to 32 %. The corresponding change for doctoral degrees awarded abroad was from 10 % to 40 %. Combined with evidence from other studies of reduced gender gap over time in transition from secondary education to tertiary education in Korea (e.g., Park 2007b), the trend of decrease in gender differences in the highest level of educational attainment can be seen to be another significant achievement of Korean education. However, an important point made by the author is that despite the expanded opportunity for women to obtain doctoral degrees, women face stronger barriers in their transition to work after degree completion as illustrated by the higher likelihood of having a part-time job (especially as a part-time lecturer) than their male counterparts. This study clearly demonstrates that addressing gender equality should not stop with equality of educational opportunity but continue into achieving equality in economic and occupational returns to educational attainment. In this aspect, the author's specific policy proposals for improving female doctorates' employment opportunities are worth listening to.

The rapid expansion of higher education is not always seen as desirable, as some scholars and policymakers are concerned about potentially decreasing job prospects of college graduates and deteriorating quality of higher education which can result from a rapid increase of the number of youth completing tertiary education (see Chap. 6). As Yu's overview (Chap. 6) of higher education reforms in Korea points out, the expected decrease in the size of the school-age population due to the rapid decline in fertility aggravates the concern of oversupply of higher education. However, it still remains an empirical question to be addressed to what extent the expansion of higher education has actually resulted in the deterioration of the quality of college education and the job prospects of college graduates. Although the expansion of higher education in Korea has been substantial, it is not yet known clearly how labor markets have responded to this change in supply of college graduates.

This is exactly what Arita attempts to address in Chap. 5. Although this study does not address inequality in educational outcomes, it touches upon another important question in assessing an educational system: how does the system help students' transition from school to work? In comparing the percentage of new college graduates who obtained a white-collar job upon graduation from 1995 to 2005, Arita shows no significant change in the percentage during the period despite the rapid rise of the number of college graduates. This finding in Korea is in sharp contrast to the finding in Japan where the percentage of new college graduates who attained a white-college job indeed declined from 1990 to 2005 when the number of college graduates rapidly increased. At the same time, however, the maintained match between college degrees and white-collar employment in Korea is not likely to be due to what colleges do for their students to improve

their job prospects. According to Arita, the pattern in Korea seems related to a non-educational factor that a considerable share of white-collar employment of middle-aged workers was likely substituted with new college graduates. In other words, the question still remains of how the Korean higher educational system can appropriately deal with the issue of smooth transition to work for the rapidly increased number of college graduates.

Educational Reforms in a Changing Economy

The first four chapters address how Korean education has evolved and where it is now in regard to influences of family background and gender on students' academic performance, the speed and pattern of educational expansion, and changing (or persistent) transition from school to work under the rapid expansion of education. Although the four studies highlight significant achievement of Korean education during the last few decades, they also reveal serious challenges that evolving Korean education has produced along with successful achievement. Despite outstanding academic performance of Korean students, excessive competition and high pressure for a high score on the national college entrance exam, which motivate students' participation in shadow educational activities after regular schooling, raise the question of what the ultimate goal of education should be. As discussed above, the rapidly increased number of college students raises a concern of how quality of higher education can be guaranteed and how college graduates still can secure their job prospects (despite Arita's evidence showing no big problem so far in transition to work).

The next three chapters (Chaps. 6, 7 and 8), in the section *Educational Reforms in a Changing Economy*, discuss various efforts to address those educational problems that were generated under the traditional model of Korean education. A fundamental question raised by educational policymakers and researchers is whether the traditional Korean educational system can produce a workforce appropriate for an emerging new economy that increasingly relies on knowledge and information. A major characteristic of the traditional model of Korean education is its high levels of standardization and centralization, of which indicators include nationally standardized curriculum and teaching instruction, national college entrance examination, and control by and intervention of government (Park 2013). Critics of the traditional model argue that although the highly standardized and centralized educational system had contributed to Korea's economic success through rapid industrialization until the early 1990s by providing semi-skilled workers, it would not be appropriate for producing high-skilled, competent, flexible, and creative workers who can lead a knowledge- and information-based economy (Dahlman and Andersson 2000).

In Chap. 6, Yu offers a detailed introduction to recent educational reform measures particularly aimed at addressing problems and limitations of the current higher education system. She emphasizes the emerging knowledge-based

economy whose needs supposedly cannot be met with the current higher education system that is heavily centralized, standardized, inflexible, and does not encourage competition among colleges. Among various reform measures that have been introduced since the late 1990s are increased autonomy and accountability, deregulation, an information disclosure system, restructuring, and globalization of higher education institutions. This chapter is a useful survey that provides economic, societal, and educational contexts for Korean higher education reform, and the overall direction and major features of recent reform initiatives as well as challenges and pending issues for reform.

In a similar line of thought, K. Kim in Chap. 7 espouses key competency as a measure of educational outcome alternative to traditional academic performance. He also emphasizes the emergence of a knowledge-based economy in which traditional academic performance, which is narrowly based upon school curricula, is no longer relevant; but well-rounded, creative, and flexible capacities, which are conceptualized as key competency, are valued. In this regard, the traditional Korean educational system, which is often criticized as a too rigid and standardized system (see Park 2013), is considered to be "poor at building the individual talents and competencies which are needed in a knowledge-based society" (Chap. 7). In fact, his analysis of key competencies clearly shows how poor Korean students' competency is in terms of interacting in a heterogeneous group, while how strong their competency is in the aspect of using tools interactively (of which major components are reading, mathematics, and science performance).

The growing importance for school systems to fit into the needs of a knowledge-based economy, and reform proposals to change the current school system toward this direction, are all important. However, not everyone agrees that this is the right direction for Korean education to follow. Empirically assessing whether the educational reform since the early 2000s toward increased choices of schools, decentralization, and differentiation has actually produced a better outcome in Korean secondary education, for instance, Park (2013) has found that inequality in student academic performance has actually increased under the reform movement. In particular, he has demonstrated that reform measures, which have further differentiated and individualized educational opportunities, have produced differential effects especially favoring students who were already academically strong and came from affluent families at the expense of their peers who were academically struggling and came from poor families. Although Park's study pertains to secondary education, a similar concern can be easily applied to the proposals of reform for higher education. Moreover, by highlighting the highest level of Korean students' problem-solving skills, which could be considered as one element of key competencies that are not based on school curricula but require flexible and creative applications of knowledge, among 29 OECD countries in PISA (Program for International Student Assessment) 2003, Park (2013) has questioned the stereotypical view that Korean students lack creativity. In this volume we are not in a position to judge the genuine effect of educational reforms in Korean since the early 2000s. All we want to point out is that there are different perspectives on where Korean education should go.

In fact, Hwang's study in Chap. 8 provides evidence that is not consistent with the expectation of education reforms favoring more differentiated and individualized education. Claiming that the traditional system of Korean education is too rigid and standardized and thus does not offer differentiated learning opportunities, proponents of ability grouping (or more broadly within-school curriculum tracking) have favored separating students within a school into different groups (or classes) according to their levels of academic achievement, anticipating positive effects of such segregation for both high-achieving and low-achieving students (see Park 2013). During the 2000s, an increasing number of Korean secondary schools have introduced ability grouping in their schools. Using data from a nationally representative survey of middle school students, Hwang investigates how ability grouping affects students' self-efficacy and finds that "[w]hile the experience of upper track placement brings about positive effects on academic self-efficacy, lower track placement is more likely to have a negative effect" (Chap. 8). This finding provides evidence contrasting the expectation that differential learning opportunities should enhance educational outcomes of low-achieving students as well as high-achieving students.

Demographic Changes and Educational Challenges

The three chapters in the section *Educational Reforms in a Changing Economy* have addressed the changing needs of Korean education associated with the emerging knowledge-based economy. Another major source of challenges to Korean education is the changing demography of the student body. Along with the economic crisis, family change is another key factor that characterizes the last decade of Korean society. For instance, the divorce rate in Korea has dramatically gone up, resulting in an increased number of children living with a single parent. Cross-national comparisons of divorce rates highlight a comparably high level of divorce in Korea in recent years, nullifying the old image that the Korean family is "traditional" (Park and Raymo 2013). Studies in the United States and other Western countries have consistently shown significant educational disadvantages of children with a single parent compared with their peers with two parents, which is to a large extent attributable to poorer economic conditions of single-parent families (McLanahan and Sandefur 1994). The negative consequences of growing up with a divorced parent may be particularly substantial in Korea where divorce still bears strong cultural stigma, and public welfare provisions for single-parent families are sparse. The fast-growing number of children living with a divorced parent, therefore, presents new challenges for Korean schools that have been long accustomed to students from two-parent families.

In this regard, Park's study (Chap. 9) is timely. Across three different cohorts of middle school and high school students, he assesses differences between students living with a single parent and their peers living with two parents in transitions to academic high schools, transitions to universities, and academic

performance in Korean and mathematics. Particularly useful in his analysis is to distinguish separate categories of single parents by causes and gender: divorced single fathers, widowed single fathers, divorced single mothers, and widowed single mothers. This distinction facilitates the author to reveal heterogeneity among single-parent families. According to the result, divorce of parents is significantly associated with poorer educational outcomes but death of a parent is not. The educational disadvantage of students living with a divorced single father is particularly notable. Although in the chapter Park does not address specifically how Korean schools provide (or do not provide) substantial support for students living with a single parent (in other words, it does not pay serious attention to the role of schools in mediating the impacts of single parenthood), this study is a useful report illustrating current educational situations of students in different family arrangements.

Another major demographic change that Korean society has experienced during the last 15 years or so is the rapid influx of migrants. According to Lee in Chap. 10, two major groups of migrants are marriage migrants and migrant workers. The number of international marriages between Koreans and foreigners (usually between a Korean groom and a bride from China or a South East Asian country) has increased remarkably, to the extent that international marriages have accounted for more than 10 % of total marriages in Korea in recent years. As children of international marriage couples have grown up in Korea and reached school age, the rising number of those children from "multicultural families" imposes considerable challenges to Korean schools that have long assumed the study body of homogeneous culture. Although migrant workers are not legally allowed to, they bring their family members to Korea, contributing to the rising number of children of migrant parents. Given that this influx of migrants into Korean society is unprecedented and also fundamentally questions the long-practiced assumption of "ethnically homogenous" Korean society, we consider this demographic change to have broad and far-reaching implications across many aspects of social life including education.

In fact, during this short time period, the Korean government has moved swiftly to promote "multiculturalism" discourses and practices. In our view, it is remarkable how multiculturalism could have emerged as an important national agenda item in such a short time in a society that previously had virtually no encounter with the issue. Chapter 10 by Lee serves as a very useful survey of diverse perspectives on multiculturalism as understood and practiced in the Korean context, and also of specific educational policies and programs that reflect those diverse perspectives. She points out some limitations and problems of multicultural education in Korean schools, including its almost exclusive focus on children of "multicultural families" (which indicate international marriage couples and their children), without much focus on children of migrant workers, and the predomination of the paternalistic sympathy-based discourse that does not challenge the asymmetric relationship between the culture of the hosting society and the culture of the societies of origin. However, as the author acknowledges, transformation to a multicultural society is not an easy process but requires a great deal of effort and

social change. It remains an important task of researchers and policymakers to keep monitoring how multicultural education evolves and how schools improve their roles in helping children of migrant families.

Interestingly, the body of students in Korean schools has diversified not only due to the increasing number of multicultural children or children of migrant workers but also due to children of North Korean defectors who are now attending schools in Republic of Korea. During the last decade, the number of North Koreans who have entered Republic of Korea has steadily increased. Given the large differences in political, economic, and cultural systems between South and North Korea, North Korean migrants often face considerable challenges in adjusting to the society of Republic of Korea. Y. Kim in Chap. 11 illustrates the major educational problems of young North Korean migrants in South Korean schools, including comparably high dropout rates and poor academic performance. With their distinctive language accent and other cultural differences, young North Korean migrants are often isolated from their peers in schools. It is worth listening to the author's suggestions for social welfare and educational programs that can serve the needs of young North Korean migrants, especially those that can enhance mutual understanding between North Korean migrants and South Koreans.

Where Is Korean Education Heading to?

As all the chapters in this volume convincingly demonstrate, Korean education is in transition. It is facing several significant challenges associated with recent economic, demographic, and educational changes, and is indeed transforming itself in response to those challenges. Various educational reform measures have been introduced to significantly modify the existing system. In order for schools to appropriately deal with diverse needs of children of migrant parents and parents from North Korea, for instance, school curricula have been significantly changed and a number of educational programs geared toward those students have been carried out in schools. Korean secondary schools have an increased practice of ability grouping, and various efforts have attempted to restructure the higher educational system toward increased accountability and autonomy, expecting that these measures will enhance Korean education's capacity to prepare students for a knowledge- and information-based economy. How have those programs and policies been successful so far? How will Korean education look when it emerges from those new initiatives? The challenges that Korean education is facing can be an opportunity to open up new possibilities for Korean education. Therefore, Korean education is now at a critical turning point for its future. Given the importance of the current reforms being introduced for the future of Korean education, we encourage more academic and public debates on the overall direction of educational reform and even on specific reform measures. Potential advantages and unexpected consequences of specific directions of educational reforms should be discussed fully. As editors of the

volume, we believe that this collection delivers useful and up-to-date information on changing Korean education to readers who are interested in Korean education from a comparative perspective. We would be also excited to hear that this collection has contributed to further discussions and debates on where Korean education should be heading.

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Part I
Current Contours of Korean Education

Chapter 2
Determinants of Academic Achievement in Republic of Korea

Kyung-keun Kim and Soo-yong Byun

Introduction

Over the last few decades, Republic of Korea (hereafter Korea) has achieved dramatic educational advances, accompanied by fast economic growth (Lee et al. 2010). For example, in 1945, when the Japanese occupation (1910–1945) came to an end, the enrollment rates of Korean youth in primary, secondary, and post-secondary institutions were approximately 65 %, 20 %, and 2 %, respectively (Korean Ministry of Education[1] [MOE] 1998). A half-century later in 2007, however, the enrollment rates of school-aged individuals were almost 100 % in primary and secondary institutions and nearly 70 % in post-secondary institutions (Korean Ministry of Education, Science, and Technology [MEST] 2009a).

Despite these dramatic educational developments, assessing the determinants of academic achievement nationwide had been difficult until very recently because of the lack of nationally representative data. Some efforts were made to identify the sources of differences in academic achievement during the late 1990s and early 2000s (e.g., Hahn et al. 2001; Kim 1996). However, most studies at that time were based on small-scale surveys limited to certain regions, notably metropolitan cities such as Seoul (the capital and largest city) and Busan (the second largest city; e.g., Ju 1998; Kim 2000; Oh and Kim 2001). Because the generalizability of these

[1] Prior to 1990, the Korean Ministry of Education (MOE) was called *Moonkyoboo*. In 2001, MOE was newly named the Korean Ministry of Education and Human Resources Development (MEHRD). MEHRD was then renamed the Korean Ministry of Education, Science, and Technology (MEST), in 2008.

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study findings to students in other regions is limited, knowledge of the factors that affect academic achievement in Korea as a whole has also been limited until very recently. Yet recent efforts by the Korean government and its educational research agencies (e.g., the Korean Education Development Institute [KEDI]) to collect and release data have increasingly permitted the identification of the sources of differences in academic achievement among Korean students.

Accordingly, the purpose of this study was to narrow the gap in knowledge of the determinants of academic achievement in Korea by using recent longitudinal data for Korean middle school students from the Korean Education Longitudinal Study (KELS). We paid special attention to the roles of socioeconomic background and region in academic achievement among Korean students, because of growing concerns with respect to the achievement gap between children from high- and low-income families and between those in large cities and rural areas, particularly since the economic crisis of 1997 (Byun and Kim 2010a; Kim 2005). The findings of this study provide important insights into factors that matter in academic achievement in Korea.

It is important to note that the current study did not test any particular theory of the determinants of academic achievement, as these theories have been developed primarily in Western societies. Rather, the study more broadly investigated the relevance of a variety of factors related to academic achievement in Korea. In short, this study aims at serving as a starting point for further studies of the determinants of academic achievement in Korea. The rest of this paper proceeds as follows. We begin by providing a brief background to the topic of schooling in Korea, followed by a description of the study's methodology. We then examine factors associated with academic achievement, using a series of multilevel models. The paper concludes with a discussion of the results.

Schooling in Korea

Educational System

Much of the modern school system in Korea was developed during the Japanese occupation, including the 6-3-3-4 pattern it adopts, representing the primary (grades 1–6, ages 7–12), lower secondary (grades 7–9, ages 13–15), upper secondary (grades 10–12, ages 16–18), and post-secondary (2- or 4-year college and university) levels. Primary and lower secondary education is compulsory with no between-school tracking.[2] Upper secondary education is not compulsory and tuition fees are

[2] Free lower secondary education began in 1985 in remote island areas, but was not expanded to cover all cities across the nation until 2004 because of limited public resources (MEST 2009b). Despite the shortage of school facilities and resources, universal school participation was achieved for Korean children of primary and middle school ages by the beginning of the 1980s (Lee et al. 2010).

charged. In addition, tracking takes place at the upper secondary level in three types of high schools: (a) general, (b) vocational and technical, and (c) special purpose high schools. General high schools are academically oriented, college-preparatory schools, in which the majority of Korean high school students are enrolled. Vocational and technical high schools are for those students who want to develop their vocational skills and enter the labor market after high school. However, an increasing number of vocational high school graduates have been entering college in recent years. For example, more than 70 % of new vocational high school graduates went on to college in 2007 (MEST 2009b). Nonetheless, vocational high schools are often considered less desirable than are other types of high schools. Special purpose high schools are specialized schools for science, foreign languages, and art; only a small proportion of Korean students attend these schools. Although these schools were established to teach foreign languages or intensive programs in science or art, they usually have college-preparatory programs similar to those in general high schools. Because graduates from special purpose high schools have been extraordinarily successful in college admissions (Byun et al. 2012), these schools are often considered the most desirable.

Korean post-secondary institutions are also highly stratified, with a small number of elite 4-year institutions at the top. Because academic credentials play an important role in securing prestigious jobs at top-ranked corporations and government ministries, most Korean college applicants wish to attend these few selective 4-year universities. As a result, competition for these schools has been severe. The result is that many Korean youth spend long hours preparing for a series of high-stakes tests such as the College Scholastic Ability Test.[3]

Figure 2.1 shows the trend in the enrollment rate of Korean youth at each level of education from 1970 to 2007. Near-universal primary education was achieved by 1975, and more than 95 % of primary school graduates continued on to middle school by 1980. The most impressive growth has been in post-secondary education: less than 5 % of Korean youth enrolled in post-secondary education in 1970, but nearly 80 % went on to college as of 2007.

Educational Policy

Despite recent educational reforms aimed at decentralizing the system, Korean K-12 education remains highly standardized, largely shaped by the country's egalitarian educational policies (Kim and Lee 2003). Korea's egalitarian approach to education is best characterized by its High School Equalization Policy (HSEP), which assigns students bound for general high schools to schools within their catchment area by a random lottery. The HSEP was proposed by MOE in 1973 in response

[3] CSAT has been one of the most important criteria used by Korean universities to select eligible applicants since 1994, when it was first introduced as a new form of the national-level college entrance examination. CSAT is administered at the national level every November.

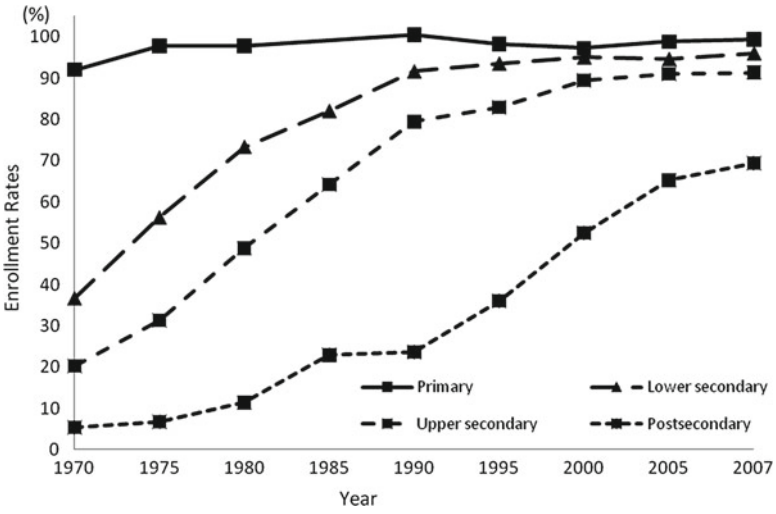

Fig. 2.1 Trends in the enrollment rate (1970–2007) (Source: MEST (2009a), *Statistics for primary and secondary education*. Available at http://english.mest.go.kr/main.jsp?idx=0401020101. *Note:* Enrollment percentage = (total number of students/students at the right age) × 100)

to the social and educational problems resulting from excessive competition to enter elite high schools in the late 1960s and early 1970s (MOE 1998). In those days, upper secondary education in Korea was based on a free competition system where students were allowed to choose their schools. Under these circumstances, a few elite high schools emerged and selected only those students in the upper tier, leading to serious inequalities between the elite high schools and the remaining schools in terms of student academic ability, socioeconomic background, and the quality of teachers (Chung 1998; MOE 1998; Park 1988).

In this competitive situation, hundreds of thousands of Korean youth suffered unduly from tension and stress caused by these entrance examinations, which negatively affected their mental and physical health; this condition is often referred to as "examination hell" (*shiheomjiok*). To address this problem, MOE abolished the high school entrance examination system and introduced a random school assignment system on the basis of place of residence; these measures are collectively known as the HSEP (MOE 1998). The HSEP was first implemented in Seoul and Busan in 1974; since then, it has gradually expanded to include many (not all) cities across the country. As of 2009, in all, 28 cities had adopted the HSEP, accounting for approximately 75 % of the total general high school student population (MEST 2009b).

While the HSEP applies to both private and public schools,[4] decisions relating to its adoption are made by Local Offices of Education on the basis of agreement among the parents and teachers in a community. As a result, unlike middle school assignment, where students are generally assigned to a neighborhood school, high

[4] In Korea, private schools are to a large extent subsidized and controlled by the government.

school assignment procedures vary by region (i.e., by whether the region has implemented the HSEP). For example, in a region that has implemented the HSEP, students bound for general high school are screened on the basis of their school standing; only students admitted to a vocational or special purpose high school are exempt. Screened students are allowed to apply to several general high schools within their school district, and are then randomly assigned to one of these schools by a computerized lottery system. On the other hand, in regions that do not implement the HSEP, general high schools are allowed to select their students mainly on the basis of their middle school academic records.

Shadow Education

As noted, high-stakes tests play a vital role in gaining access to high school and college entry in Korea (Kim and Byun 2006; Byun and Kim 2010b). To do well on a series of high-stakes exams, hundreds of thousands of Korean youth have used various forms of private supplementary tutoring such as individual tutoring (*gwawoe*) and institutionalized cram schools (*hagwon*), collectively known as "shadow education." For example, in 2008, nearly eight out of every ten Korean youth participated in at least one or more forms of shadow education (Korea National Statistical Office [KNSO] 2009). Many Korean parents make sacrifices to provide their children with a shadow education, as they are keenly aware of the role that academic credentials play in their children's future opportunities (Park et al. 2011). In 2008, on average, Korean families spent approximately 230,000 Korean won (approximately US$210) per month on shadow education (KNSO 2009).

However, because their parents generally cannot afford a shadow education program, children from low-SES families are often placed at an educational disadvantage. As a result, there is a gap in exploitation of shadow education opportunities between children from high-income families and those from low-income families. In 2007, for instance, nearly eight out of ten Korean ninth-graders from households with incomes in the top quartile participated in at least one or more forms of shadow education for math, whereas only about five out of ten students from households with income in the bottom quartile did so (Byun 2010). The gap in shadow education opportunities also exists between children in urban and rural areas. The numbers given above for high- and low-SES students also hold for ninth-graders in Seoul vs. ninth-graders from rural areas (Byun 2010).

Growing social concerns regarding the socioeconomic and regional gap in shadow education opportunities and the heavy financial burden many families take on to meet the high costs of shadow education have led the Korean government to take action at the national level. For example, the Roh Moo-hyun administration (2002–2007) proposed government-funded after-school programs especially for children from low-income families in rural and urban areas. As of 2007, almost all middle schools offered after-school programs, and nearly 40 % of all middle school students participated in these programs (MEST 2007). Despite these government

efforts, the gaps in shadow education opportunities between children from high- and low-income families and between children in urban and rural areas have tended to increase over time (KNSO 2009).

In sum, similar to the situation in other countries, including the United States, children living in poverty or in rural areas are likely to be at greater risk for lower academic achievement in Korea. In this study, while we investigate a variety of factors associated with academic achievement, we focus on the achievement gap between children from different socioeconomic backgrounds and from different regions. The following section describes the methodology of this study.

Method

Data and Sample

To investigate the determinants of academic achievement in Korea, we used data drawn from the KELS, conducted by KEDI. KELS began in 2005 with a nationally representative sample of approximately 7,000 Korean seventh graders in 150 schools across the nation. KELS employed a two-stage stratified sampling design in which (a) middle schools were randomly sampled within each of four types of regions proportionally to the population size; and then (b) approximately 50 students (all if less than 50) in the seventh grade were randomly sampled within the selected schools. Respondents in the baseline (2005) survey were followed every year. In the second follow-up survey (2007), 6,568 (95 %) of the original 6,908 respondents were resurveyed. In addition to the students, separate surveys were administered each year to students' families, teachers, and school principals to collect a wide range of family, class, and school information. Furthermore, KEDI administered achievement tests in Korean, English, and math (considered as the most important subjects on the national college entrance examination) for the first three waves (i.e., 2005, 2006, and 2007) of data collection. This study restricted analyses to a sample of 6,096 students who completed both the initial survey and the two follow-up surveys as well as took both English and math tests.

Measures

Achievement variables. KEDI administered Korean, English, and math tests each year to assess students' academic performance, providing both raw and standardized scores in the KELS data sets. In our analyses, we used ninth-graders' English and math raw test scores for the dependent variables.

Explanatory variables. Guided by previous research on the determinants of academic achievement in Korea (e.g., Hahn et al. 2001; Kim 1996, 2005) and other

countries (Coleman et al. 1966; Rivkin et al. 2005; see Buchmann and Hannum 2001, for a review of literature in developing countries; see also Covington 2000, for a literature review on the role of psychological variables), we included a comprehensive set of explanatory variables in our multilevel models. Specifically, we included variables on family background and student characteristics as the student-level (level-1) covariates. The family background variables included (a) SES (a composite index of parental education, occupational status [International Socio-Economic Index; see Ganzeboom and Treiman (1996) for more information], and household income); (b) family structure; (c) number of siblings; (d) parents' educational expectations for their child; (e) educational support from parents; (f) type of high school that children plan to enter (special purpose high school vs. other types of high school); (g) parent–child discussion regarding school matters, and (h) parents' involvement in their child's school.

The variables on student characteristics included (a) gender (female = 1), (b) self-study hours, (c) participation in shadow education, (d) perceived parental pressure, (e) perceived teacher support, (f) perceived levels of test stress, (g) intrinsic motivation, and (h) self-efficacy.

The school-level (level-2) covariates include (a) school mean SES (i.e., the aggregate of student-level SES), (b) average number of years of experience of teachers, (c) availability of supplementary lessons, (d) school sector, (e) school type, and (f) school location. It is important to note that, for school location, we additionally considered whether students lived in regions in which the HSEP has been implemented, in addition to four typical regional categories (i.e., Seoul, other metropolitan cities, small- and medium-sized cities, and rural areas). A detailed description of these independent variables is provided in Appendix 1.

There were two rationales for our additional identification of regions that have implemented and not implemented the HSEP. First, ninth-graders' lives may be different depending on whether or not they live in HSEP areas. This is because high-school-bound students in the HSEP areas will be randomly assigned to a general high school on the basis of their residency, whereas those students in the non-HSEP areas will be selected by a general high school on the basis of their school performance. High-school-bound students in non-HSEP regions may generally feel more pressure to maintain good school records, because they will otherwise be assigned to a less desirable school.

Second, many small and medium-sized cities implementing the HSEP are different from Seoul and Korea's "metropolitan cities" (Busan, Incheon, Daeju, Gwangju, Daejeon, and Ulsan). Unlike the larger cities, which have long been socioeconomic hubs and have had the HSEP in place for three decades, most of Korea's small and medium-sized cities have developed relatively recently and did not implement the HSEP until very recently. For example, cities such as Bundang, Goyang, Anyang, Gwacheon, Goonpo, and Euiwang developed as satellite towns of Seoul during the late 1980s and the 1990s to accommodate that city's rapidly growing population; none of these cities implemented the HSEP until 2002. More importantly, as a result of Seoul's population-redistribution strategies, a mass exodus of newly emerging middle-class families from Seoul to these suburban cities took place during the

1990s and the 2000s. Indeed, as shown in Appendix 2, families in small and medium-sized cities implementing the HSEP were wealthier than families in other metropolitan areas.

Like most Korean parents, these emerging middle class parents have a great desire to secure the upward social mobility of their children (Park and Abelmann 2004). Unlike many other Korean parents, however, these middle-class parents are more likely to realize their desires given their high level of interest in and commitment to their children's education (Lee 2007; Park and Abelmann 2004). Given the nature of their commitment to the so-called intergenerational project (Park and Abelmann 2004) for upward social mobility, the influx of these middle-class parents to newly developed towns has created highly competitive school situations, which in turn has led to the implementation of the HSEP in these new cities. The recent introduction of the HSEP into these areas may not have an immediate impact on parents' commitment to their children's education. The result of this situation would be relatively high levels of school performance among children in small and medium-sized cities implementing the HSEP. These features led us to consider these cities as distinct from other regions.

Statistical Analyses

Because we were interested in the roles of socioeconomic background and region of residence in academic achievement, we first examined mean differences in academic achievement between students of different SES groups and in different geographic regions, using analysis of variance (ANOVA).

Next, to examine factors associated with academic achievement, we estimated a series of multilevel models often referred to as hierarchical linear modeling (HLM) (Raudenbush and Bryk 2002). For the HLM analysis, we first fitted the null model to the data to examine the variance in student achievement between schools. The null model showed that approximately 15–16 % of the total variance in English and math achievement scores was attributable to school level (see interclass correlations in Table 2.2), justifying our use of HLM.

We then estimated three models. Model 1 included family background variables; Model 2, student characteristics; and Model 3, school-level covariates. In Model 3, the interaction terms between school mean SES and school location were also included to capture, as previously illustrated, the complex relationship among regions, the HSEP, and school SES. In these HLM models, all of the variables were centered around the grand mean.

Because listwise deletion results in a considerable loss of data, we used multiple imputation techniques to replace missing values using an alternative algorithm suggested by King et al. (2001). The final set of estimates was obtained by using Rubin's (1987) rule by averaging over estimates from the five imputed datasets.

Results

Socioeconomic and Regional Gaps in Academic Achievement

Table 2.1 presents unadjusted mean differences in English and math scores across different SES groups and geographic regions. Results showed significant achievement gaps between students from high- and low-SES families and between students

Table 2.1 Mean differences in English and math achievement by family background and region

		English		Math		
	n	*M*	SD	*M*	SD	Sig. Test[a] (Bonferroni)
Total	6,096	54.0	26.6	51.0	26.2	
Parental education						
Middle school or less (1)	453	40.1	21.6	37.5	21.4	English: 1<2,3,4,5; 2<3,4,5; 3<4,5; 4<5
High school diploma (2)	2,971	48.1	24.8	46.1	24.6	Math: 1<2,3,4,5; 2<3,4,5; 3<4,5; 4<5
Associate degree (3)	810	54.6	25.8	52.8	25.7	
Bachelor's degree (4)	1,506	65.4	26.3	60.5	26.5	
Advanced degree (5)	356	70.4	25.1	64.6	25.2	
Parents' occupational status						
1st quartile (low) (1)	1,508	44.6	23.8	42.9	23.6	English: 1<2,3,4; 2<3,4; 3<4
2nd quartile (2)	1,817	51.9	25.6	48.9	25.7	Math: 1<2,3,4; 2<3,4; 3<4
3rd quartile (3)	1,222	56.6	26.8	53.1	26.3	
4th quartile (high) (4)	1,549	63.4	26.9	59.6	26.4	
Household income						
1st quartile (low) (1)	1,668	44.9	23.9	42.6	23.9	English: 1<2,3,4; 2<3,4; 3<4
2nd quartile (2)	1,642	52.0	25.9	49.2	25.4	Math: 1<2,3,4; 2<3,4; 3<4
3rd quartile (3)	1,262	57.7	26.8	54.9	26.2	
4th quartile (high) (4)	1,524	62.9	26.7	58.8	26.6	
Region (school location and HSEP)						
Seoul (1)	1,076	55.6	26.8	49.6	26.1	English: 1>4,5; 2>4,5; 3>4,5
Metro (2)	1,715	57.3	26.2	52.8	25.9	Math: 1<2,3; 1>5; 2>1,4,5; 3>1,4,5; 4>5
City, HSEP (3)	914	56.9	27.6	54.8	26.9	
City, non-HSEP (4)	1,829	50.1	26.0	49.9	26.0	
Rural area (5)	562	48.4	25.7	45.3	25.5	

Data source: KELS 2005–2007 (*n* = 6,096)
HSEP High School Equalization Policy
[a] Significant tests based on one complete data set. Only mean differences that were significant at the .05 level are presented

in large cities and those in rural areas. For example, the unadjusted mean English and math scores for ninth-grade students with parents having an advanced degree were 70.4 and 64.6, respectively, whereas the corresponding average test scores of students with parents with only a middle school education or lower were 40.1 and 37.5, respectively, showing nearly a 30-point difference in both English and math achievement between these two groups.

Likewise, students with parents whose occupational status (measured by ISEI) was in the top (fourth) quartile outperformed students with parents whose occupational status was in the bottom (first) quartile by approximately 19 points in English (63.4 vs. 44.6) and approximately 17 points in math (59.6 vs. 42.9). Similarly, students from families who had household incomes in the top quartile outperformed students from families who had household income in the bottom quartile by approximately 18 points in English (62.9 vs. 44.9) and approximately 16 points in math (58.8 vs. 42.6). These findings suggest that there is a significant gap in achievement between students from privileged backgrounds and those from disadvantaged backgrounds.

ANOVA results also showed significant gaps in English and math achievement scores across geographic regions. For example, the average English achievement scores of students in Seoul (55.6), metropolitan cities (57.3), and small and medium-sized cities implementing the HSEP (56.9) were significantly higher than the scores of students in small and medium-sized cities not implementing the HSEP (50.1) and rural areas (48.4). With regard to the math scores, although the average score of students in Seoul (49.6) was significantly higher than that of students in rural areas (45.3), it was significantly lower than that of their counterparts in metropolitan cities (52.8) and small and medium-sized cities implementing the HSEP (54.8). Significant differences were also found between students in metropolitan cities and in small and medium-sized cities implementing the HSEP, on the one hand, and their counterparts in small and medium-sized cities not implementing the HSEP (49.9) and rural areas, on the other. In addition, there were significant differences in math scores between students in small and medium-sized cities not implementing the HSEP and students in rural areas.

In summary, there were significant achievement gaps across SES groups and geographic regions. However, these socioeconomic and regional gaps need to be examined with other variables taken into account. Accordingly, we used models that control for several other variables to investigate the achievement gap.

Determinants of Academic Achievement

Table 2.2 presents HLM estimates. The first column presents estimates for English achievement; and the second column, estimates for math achievement. In interpreting the results, we begin with English achievement, followed by math achievement, while giving special attention to changes in the relationship between SES and student achievement across the models.

Table 2.2 HLM estimates

	English								Math							
	Null		1		2		3		Null		1		2		3	
	B	SE	*B*	SE	*B*	SE	*B*	SE	*B*	SE	*B*	SE	*B*	SE	*B*	SE
(Constant)	53.75	0.92***	54.06	0.76***	54.02	0.67***	53.93	0.56***	50.63	0.89***	50.92	0.74***	50.87	0.69***	50.77	0.60***
Level 1: Individual student predictors																
Family background																
SES			5.27	0.36***	3.22	0.33***	3.03	0.33***			4.17	0.36***	2.32	0.32***	2.13	0.38***
Two-parent family			2.83	1.05**	1.72	0.94	1.76	0.94			3.22	1.04**	1.06	0.93	1.06	0.93
Number of siblings			−0.14	0.42	−0.08	0.38	−0.08	0.38			−0.51	0.42	−0.17	0.37	−0.17	0.37
Educational expectation for children			1.95	0.16***	1.44	0.15***	1.43	0.15***			1.99	0.16***	1.31	0.15***	1.30	0.15***
Parental educational support			2.37	0.33***	0.56	0.31	0.53	0.31			2.48	0.33***	0.40	0.30	0.37	0.30
Type of high school that children plan to enter (1 = specialized high school)			16.06	1.70***	9.35	1.54***	9.51	1.54***			14.64	1.70***	9.88	1.52***	10.06	1.52***
Parent–child discussion			0.45	0.31	0.13	0.28	0.13	0.28			0.57	0.31	0.10	0.28	0.11	0.28
School involvement			0.94	0.31**	0.22	0.28	0.24	0.28			0.95	0.31**	0.06	0.28	0.08	0.28
Student characteristic																
Female					7.42	0.65***	7.46	0.67***					2.12	0.64**	2.27	0.66***

(continued)

Table 2.2 (continued)

	English								Math							
	Null		1		2		3		Null		1		2		3	
	B	SE	*B*	SE	*B*	SE	*B*	SE	*B*	SE	*B*	SE	*B*	SE	*B*	SE
Hours of self-study					2.84	0.31***	2.78	0.31***					2.42	0.30***	2.37	0.30***
Shadow education					4.64	0.63***	4.57	0.63***					4.74	0.63***	4.62	0.63***
Perception of parental pressure					1.52	0.29***	1.48	0.29***					1.06	0.28***	1.02	0.28**
Perception of teacher support					1.07	0.27***	1.11	0.27***					0.44	0.27	0.48	0.27
Level of test stress					−1.39	0.27***	−1.40	0.27***					−1.16	0.27***	−1.16	0.27***
Intrinsic motivation					5.70	0.37***	5.73	0.37***					7.11	0.36***	7.15	0.36***
Self-efficacy					2.83	0.37***	2.81	0.37***					2.98	0.37***	2.98	0.37***
Level 2: School predictors																
Mean SES							−3.35	5.31							2.29	4.76
Average years of teacher experience							0.44	0.17*							0.37	0.19
Supplementary lessons							2.70	1.38							1.74	1.45
School sector: public (vs. private)							−1.09	1.58							−3.09	1.49
School type (ref. coeducational)																

Boys				1.47	1.71		1.31	1.61
Girls				0.90	1.72		−0.49	1.71
Location (ref. rural area)								
Seoul				1.67	4.38		−3.45	3.87
Metro				6.92	4.10		3.27	3.73
City, HSEP				3.17	4.25		3.15	3.97
City, non-HSEP				3.67	4.14		3.91	3.78
Level 2 interaction:								
MeanSES*Seoul				5.80	6.79		1.68	6.36
MeanSES*Metro				9.46	6.23		7.85	5.90
MeanSES*City-HSEP				23.25	6.06***		12.89	5.70*
MeanSES*City-non-HSEP				13.20	5.99*		6.25	5.40
Variance components								
Level 2 (school)	111.34	71.51	56.01	35.98	102.64	67.86	60.29	42.31
Level 1 (student)	601.46	518.33	416.74	416.89	587.32	515.94	406.44	406.453
Intraclass correlation	0.16	0.12	0.12	0.08	0.15	0.12	0.13	0.09
Cumulative explained variance								
Level 2 (school)		0.36	0.50	0.68		0.34	0.41	0.59
Level 1 (student)		0.14	0.31	0.31		0.12	0.31	0.31

Data source: KELS 2005–2007 ($n = 6{,}096$)

B unstandardized coefficient, *SE* standard error, *SES* socioeconomic status, *HSEP* High School Equalization Policy

$^{***}p < .001$; $^{**}p < .01$; $^{*}p < .05$

English achievement. Our first conditional model (Model 1) showed that all family background variables except for number of siblings and parent–child discussion of school matters were significantly associated with students' English scores. Specifically, the estimate for SES (5.27) indicated that an increase in SES of one standard deviation was associated with an increase of 5.27 points in English achievement score. Students coming from two-parent families outperformed those from one-parent families by 2.83 points in English achievement. An increase in parents' levels of educational expectation, support, and school involvement were associated with an increase in students' English achievement. Ninth-grade students with parents indicating plans for their children to attend a special purpose high school outperformed by 16.06 points students with parents indicating no such plans.

The inclusion of variables covering student characteristics in Model 2 appeared to weaken the effect of the family background variables. For example, the statistical significance of the estimated coefficients for family structure (1.72), parental educational support (.56), and school involvement (.22) disappeared. The estimated coefficient for SES was also reduced, from 5.27 to 3.22, but remained significant. This was also the case for parents' educational expectations for their children (1.95–1.44) and students' plans to enter a special purpose school (16.06–9.35).

In Model 2, all variables for student characteristics were significantly associated with English achievement scores. The estimated coefficient for gender (7.42) indicated that, on average, females outperformed males in English by 7.42 points. Students who spent more hours studying (2.84) and those who participated in shadow education (4.64) had higher English achievement scores than those who spent fewer hours studying and had no shadow education, respectively. Students who perceived higher levels of parental pressure (1.52) and teacher support (1.07) performed better than those who perceived less. In contrast, having a higher level of test stress (−1.39) was associated with a decrease in English achievement. An increase in intrinsic motivation (5.70) and self-efficacy (2.83) for English was associated with an increase in English test scores.

The inclusion of school-level covariates in Model 3 did not significantly change the coefficients of the student-level covariates shown in Model 2. Nonetheless, Model 3 presents several important results. First, average level of teacher experience (.44) was positively associated with average school English scores. Second, with all of the other variables controlled, there was no difference in English achievement between private and public schools or between single-sex and coeducational schools. Last, there was an interaction between school mean SES and school location. Our calculations, based on the estimated coefficients, indicated that with all of the other variables controlled, average English score was the highest in schools located in small and medium-sized city districts implementing the HSEP (77.0), followed by schools located in small and medium-sized city districts not implementing the HSEP (67.5) and schools located in metropolitan city districts (67.0). Average English test score was the lowest in schools located in rural areas (50.6). Interestingly, average English test score in schools located in Seoul districts was the second lowest (58.1).

Math achievement. Now we examine the estimates for math achievement scores. Consistent with the results for English scores, our first conditional model (Model 1)

for math scores showed that all family background variables, except for number of siblings (−.51) and parent–child discussion (.57), were significantly associated with students' math achievement scores. The estimate for SES (4.17) indicated that an increase of one standard deviation in SES was associated with an increase of 4.17 points in math score, suggesting a relatively smaller SES effect than that found for English achievement scores (5.27).

Similar to the case with English scores, students coming from two-parent families outperformed those from one-parent families by 3.22 points in math scores. An increase in parents' levels of educational expectations, support, and school involvement were associated with an increase in math achievement, consistent with the result for English achievement. Ninth-graders with parents indicating plans to send them to a special purpose high school performed 14.6 points better than students with parents indicating no such plans, also consistent with the results for English achievement.

The inclusion of variables for student characteristics in Model 2 showed a similar pattern to that for English achievement. First, the estimated coefficients for family structure (1.06), parents' educational support (.40), and school involvement (.06) were no longer statistically significant. Second, the estimated coefficient for SES was reduced from 4.17 to 2.32, but was found to be significant. Third, this was also the case for parents' educational expectations for their children (1.99–1.31) and students' plans to enter a special purpose high school (14.64–9.88).

In Model 2, all student characteristics (except for perception of teacher support) were significantly associated with math achievement scores. Females outperformed males in math by 2.12 points, consistent with the result for English achievement. Spending more hours studying (2.42) and participating in shadow education (4.74) also played an important role in determining math achievement scores. Students perceiving a higher level of parental pressure (1.06) performed better in math tests than those perceiving less, also consistent with the results for English. However, students' perception of teachers' support (.44) was not significantly associated with math achievement scores, which was inconsistent with the result for English scores. A higher level of test stress (−1.16) was associated with a decrease in math achievement. Both intrinsic motivation (7.11) and self-efficacy (2.98) for math were positively associated with math test scores.

Similar to the English achievement case, the inclusion of school-level covariates in Model 3 did not significantly change the coefficients of the student-level covariates of Model 2. Yet average SES within a given school was found to have an effect on math achievement, particularly for students attending schools in small and medium-sized cities implementing the HSEP. Although our calculations (not shown) of adjusted mean differences in math achievement across regions indicated a similar pattern to those for English (e.g., the average math score was the highest in schools located in small and medium-sized city districts implementing the HSEP [69.1]), a few noticeable differences were observed.

Unlike in the case of English achievement, average math score was the lowest in schools located in Seoul (51.3), suggesting that, if all other things were held constant, schools in Seoul would be less effective than their counterparts in other

regions, even those in rural areas (53.1). Accordingly, the gap in average math score was larger between schools in small and medium-sized cities implementing the HSEP and those in Seoul (mean difference = 69.1 − 51.3 = 17.8) than between schools in small and medium-sized cities implementing the HSEP and those in rural areas. This finding suggests that, if all other variables were controlled, the advantage of attending a school in Seoul would disappear. Further discussion follows.

Conclusion

This study investigated the determinants of academic achievement in lower secondary education in Korea, focusing on the role of socioeconomic background and region. One of the key findings is that family background, particularly SES, plays an important role in explaining the unequal achievement among Korean students. Although this is also the case in many other countries (see Buchmann and Hannum 2001), our results showed that not all aspects of family background influence academic achievement in the Korean context. For example, when all other things were taken into account, family structure was not significantly associated with academic achievement among Korean students. This finding is inconsistent with evidence from many other Western countries (Pong et al. 2003), where single parenthood generally has a negative effect on children's academic achievement. Nonetheless, our finding that family structure has no significant effect on academic achievement is consistent with previous research in Korea (Oh and Kim 2001; Park 2007). The different role that family structure plays in students' academic achievement may be a reflection of differences in the family support system between Eastern and Western societies (Park 2007).

Another key finding is that structural school factors (e.g., school sector) have no significant relationship with academic achievement in Korea. This finding strikingly contrasts findings in Western countries such the United States, where schools play an important role in students' academic achievement (Rivkin et al. 2005). This evidence may be a reflection of the current institutional features (e.g., relatively low variation in curricula and school resources) of Korean schools that result from the country's egalitarian educational policy. Taken together, these findings suggest the importance of the institutional contexts in which family and school resources are linked to the academic achievement of students.

Last, our empirical analysis revealed a significant regional gap among Korean ninth-graders with respect to English and math achievement. A noteworthy finding is that, despite their socioeconomic disadvantages (see Appendix 2), schools in small and medium-sized cities that had not implemented the HSEP performed as well as or better than schools in large-city districts on English achievement tests. Although further research is needed to explain this finding, one possible explanation may be that, as indicated previously, Korean middle school students attending schools in areas that have not implemented the HSEP may be under greater pressure to maintain "good" school records to enter an elite general high school compared with those who

go to school in areas that have implemented the HSEP; thus, the former group may be more motivated to work harder, particularly during the final year of middle school.

In contrast, despite their socioeconomic advantages, students in Seoul were found to underperform compared with their counterparts in other regions. Although additional research is needed to address this question, one possible explanation may be residential segregation in Seoul. Geographical division based on income is more explicit in Seoul than in other cities in Republic of Korea (Choi 2004), particularly along the Han River, which runs through the center of Seoul from east to west. Specifically, districts south of the Han River, including Gangnam-gu, Seocho-gu, and Songpa-gu (collectively referred to as "Gangnam"), are known to contain the wealthiest neighborhoods, in which professional, administrative, and managerial workers are concentrated. According to the 2002 Korea census, more than 70 % of residents aged 45–59 in these areas were college graduates. These three districts, which together make up Seoul's eighth school district, are also known to have the best schools in the country. In 2001, high school graduates from the eighth school district were approximately 10 times as likely as those from any other district in Seoul to enter Seoul National University, the nation's most selective university—a measure often regarded as a barometer of the quality of a high school (KEDI 2001). By contrast, the districts north of the Han River, collectively referred to as "Gangbuk," are known as consisting of relatively poor neighborhoods and low-performing schools (although some areas are as wealthy as parts of Gangnam). Many poorer schools in the Gangbuk region may be contributing to the apparent reduction in the overall level of student achievement in Seoul.

This study cannot be considered complete or consistent in its current form. First, it is still unclear whether the identified sources of unequal achievement indeed have a *causal* effect. For example, given the gap in shadow education opportunities between children of different socioeconomic backgrounds, the relationship between shadow education and academic achievement may reflect pre-existing differences between students who use shadow education and those who do not. In this regard, future research is warranted to examine the causal effects of shadow education on academic achievement while fully controlling for selection bias. Second, it remains to be seen whether other family resources (e.g., cultural resources) or school factors (e.g., principal leadership, school culture) make a difference in academic achievement in Korea. Future research should pursue the examination of the roles of as yet unexamined family and school factors in academic achievement. Finally, because the KEDI does not supply panel weights for the KELS, we were unable to apply panel weights to our data. These unweighted results might reflect only the sample or only middle school students, and should be interpreted with caution when making inferences about a larger population.

Despite these limitations, the results of this study have important policy implications for narrowing the achievement gaps between Korean students of diverse socioeconomic backgrounds and between students in different regions. Our empirical analysis showed that SES had a greater effect on English achievement than on math achievement and that the average SES of the student body within a given school played an important role in English achievement in small- and medium-sized cities.

This finding suggests that low-SES students attending low-SES schools located in small- and medium-sized cities would be placed in "double jeopardy," where both the student and the school SES levels would work against improved English achievement. Because English achievement has played an increasingly important role in Korea in gaining admission to selective universities and finding prestigious jobs, the English achievement gap between children from high- and low-SES families will likely lead to persistent inequalities in terms of access to future opportunities. Nonetheless, the results suggest that parents and teachers can make a difference by increasing educational and psychological support for students' academic endeavors. In addition, parents' expectations of their children in the realm of education and students' perceptions of support from their teachers were positively associated with English achievement even after controlling for other variables such as SES and region. This is a finding that can be taken advantage of by policymakers and educators trying to aim their educational strategies and policy efforts at narrowing achievement gaps across SES groups and regions.

Appendix 1 Description of the Variables Used in the Analyses

Variable name	Description	Min	Max	*M*	SD
Dependent variable					
English (ninth grade)	Ninth grade raw English score in the KELS data set	1	100	54	26.6
Math (ninth grade)	Ninth grade raw math score in the KELS data set	0	100	51	26.2
Independent variables					
Family background					
SES	A standardized composite of parental education, occupational status, and family income	−4.9	3.7	0	1
Parental education (seventh grade)	Parents reported their highest level of education. Original responses were 1 = primary, 2 = middle school, 3 = high school, 4 = 2-year college, 5 = 4-year college, 6 = master's degree, 7 = doctoral degree. The higher of the values between the maternal and paternal educational attainment scores was selected and transformed into years of education (e.g., 1 = 6, 7 = 20)	6	20	13.3	2.5
Parents' occupational status (seventh grade)	Parents reported their occupational status. The original responses were transformed into the International Socio-Economic Index (ISEI) of Occupational Status. The higher of the values between the maternal and paternal ISEI scores was selected	11.3	88	47	13.3

(continued)

Appendix 1 (continued)

Variable name	Description	Min	Max	*M*	SD
Family income (seventh grade)	Parents indicated the amount of household income in 2005. The reported household income was then transformed by natural logarithms	0	8.0	5.7	0.6
Family structure (seventh grade)	Parents indicated their marriage status. The original responses were married (coded 1), divorced (coded 2), separated (coded 3), and widowed (coded 4); responses were dummy-coded where 1 = Married (two parents), 0 = otherwise	0	1	0.9	0.3
Number of siblings (ninth grade)	Parents indicated the number of children they have	0	9	2.2	0.7
Parents' educational expectations of child (7th grade)	Parents indicated their educational expectation for children. The original responses were 1 = primary, 2 = middle school, 3 = high school, 4 = 2-year college, 5 = 4-year college, 6 = master degree, 7 = doctorate degree, and they were transformed into years of education (e.g., 1 = 6, 7 = 20)	9	20	17	2
Parents' educational support (ninth grade)	A standardized composite of responses (on five-point Likert scales of agreement–disagreement) to the statements: "We try to make our home a place where our children can study," "We check our children's studies and homework," "We teach our children," "We offer advice to our children regarding study methods," "We help our children maintain their school performance," and "We collect information regarding shadow education"	−3.2	2.9	0.0	1.0
Type of high school that parents plan for their children to attend (ninth grade)	Parents indicated the type of high school that they plan for their children to attend. Original responses were general high school (coded 1), vocational high school (coded 2), special high school (e.g., science, foreign language) (coded 3), art high school (coded 4), alternative school (coded 5), study abroad (coded 6), other (coded 7), and don't know (coded 7). Responses were dummy-coded where 1 = special high school, 0 = otherwise	0	1	0.0	0.2

(continued)

Appendix 1 (continued)

Variable name	Description	Min	Max	*M*	SD
Parent–child discussion (seventh grade)	A standardized composite of responses (on three-point Likert scales of frequency) to the statements: "I offer my child advice or information regarding school grades" and "I offer my child advice or information regarding homework," and a composite of responses (on a three-point scale of frequency) to the statement: "I talk with my child about his/her school grades"	−3.6	3.5	0.0	1
School involvement (ninth grade)	A standardized composite of responses (on four-point Likert scales of frequency) to the following activities: (1) belonging to a parents' association within the school, (2) belonging to a parents' association outside the school, and (3) volunteer work at the school	−2.8	4.1	0.0	1.0
Student characteristics					
Gender	Students indicated their sex. Responses were male (coded 1) and female (coded 2), and were dummy-coded with female as a reference	0	1	0.5	0.5
Time to study (ninth grade)					
English	Students indicated hours spent studying English. The range was 1–4, where 1 = 0–1 h, 2 = 2–3 h, 3 = 4–5 h, and 4 = 6 h or more	1	4	1.7	0.9
Math	Students indicated hours spent studying math. The range was 1–4, where 1 = 0–1 h, 2 = 2–3 h, 3 = 4–5 h, and 4 = 6 h or more	1	4	1.8	1.0
Shadow education (ninth grade)					
English	Parents indicated whether their child participated in shadow education for English. Responses were yes (coded 1) and no (coded 2) and dummy recoded with no as reference	0	1	0.7	0.5
Math	Parents indicated whether their child participated in shadow education for math. Responses were yes (coded 1) and no (coded 2) and dummy recoded with no as reference	0	1	0.7	0.5
Perception of teacher support (ninth grade)	A standardized composite of responses (on five-point Likert scales of agreement–disagreement) to the statements: "My teacher works hard to teach well," "My teacher is a role model," "My teacher has significant knowledge about the subject taught," "My teacher likes teaching," and "My teacher expects students to work hard"	−4.7	2.7	0.0	1

(continued)

Appendix 1 (continued)

Variable name	Description	Min	Max	*M*	SD
Perception of parental pressure (ninth grade)	A standardized composite of responses (on five-point Likert scales of agreement–disagreement) to the statements: "My parents are very interested in my school performance," "My parents expect me to become a good person," "My parents expect me to become a person who does his/her best," "My parents expect me to become a person who is socially successful," "My parents expect me to go to a good college," "My parents frequently ask me about schoolwork," and "My parents encourage me to achieve a goal set"	−3.4	2.0	0.0	1
Test stress (ninth grade)	A standardized composite of responses (on five-point Likert scales of agreement–disagreement) to the statements: "I become anxious during the midterm or final exam," "I can't study because of too much concern about test scores," "I can't concentrate on studying when I think my grades are bad," "I become nervous during exams," "I still feel anxious about the exams even after I study hard," "I have a stomachache or headache during exams because of too many concerns about them," "During exams I think about what would happen if I would fail," "I can't get rid of my worries after exams," and "I can't think of anything during exams because of anxiety"	−2.6	3.3	0.0	1
Intrinsic motivation (ninth grade)					
English	A standardized composite of responses (on five-point Likert scales of agreement–disagreement) to the statements: "When I study English, I am so into it," "English is important to me," and "I can't give up English because I like it"	−2.3	2.0	0.0	1
Math	A standardized composite of responses (on five-point Likert scales of agreement–disagreement) to the statements: "When I study math, I am so into it," "Math is important to me," and "I can't give up math because I like it"	−2.5	2.0	0.0	1

(continued)

Appendix 1 (continued)

Variable name	Description	Min	Max	*M*	SD
Self-efficacy (ninth grade)					
English	A standardized composite of responses (on five-point Likert scales of agreement–disagreement) to the statements: "I believe I can understand difficult contents in English textbooks," "I believe I can understand complicated contents suggested by English teachers," "I believe I can do English homework well," and "I believe I can do well on English exams"	−2.3	2.5	0.0	1
Math	A standardized composite of responses (on five-point Likert scales of agreement–disagreement) to the statements: "I believe I can understand difficult contents in math textbooks," "I believe I can understand complicated contents suggested by math teachers," "I believe I can do math homework well," and "I believe I can do well on math exams"	−2.2	2.3	0.0	1
School variable					
Mean SES	School mean of individual student SES in a given school	−1.2	1.6	−0.1	0.5
Average years of teachers' experience	Schools indicated average years of experience of their teachers	7.6	24.6	15.2	3.9
Whether school offers supplementary lessons (1 = yes)	Schools indicated whether they offered supplementary programs. Responses were yes (coded 1) and no (coded 2), dummy-coded with "no" as a reference	0	1	0.3	0.5
School sector	Schools indicated whether they were public or private. Responses were "public" (coded 1) and "private" (coded 2). dummy-coded with private as a reference	0	1	0.8	0.4
School type					
Boys'	School was a boys' school	0	1	0.6	0.5
Girls'	School was a girls' school	0	1	0.2	0.4
Coeducational (omitted)	School was a coeducational school	0	1	0.2	0.4
Location					
Seoul	School was located in Seoul	0	1	0.2	0.4
Metropolitan city	School was located in a metro city	0	1	0.3	0.4
City, HSEP	School was located in a small or medium-sized city implementing the HSEP	0	1	0.1	0.4
City, non-HSEP	School was located in a small or medium-sized city not implementing the HSEP	0	1	0.3	0.5
Rural area (omitted)	School was located in a rural area	0	1	0.1	0.3

Data source: KELS 2005–2007 ($n = 6{,}096$)

Appendix 2 Socioeconomic Background of Students by Region and HSEP (Lower Secondary)

		Under HSEP			Not under HSEP		
	n	Seoul	Metro	City	City	Town	χ^2
Sample size	6,096	1,076	1,715	914	1,829	562	
Parental education							
Middle school or less (1)	453	5.0 %	5.5 %	6.5 %	8.0 %	17.6 %	253.1***
High school diploma (2)	2,971	41.2 %	47.6 %	45.0 %	53.1 %	58.5 %	
Associate degree (3)	810	12.9 %	14.7 %	12.9 %	13.4 %	10.0 %	
Bachelor degree (4)	1,506	33.2 %	26.4 %	28.4 %	20.4 %	11.4 %	
Advanced degree (5)	356	7.7 %	5.8 %	7.2 %	5.1 %	2.5 %	
Parents' occupational status (ISEI)							
1st quartile (low) (1)	1,508	13.5 %	23.6 %	20.5 %	28.9 %	43.2 %	258.7***
2nd quartile (2)	1,817	30.5 %	30.6 %	27.1 %	29.8 %	30.6 %	
3rd quartile (3)	1,222	23.2 %	21.0 %	20.2 %	19.5 %	12.6 %	
4th quartile (high) (4)	1,549	32.8 %	24.9 %	32.2 %	21.8 %	13.5 %	
Household income							
1st quartile (low) (1)	1,668	18.8 %	29.4 %	20.8 %	28.9 %	43.2 %	184.5***
2nd quartile (2)	1,642	24.6 %	28.5 %	26.7 %	27.0 %	26.9 %	
3rd quartile (3)	1,262	23.7 %	19.7 %	22.5 %	20.7 %	15.1 %	
4th quartile (high) (4)	1,524	32.9 %	22.4 %	30.0 %	23.4 %	14.8 %	

Data source: KELS 2005–2007 (Data were unweighted)
$^{***}p<.001$, $^{**}p<.01$, $^{*}p<.05$

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Chapter 3
Shadow Education and Academic Success in Republic of Korea

Soo-yong Byun

Introduction

In recent years, shadow education—paid private supplementary tutoring or coaching aimed at providing additional help to students outside of school mainly to prepare for a variety of examinations—has been one of the fastest growing industries in many countries around the world (Aurini and Davies 2004; Baker and LeTendre 2005; Bray 2009; Buchmann et al. 2010; Byun and Park 2012). The worldwide growth of this industry, however, has caused much concern among educational policymakers due largely to its implication for educational inequality (Bray 2009; Byun 2010; Dang and Rogers 2008). This is because in most cases parents have to assume the burden of tutoring costs and thus children in poor families are often placed at a disadvantage to receive shadow education (Byun 2010; Dang 2007; Dang and Rogers 2008; Kuan 2011; Stevenson and Baker 1992). Therefore, if shadow education were to make a difference in academic achievement, then the opportunity gap in shadow education among children of diverse socioeconomic backgrounds might lead to an achievement gap among these children. This suggests that shadow education would contribute to maintaining or exacerbating educational and social inequalities by mediating the relationship between family background and children's educational outcomes.

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Despite the importance of empirical evidence, little attention had been paid to the role of shadow education in academic achievement until very recently (Bray 2009). Furthermore, although the effects of shadow education on academic achievement have been widely investigated in recent years, emerging empirical evidence has been inconsistent, contradictory, and even confusing. For example, some studies (e.g., Buchmann 2002; Dang 2007; Tansel and Bircan 2005) found strong positive effects of the use of shadow education on educational outcomes. On the other hand, other studies (e.g., Domingue and Briggs 2009; Kang 2009; Kuan 2011) found positive but modest effects at best. In contrast, some studies (e.g., Cheo and Quah 2005; Sung and Kim 2010) found an adverse effect on academic achievement. This mixed evidence may be attributed to various factors including the broad divergence in the operational definitions of shadow education variables, the choice of dependent variables, and the type of statistical models employed, but precludes definitive conclusions about the effects of shadow education.

However, perhaps one of the main reasons why the evidence about the effects of shadow education is inconclusive and even questioned is that selection issues are not adequately addressed in previous literature (Dang and Rogers 2008). In other words, a growing body of literature in a wide range of societies documents that students from higher socioeconomic status (SES) families are more likely than those from lower SES families to use shadow education (Buchmann et al. 2010; Byun 2010; Dang 2007; Dang and Rogers 2008; Kuan 2011; Stevenson and Baker 1992). In addition, prior literature suggests that some students receive private tutoring to keep up with their peers (i.e., remedial needs), whereas other students use tutoring to keep ahead of their peers (i.e., enrichment needs) (Baker and LeTendre 2005; Byun and Park 2012). These pre-existing differences between students who use shadow education and students who do not can produce selection effects that make it difficult to identify a causal link between shadow education and educational outcomes. The inclusion of control variables in regression analyses is the most common approach to reducing selection bias, but this is often not effective (Guo and Fraser 2009; Rosenbaum and Rubin 1983, 1984; Schneider et al. 2007).

Another problem in the shadow education literature is that despite the fact that shadow education exists in various forms (e.g., one-on-one academic tutoring, cram schools, correspondence courses, and Internet tutoring services) (Bray 2009), almost all prior studies have focused on whether participation in shadow education affects academic achievement, rather than on which forms of shadow education are associated with academic achievement. With such variety in shadow education, it is reasonable to expect that effectiveness may vary, depending on the type used. However, few studies have tested which form of tutoring is most effective in improving academic achievement.

Accordingly, this study builds on and extends prior research on shadow education by addressing several limitations apparent in the literature. Specifically, this study augments prior research by employing propensity score matching (PSM) methods as a data pre-processing technique to address the selection issue in estimating the causal effects of shadow education, and examining whether the effects vary by type of shadow education. The current study also extends prior research by using

longitudinal data from the Korean Education Longitudinal Study (KELS) of 2005, which contains detailed information about the use of shadow education in Republic of Korea (hereafter Korea). Korea is a particularly appealing case for studying the effects of shadow education on academic achievement because it is known to have the largest system of shadow education in the world (Baker and LeTendre 2005; Bray 2009). In 2010, seven out of ten Korean students received at least one or more forms of shadow education (Korea National Statistical Office [KNSO] 2011). In that year, Korean families spent a total of approximately 21 trillion Korean won (KRW) (approximately 19 billion US dollars) on shadow education (KNSO 2011), representing nearly one tenth of the country's budget. More importantly, as will be described in detail later, there are a variety of types of shadow education in Korea, including individual tutoring, commercial cram schools, worksheet programs sent to the home, and on-line tutoring services. Therefore, Korea provides the perfect backdrop to investigate the effectiveness of different types of tutoring in promoting academic achievement.

Background

Shadow Education in Korea

Like other East Asian societies such as Hong Kong (Bray and Kwok 2003), Taiwan (Kuan 2011), and Japan (Stevenson and Baker 1992), tutoring has long been practiced in Korea as one-on-one individual tutoring (*gaein gwawoe*) on an informal basis. In contemporary Korean society, individual tutoring is usually provided by university students and takes place at the student's home which the tutor visits. In recent years, however, individual tutoring has evolved to various other forms, including cram schools (*hagwon*), correspondence courses (*hagseupji*), and on-line tutoring, all of which are more structured and commercialized than individual tutoring (Kim et al. 2006). Cram schools are specialized schools which offer supplementary lectures in classroom settings. Some commercial cram schools even provide a full range of educational services including academic counseling. Correspondence courses provide worksheet programs or self-study materials sent to the student's home, usually through mail, with feedback provided. An increasing number of commercial companies hire full-time tutors who can pay a regular visit and offer face-to-face feedback. On-line tutoring services offer for-profit lectures via the Internet, usually provided by 'star' cram school instructors.

The most dominant type of tutoring in Korea is cram schools, followed by correspondence courses, group and individual tutoring, and on-line tutoring services. Figure 3.1 shows the extent to which Korean youth received shadow education by types of tutoring and levels of education in 2010 (KNSO 2011). In 2010, nearly half of all Korean students attended a cram school, while approximately 20 % took correspondence courses. For individual and group tutoring, approximately 11 % and

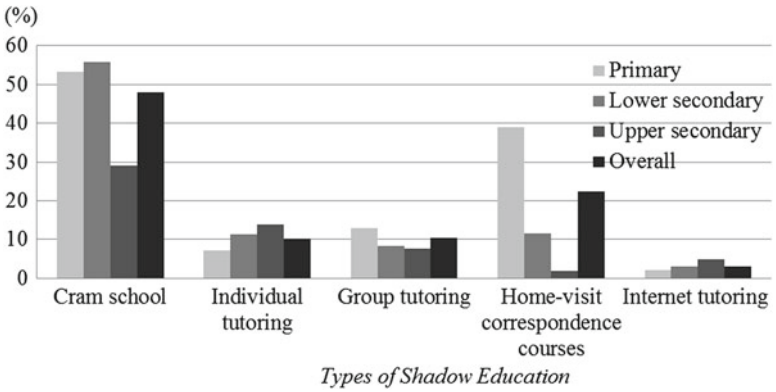

Fig. 3.1 Prevalence of shadow education in Korea, 2010 (Source: KNSO 2011)

12 % used these types of shadow education, respectively. Only a small proportion (approximately 4 %) used Internet tutoring services. Of particular interest is the prevalence of shadow education by levels of education. Specifically, the rate of participation in cram schools, correspondence courses, and group tutoring tends to decrease as the level of education increases, whereas the rate of participation in individual tutoring and Internet tutoring services tends to increase as the level of education increases (Fig. 3.1). This may reflect that upper level students prefer individual or on-line tutoring to other types of tutoring because these types of tutoring allow for more flexibility in scheduling.

Korean students' extensive use of tutoring has resulted in their families assuming the heavy burden of shadow education costs. In 2010, for example, Korean families spent an average of 240,000 KRW on their children's shadow education each month (KNSO 2011). The allocation of a considerable portion of household expenditure to children's tutoring costs has led to considerable financial strain for many Korean families, especially low-income families. As a result, children from low-income families are more disadvantaged in access to shadow education than children from high-income families. In 2011, for instance, nearly nine out of ten Korean students whose monthly average family income was 7,000,000 KRW or more received at least one or more forms of tutoring, whereas only four out of ten Korean students whose monthly average family income was less than 1,000,000 KRW did so (KNSO 2011).

Growing social concerns about the heavy financial burden due to the high costs of shadow education and the socioeconomic gap in access to shadow education have led the Korean government to introduce a variety of measures, ranging from banning all types of tutoring practices outside the mainstream education system to providing alternative forms of tutoring via the Educational Broadcasting System (EBS) and after-school programs (Byun 2010; Lee et al. 2010). It is important to note that EBS differs from other types of commercial tutoring services, in that it offers non-profit lectures via television. In addition, unlike other

types of tutoring in which mainstream school teachers are prohibited from being involved, EBS is provided by public school teachers. Thus, EBS adds further diversity to shadow education in Korea. Despite the government intervention to reduce the financial burden imposed on families, household expenditures on shadow education have dramatically increased during the past decade in Korea. For example, in 2003, Korean families spent a total of approximately 13 trillion KRW, but, almost a decade later in 2010, they spent a total of approximately 20 trillion KRW (KNSO 2011).

Despite the scale and intensity of shadow education illustrated thus far, a systemic assessment of its impact on academic achievement had not been carried out until very recently in Korea due largely to a lack of reliable data. However, during the past decade, several government-funded research institutes have begun to gather nationally representative data on educational experiences inside and outside the family, as well as within schools in Korea. This recent large-scale survey effort has increasingly allowed researchers to examine who seeks shadow education and whether the use of shadow education makes a difference in academic achievement. The following section examines the growing body of empirical studies using data from large-scale surveys in Korea.

Prior Research on Shadow Education Effects in Korea

Although not widely available to readers outside Korea, numerous studies in recent years have tested the effects of shadow education on academic achievement and offered mixed evidence. In a multiple regression analysis of data from the Korean Youth Panel Survey (KYPS) tracking two nationally representative cohorts of Korean students from the fourth grade through middle school and from the seventh grade through high school, Kim (2007) found that students' participation in shadow education was positively related to their self-reported academic performance in primary and middle school but not significantly associated with academic achievement in high school. Using the same data, Kang et al. (2008) also found that tutoring hours had significant positive effects on children's self-reported academic achievement during the last 2 years of middle school (i.e., Grades 8–9), but modest effects during the first 2 years of high school (i.e., Grades 10–11).

In contrast, in their examination of the effects of shadow education on academic achievement (measured by the relative standing of students in school) using data from the Korean Educational and Employment Panel tracking two nationally representative cohorts of middle and high school seniors in Korea, Ban and colleagues (2005) concluded that tutoring experiences, hours, and spending had only modest effects for middle school seniors and even negative effects for high school seniors. However, using the same data but different achievement information, Kim (2005) reached the strikingly different conclusion that tutoring hours had significant positive effects on math academic achievement measured by College Scholastic Ability Test scores.

Several studies have examined the effects of shadow education on academic achievement using the KELS data that the present study uses. Using individual growth models, Park et al. (2008) found that various tutoring variables (i.e., tutoring experience, hours spent in tutoring, and amount spent for tutoring) had strong positive effects on the achievement gains in math during middle school years. By contrast, using the same data but more rigorous methods including instrumental variables, PSM, and nonparametric bounding, Kang and Lee (2010) found that household expenditure on tutoring had positive but modest effects on test scores in Korean language, English, and math.

In summary, emerging research in Korea reports varying results regarding shadow education effects, depending on the data set, operational definitions of shadow education and academic achievement, and statistical models used. Inconsistent evidence does not allow for drawing a definitive conclusion about the role of shadow education in academic achievement in Korea. However, prior studies in Korea also have major limitations in drawing strong conclusions about the causal effect of shadow education on academic achievement, given that most previous work did not explicitly address selection bias in their empirical model, with a few notable exceptions (e.g., Kang and Lee 2010). Most importantly, despite the existence of a variety of types of shadow education, few studies have examined variation in the effectiveness of these different types in improving student learning. This study attempts to address these limitations of prior studies in Korea by decomposing the effects of shadow education by type.

Methods

Data and Sample

To assess the effectiveness of different types of shadow education, this study used longitudinal data from the KELS conducted by the Korean Educational Research Institute (KEDI). KELS began in 2005 with a nationally representative sample of approximately 7,000 Korean seventh graders, employing a form of multistage sampling design: schools were randomly sampled, followed by a sampling of one classroom within schools, and all students were sampled within the selected classroom. Chosen students were asked questions about a wide range of topics including school and home experiences; educational resources and support; future life aspirations; and the use of various forms of tutoring. Subsequently they were resurveyed every year. A survey was separately administered to students' family, teacher, and school to collect a wide range of family, class, and school information.

The KELS data are particularly useful for this study because they permit examination of a longitudinal trend in students' participation in different types of shadow education during middle school. More importantly, unlike other large-scale surveys (e.g., KYPS) in which academic achievement is usually measured by students' self-reported academic performance, KEDI administered achievement tests in Korean

language, English, and math for the first three (i.e., 2005, 2006, and 2007) waves of data collection in addition to the student questionnaire and offered Item Response Theory (IRT) scores. Therefore, KELS allows for investigation of the impact of various tutoring activities on academic achievement, net of prior achievement. Because IRT scores were available only for the period of time in which most students completed lower secondary education (Grades 7–9), this study restricted analyses to a sample of 4,279 students who completed both the initial survey and the two follow-up surveys including achievement tests as well as whose parents reported the use of shadow education each year. Despite their usefulness, however, the KELS data do not contain panel weights, which would allow results to be generalized to the Korean youth population who were in the seventh grade in 2005. Accordingly, the results presented here should be interpreted with much caution when generalized to a broader population.

Measures

This study examines the causal relationship between different types of tutoring use and academic achievement. Accordingly, variables of interest are different types of shadow education used and academic achievement. However, without controlling for other important variables associated with both the use of tutoring and academic achievement, it is not possible to obtain credible estimates of the effects of tutoring use on academic achievement. Therefore, the study included a host of covariates as control variables, including family background, previous achievement, and motivation. Table 3.1 outlines the variables included in the analyses of the predictors and effects of different types of shadow education and specifies the manner in which they were measured. A brief description of these variables follows.

Shadow education. Shadow education was measured with a dichotomous variable for each of the following types of tutoring: (a) cram school, (b) individual or group tutoring, (c) mail-based correspondence courses, (d) Internet tutoring services, and (e) EBS. Shadow education was measured by the parents' report on the use of shadow education by their child in the ninth grade.[1]

Academic achievement. Although KEDI provided IRT scores in the subject areas of Korean language, math, and English for students, this study focused only on math achievement. This is because math skills in lower secondary education represent an important foundation for future learning at the upper level of education as well as future opportunities for employment and income (Mullis et al. 2008). In addition, prior research found a greater impact of private tutoring on math achievement than on Korean and English achievement (Park et al. 2011). Academic achievement was measured by the math ability IRT scores in the ninth grade.

[1] For shadow education, I drew on the first and second follow-up parent surveys because the ways which parents were asked about shadow education were somewhat different between the base-year and the two follow-up surveys.

Table 3.1 Description of the variables used in the analyses

Variable	Description	M	SD	% imputed
Dependent variable				
Academic achievement[a]	Standardized test score for math in the KELS data set	521.74	64.23	—
Treatment variable				
Preparatory cram school[a]	Parents indicated whether their ninth-grade child attended a prep cram school for math in 2007	0.80	0.01	—
Private tutor[a]	Parents indicated whether their ninth-grade child received one-on-one or one-on-group private tutoring for math in 2007	0.26	0.01	—
Correspondence courses[a]	Parents indicated whether their ninth-grade child received a correspondence course for math in 2007	0.12	0.01	—
Internet tutoring services[a]	Parents indicated whether their ninth-grade child received private tutoring via the Internet for math in 2007	0.12	0.00	—
EBS[a]	Parents indicated whether their ninth-grade child received private tutoring via EBS for math in 2007	0.06	0.00	—
Covariates				
Parental education[b]	Parents reported their highest level of education. Original responses were 1 = primary school, 2 = middle school, 3 = high school, 4 = 2-year college, 5 = 4-year college, 6 = master's degree, 7 = doctorate degree. The higher of mother's and father's education attainment was chosen and transformed with years of education (e.g., 1 = 6, 7 = 20)	13.76	0.04	7.4
Family income[b]	Parents indicated the amount of household income in 2005. Reported household income was then transformed by natural logarithms	5.78	0.01	3.8
Family structure[b]	Parents indicated their marriage status. Original responses were married (coded 1), divorced (coded 2), separated (coded 3), and bereaved (coded 4) and dummy coded where 1 = married (two-parent), 0 = otherwise	0.94	0.00	0.5
Number of siblings[a]	Parents indicated the number of children that they have	2.17	0.01	3.2
Parents' educational expectation[b]	Parents indicated their educational expectation for their ninth grade child. Original responses were 1 = middle school, 2 = high school, 3 = 2-year college, 4 = 4-year college, 5 = master's degree, 6 = doctorate degree and transformed with years of education (e.g., 1 = 6, 7 = 20)	17.29	0.03	0.0
Female[b]	Students indicated their sex. Responses were male (coded 1) and female (coded 2) and dummy coded with female as reference	0.48	0.01	0.0
Previous achievement[c]	Standardized test score for math in the KELS data set (seventh-grade)	412.43	69.37	0.0

Previous use of shadow education[c]				
Preparatory cram school	Parents indicated whether their ninth-grade child attended a prep cram school for math in 2006	0.80	0.01	17.4
Private tutor	Parents indicated whether their ninth-grade child received one-on-one or one-on-group private tutoring for math in 2006	0.22	0.01	18.9
Correspondence courses	Parents indicated whether their ninth-grade child received a correspondence course for math in 2006	0.13	0.01	19.0
Internet tutoring services	Parents indicated whether their ninth-grade child received private tutoring via Internet for math in 2006	0.05	0.00	19.1
EBS	Parents indicated whether their ninth-grade child received private tutoring via EBS for math in 2006	0.07	0.01	19.0
Hours of self-study for math[b]	Students indicated hours spent to study math in 2005	2.55	0.04	33.5
Educational aspirations[b]	Students indicated the highest level of education that they wished to reach in 2005. Original responses were 1 = middle school, 2 = high school, 3 = 2-year college, 4 = 4-year college, 5 = master's degree, 6 = doctorate degree and transformed with years of education (e.g., 1 = 6, 7 = 20)	16.38	0.03	21.6
Intrinsic motivation for math[b]	Factor composite (average) of three student responses (on four-point scales of agreement-disagreement) to the statements: "When I study Math, I am so into it"; "Math is important to me"; and "I can't give math up because I like it"	2.70	0.01	0.0
Urbanicity[b]				0.0
Seoul	School is located in Seoul	0.19	0.01	
Metro	School is located in a metropolitan city	0.29	0.01	
City	School is located in a small- and medium-sized city	0.45	0.01	
Rural area (omitted)	School is located in a town or rural area	0.07	0.00	

Data source: KELS 2005–07 ($N = 4{,}279$)
[a]Based on the second follow-up survey (2007)
[b]Based on the base-year survey (2005)
[c]Based on the first follow-up survey (2006)

Control variables. Control variables included (a) parental education (years of schooling), (b) family income (natural logarithms), (c) family structure (1 = two-parent family), (d) number of siblings, (e) parents' educational expectation for their child, (f) gender (female = 1), (g) previous achievement (measured by the math IRT scores in the seventh grade), (h) previous shadow education participation, (i) weekly self-study hours (measured by hours of self-study for math), (j) educational aspirations (measured by years of schooling), (k) intrinsic motivation (measured by the composite score for math), and (l) urbanicity (Seoul, other metropolitan cities, middle- and small-size cities, and rural areas). All of these measures came from either the base-year (2005) or first follow-up (2006) surveys except for the number of siblings, which was drawn from the second follow-up survey (2007). Detailed descriptions of these variables are provided in Table 3.1.

Analytic Strategies

First, using the full unmatched sample, I completed descriptive analyses. Then, I performed a logistic regression analysis with all covariates predicting each type of shadow education to examine adjusted differences in background characteristics between students who took that type of shadow education and those who did not. Next, I examined the effect of each type of shadow education in the unmatched sample.[2] Specifically, I conducted ordinary least squares (OLS) regression for math achievement. To investigate the effect of shadow education more systemically, I estimated two models within each regression analysis. The first model included shadow education only. The second model added the covariates, with the aim of examining whether the effect of shadow education held after controlling for the covariates.[3]

I then estimated the effects of each type of shadow education by employing a PSM approach as data pre-processing according to the following steps. First, I conducted a logistic regression to generate propensity scores from the covariates. This entailed regressing the covariates on the dichotomous measure of each type of shadow education to obtain the predicted probability (i.e., propensity score) of receiving that particular type of shadow education. Second, I used the propensity scores and the *psmatch2* procedure in Stata to match treated (i.e., students who received a particular type of shadow education) and control participants (i.e., students who did not receive that type of shadow education). Participants were matched one-to-one (i.e., one control participant for each treated participant) by the nearest neighbor within a caliper matching method (Rosenbaum and Rubin 1985). This

[2] I also examined the effects of shadow education by including all types of shadow education simultaneously and found similar results reported in this study.

[3] I also examined the interaction of parental education, family income, and previous achievement with each type of shadow education but found no significant interaction effects. The results from interaction effects are available upon request from the author.

method selects the control participant that is the best match (i.e., nearest neighbor) for a treated participant among the control participants who are within the absolute distance of the propensity scores between the pre-specified tolerance or range for the size of the caliper. Following Rosenbaum and Rubin's (1985) recommendation, I used a 0.25 standard deviation of the estimated propensity score as the caliper size.[4] Third, I then replicated the OLS regression analyses for each type of shadow education described above with the matched sample.

Missing data. I imputed missing data using the Stata *ice* command (Royston 2004). The percentage of missing data imputed for each variable is reported in Table 3.1. There was no missing data for the math achievement and shadow education variables, as I restricted the analytic sample to students who participated in the achievement tests and whose parents reported valid shadow education. I generated five imputed data sets, conducted regression analyses with each imputed data set before and after matching, and then averaged the coefficients and standard errors using Rubin's (1987) rule.

Correction for design effects. To address the nested nature of the data (i.e., students were randomly selected within sampled schools), I used the Stata *cluster* command. This command generates robust standard errors that are adjusted for inflation resulting from violating the assumption of independent errors (Rogers 1993).

Results

Descriptive Statistics: The Prevalence of Shadow Education

Figure 3.2 shows changes in the participation rates in different types of shadow education between Grades 8 and 9. The most pervasive form of shadow education was the use of cram schools: 8 out of 10 Korean middle school students attended a cram school in 2006 and 2007. The next most dominant type of shadow education was individual or group tutoring: the proportions of Korean youth receiving this type of tutoring were 22 % and 26 % in 2006 and 2007, respectively.

Also, 13 % and 12 % of Korean middle school students participated in mail-based correspondence courses in 2006 and 2007, respectively. For on-line tutoring services, 7 % and 12 % used this form of shadow education in 2006 and 2007, respectively, while 7 % and 6 % used EBS in 2006 and 2007, respectively. In sum, the proportions of Korean middle school students receiving individual or group tutoring and on-line tutoring services increased over time, whereas the proportions of Korean youth participating in mailed-based correspondence courses and EBS slightly decreased over time, consistent with the trend found in other studies (KNSO 2011).

[4] I replicated propensity score analyses with different caliper sizes and found few differences among/between/in the findings reported in this study. The results from propensity score analyses with different caliper sizes are available upon request from the author.

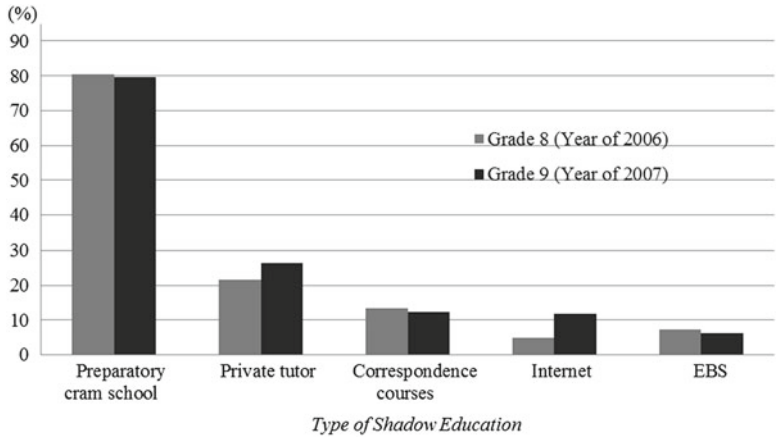

Fig. 3.2 Prevalence of shadow education at the lower secondary level in Korea (Source: KELS 2006–07)

Predictors of the Use of Shadow Education by Type

Table 3.2 presents logistic regression results for the predictors of different types of shadow education use. Results showed that the predictors varied, depending on the types of shadow education. For example, family income was a significant predictor of participation in cram schooling and private tutoring with children from high-income families more likely than children from low-income families to use these forms of shadow education. In contrast, family income was not a significant predictor of use of correspondence courses, Internet tutoring services, and EBS.

Of particular interest were the ways in which the number of siblings, gender, previous achievement, and urbanicity were related to the use of shadow education. Specifically, children with fewer siblings were more likely than those with more siblings to attend a cram school but less likely to use Internet tutoring services. Girls were less likely than boys to attend a cram school but more likely to use correspondence courses, Internet tutoring services, and EBS. Previous academic achievement was positively related to the use of cram schools (i.e., high achievers were more likely to attend cram school), whereas it was negatively related to the use of private tutoring and correspondence courses (i.e., low achievers were more likely to use private tutoring and correspondence courses). Finally, students in rural areas were less likely than students in urban areas to attend a cram school but more likely to use Internet tutoring services and EBS.

In sum, these logistic regression results demonstrated variation in the predictors for the use of different forms of shadow education. At the same time, they highlighted the selection issues in estimating the effects of shadow education on academic achievement. Thus, using PSM to match control and treated participants seemed warranted and was undertaken.

Table 3.2 Results from the logistic regression model predicting participation in shadow education by type (before matching)

	Type of shadow education																	
	Preparatory cram school				Private tutor			Correspondence courses			Internet tutoring services			EBS				
Variable	Coef.		SE	OR	Coef.		SE	OR	Coef.		SE	OR	Coef.		SE	OR	Coef.		SE	OR
Parental education	−0.03		0.02	0.97	0.05	**	0.02	1.05	−0.05		0.02	0.95	0.03		0.02	1.03	0.02		0.03	1.03
Household income (logged)	0.20	*	0.09	1.22	0.47	***	0.09	1.61	−0.07		0.13	0.93	−0.05		0.11	0.95	0.05		0.15	0.95
Two-parent family	−0.21		0.19	0.81	0.25		0.19	1.29	−0.46		0.25	0.63	−0.06		0.22	0.94	0.48		0.33	0.94
Number of siblings	−0.22	**	0.07	0.80	−0.10		0.06	0.90	0.00		0.08	1.00	0.22	**	0.07	1.24	0.06		0.09	1.24
Parents' educational expectation	0.04		0.03	1.04	0.03		0.02	1.03	0.06		0.03	1.07	−0.01		0.03	0.99	−0.01		0.04	0.99
Female	−0.41	***	0.09	0.67	0.09		0.08	1.09	0.41	**	0.12	1.51	0.36	**	0.12	1.43	0.65	***	0.13	1.43
Previous achievement	0.00	**	0.00	1.00	−0.00	*	0.00	1.00	−0.00	**	0.00	1.00	−0.00		0.00	1.00	0.00		0.00	1.00
Preparatory cram school (2006)	1.24	***	0.10	3.47	−0.18		0.12	0.83	−0.20		0.15	0.82	−0.39	*	0.14	0.68	−0.28		0.17	0.68
Private tutor (2006)	−0.32	**	0.11	0.72	1.23	***	0.09	3.42	0.00		0.13	1.00	−0.26		0.16	0.77	0.13		0.17	0.77
Correspondence courses (2006)	−0.47	***	0.13	0.62	0.09		0.12	1.10	2.39	***	0.14	10.96	−0.25		0.17	0.78	−0.25		0.29	0.78
Internet (2006)	−0.17		0.21	0.85	0.10		0.21	1.11	−0.19		0.25	0.83	0.72	***	0.20	2.06	2.33	***	0.20	2.06
EBS (2006)	−0.58	**	0.15	0.56	0.04		0.15	1.04	−0.35		0.27	0.71	1.63	***	0.14	5.08	0.18		0.26	5.08
Hours of self-study	0.02		0.02	1.02	0.00		0.02	1.00	0.01		0.03	1.01	0.02		0.02	1.02	0.04		0.04	1.02
Student's educational aspirations	0.04		0.03	1.04	−0.06	**	0.02	0.94	−0.02		0.04	0.98	0.03		0.04	1.03	−0.06		0.06	1.03
Student's intrinsic motivation	0.07		0.07	1.07	−0.13		0.07	0.88	−0.01		0.09	0.99	0.11		0.10	1.12	−0.05		0.11	1.12
School location (rural area omitted)																				
Seoul	0.73	***	0.20	2.08	−0.30		0.21	0.74	−0.21		0.24	0.81	−1.24	***	0.21	0.29	−0.71	**	0.25	0.29
Metro	0.57	**	0.19	1.78	−0.29		0.21	0.75	−0.05		0.24	0.95	−0.93	***	0.20	0.40	−0.64	**	0.23	0.40

(continued)

Table 3.2 (continued)

	Type of shadow education														
	Preparatory cram school			Private tutor			Correspondence courses			Internet tutoring services			EBS		
Variable	Coef.	SE	OR	Coef.	SE	OR	Coef.	SE	OR	Coef.	SE	OR	Coef.	SE	OR
City	0.54 **	0.19	1.71	−0.31	0.21	0.74	−0.19	0.22	0.83	−1.06 ***	0.19	0.35	−0.50 *	0.21	0.35
Constant	−2.08 **	0.71	—	−2.93 ***	0.63	—	−0.84	0.88	—	−1.86 *	0.81	—	−2.70 **	0.99	—
Log likelihood[a]	−1,942.50			−2,259.91			−1,314.87			−1,406.29			−1,406.29		
Pseudo (McFadden's) R^2 [a]	0.11			0.08			0.17			0.09			0.09		
N	4,279			4,279			4,279			4,279			4,279		

Note: The estimates are an average of the results across the five complete, weighted datasets by using Rubin's (1987) rule. Robust standard errors are used to adjust school-level clustering

$^{***}p<.001$; $^{**}p<.01$; $^{*}p<.05$ (two-tailed tests)

[a]Loglikehood and Pseudo R^2 based on one complete and weighted dataset

Table 3.3 Results from OLS regression models predicting match achievement

Type of shadow education	Unmatched data				Matched data			
	Model 1 (+ shadow education only)		Model 2 (+ other covariates[a])		Model 1 (+ shadow education only)		Model 2 (+ other covariates[a])	
	Coef.	SE	Coef.	SE	Coef.	SE	Coef.	SE
1. Preparatory cram school	20.52***	2.41	10.90***	2.00	8.26*	3.37	11.20***	2.62
2. Private tutor	−6.11**	2.08	−3.73	1.91	−3.38	3.05	−3.93	2.61
3. Correspondence courses	−15.29***	3.00	−7.00*	2.82	−4.96	4.69	−6.96	4.03
4. Internet tutoring services	−6.93*	2.84	−5.26*	2.27	−2.01	4.42	−0.05	0.19
5. EBS	−5.75	4.22	−3.70	3.10	−4.27	5.91	−3.03	5.17

Note: Analyses were conducted separately for each type of shadow education. The estimates for unmatched and matched results are an average of the results across the five complete, weighted datasets by using Rubin's (1987) rule. Robust standard errors are used to adjust school-level clustering. The sample size for unmatched data was 4,279 across the five imputed datasets and different types of shadow education. The sample sizes for matching estimates varied, depending on the imputed datasets and different types of shadow education, due to differences in the common support areas. Specifically, the sample sizes for matching estimates ranged from 1,676 (the first imputed dataset) to 1,630 (the fifth imputed dataset) for cram schools; from 2,084 (the first imputed dataset) to 2,104 (the fifth imputed dataset) for private tutoring; from 1,002 (the first imputed dataset) to 976 (the fifth imputed dataset) for correspondence courses; from 968 (the first imputed dataset) to 980 (the fifth imputed dataset) for internet services; and from 524 (the first imputed dataset) to 526 (the fifth imputed dataset) for EBS

***$p < .001$; **$p < .01$; *$p < .05$ (two-tailed tests)

[a]Other covariates include parental education, family income, family structure, number of siblings, parental educational expectation, gender, student educational expectations, previous math achievement, previous corresponding shadow education participation, hours of self-study, intrinsic motivation, and urbanicity

Effects of Different Types of Shadow Education

Table 3.3 presents OLS estimates of different forms of tutoring on academic achievement using the sample before and after matching. Note that the sample sizes for the matched datasets varied, depending on the imputed datasets and type of shadow education. This variation was due to differences in the common support areas (i.e., area of overlap in the distribution of propensity scores for control and treated participants). That is, some control and treated participants were outside of the common support areas indicating that they did not match a counterpart participant and, therefore, they were excluded. It should be noted that there was no variation in sample size across the imputed datasets for the unmatched sample. This is because the entire analytic sample was used when imputing and analyzing the unmatched data rather than participants being matched and excluded if they were not a match. We now examine the effects of different types of shadow education on math achievement.

Cram schools. For the unmatched sample, Model 1, including the cram school variable only, showed a significant positive effect on math achievement (20.52). When the other covariates were entered in Model 2, the effect size of attending a cram school was reduced to 10.90 (approximately an 88 % reduction) but the effect remained significant. For the matched sample, Model 1 showed a significant positive effect (8.26). Model 2, where the other covariates were additionally controlled, also showed a significant positive effect (11.20).

Private tutor. For the unmatched sample, Model 1 showed a significant negative effect on math achievement (–6.11). When the other covariates were entered in Model 2, however, the effect was no longer significant. For the matched sample, neither Model 1 nor Model 2 showed significant effects.

Correspondence courses. For the unmatched sample, Model 1 showed a significant negative effect on math achievement (–15.29). When the other covariates were controlled (Model 2), the effect was also significant and negative (–7.00). For the matched sample, however, neither Model 1 nor Model 2 showed significant effects.

Internet tutoring services. For the unmatched sample, both Model 1 (–6.93) and Model 2 (–5.26) showed significant negative effects. For the matched sample, however, neither Model 1 nor Model 2 showed significant effects.

EBS. For both unmatched and matched samples, Models 1 and 2 showed no significant effects on math achievement.

In sum, results showed varying effects, depending on the type of shadow education used.

Conclusion

Recent years have observed the worldwide growth of diverse private tutoring industries. If various forms of private tutoring were ineffective or even less effective in improving student academic achievement, the policy implication would be clear: the shadow education system should be discouraged because it would suggest families' investment in private supplementary tutoring to be a waste of resources (Dang and Rogers 2008). In contrast, if varied types of tutoring services were indeed effective in promoting student learning, shadow education industries may be encouraged because they would suggest that consuming private tutoring is a human capital investment which in turn could contribute to economic development (Dang and Rogers 2008). Despite a growing body of empirical literature, it is still unclear whether shadow education indeed matters to academic achievement and how the effects vary by types of shadow education. Therefore, clarifying whether shadow education provides comparable beneficial effects across different types has important implications for relevant policies.

In this study, drawing on longitudinal data for Korean middle school students, I revisited the effectiveness of different types of shadow education by using a series of statistical models to control for selection bias. The combination of conventional

OLS analysis with PSM demonstrated that cram school made a small difference in achievement gains in math, whereas other forms of shadow education (i.e., individual tutoring, correspondence courses, on-line tutoring services, and EBS) made little difference. The finding of the positive effect of cram school on math achievement is consistent with previous research (Kuan 2011). The positive effect of cram school on academic achievement may be explained by several features of cram schools. Most cram schools analyze patterns found in a variety of the high-stakes exams administered by individual K-12 schools by closely following the curricula of the main public education system, and provide practice examinations. Many cram schools also develop their own curriculum and assessment tools. All of these efforts may offer helpful information for students to improve academic achievement. In addition, cram schools may offer additional advantages through social capital among students, in addition to supplementary education (Byun and Park 2012; Zhou and Kim 2006). Results of this study suggest that cram schools generally serve high-achieving students. These students may bring in, share, and reinforce a set of values, beliefs, behaviors, and strategies that facilitate academic success in Korean society, which create a positive social setting conducive to academic achievement (Byun and Park 2012; Zhou and Kim 2006).

Despite the positive effects of cram schools, it remains to be answered whether shadow education industries should be promoted, given that none of the other types of shadow education were found to yield positive returns to students in terms of improved achievement. Results indicated that the observed relationship between some types of shadow education (e.g., individual tutoring, correspondence courses, and on-line tutoring service) and academic achievement were largely due to other student, family, and school factors rather than shadow education itself. This is because when the covariates were added in regression analyses and PSM was used the effect of shadow education was substantially reduced and became insignificant.

Furthermore, although this study has offered some reasons why cram schools may be more effective in improving academic achievement than other forms of shadow education, the finding of the positive effect of cram schools should not be used as evidence supporting the expansion of cram schooling. This is because many, though not all, cram schools primarily focus on helping students strategically master or memorize as much information as possible necessary for particular tests in a very short period of time, rather than fostering critical thinking. It is questionable whether enhancing academic achievement through cram schooling is a desirable educational practice (Byun and Park 2012).

More importantly, the results of this study showed that family background was strongly associated with the use of shadow education, especially for cram schools, confirming past findings (Byun 2010; Dang 2007; Kuan 2011; Stevenson and Baker 1992). This finding suggests that shadow education may play an important role in the reproduction of educational and social inequalities in contemporary Korean society by linking family background to children's educational outcomes. In fact, one important strategy for higher SES families is to support their children's education with high-quality shadow education in Korea (Park et al. 2011). In conclusion, unless other policy arrangements for reducing the access gap to shadow

education are considered, expansion of shadow education may likely maintain and exacerbate educational inequality in Korea.

This study has several limitations that need to be addressed in future studies. First, despite wide variation in the *quality* of tutoring that students receive, this study focused on its quantity. As a result, it remains to be seen how varying degrees of quality in shadow education is associated with academic achievement. One possible measure of the quality of tutoring would be tuition fees. Kang and Lee (2010) found that an increase in household expenditures on shadow education was positively associated with an increase in academic achievement, suggesting that not only the quantity but the quality of tutoring may matter. Second, despite various other forms of shadow education that exist in Korea, this study was unable to examine the role of these other types of tutoring in academic achievement due to the limitations of the data. Finally, although the PSM method is useful for correcting selection effects based on observed characteristics, there may be unmeasured variables related to the self-selection into the use of a particular form of tutoring, which were not considered in this study. Therefore, more rigorous methods eliminating hidden bias (e.g., experimental design) should be used to test the effects of shadow education on academic achievement. By addressing these limitations, future research will be able to further our understanding of the role of shadow education in school success.

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Chapter 4
Analysis of Women Doctorates Entering the Labor Market in Republic of Korea

Jae-Hee Ahn

Introduction

The twenty-first century information society values both increasing the diversity of human resources and effectively channeling those resources to the labor market. The zeal for education of the Korean people combined with the introduction of the graduation quota in the 1980s resulted in an explosion in the number of university graduates. Broadening education opportunities pushed up university entrance rates for women as well—80.5 % of female high school graduates went on to university in 2010 compared with 22.4 % in the 1980s, and the number has overtaken that of male students since 2009.

The rise of higher education in the last decades permeated to the very top of the education ladder—doctoral degrees (Jin 2005). There were 2,481 doctorate degree holders awarded in 1990. In 2010, the number was 10,542. The number of female domestic doctorate holders also grew from 338 (13.2 % of the total) in 1990 to 3,370 (31.9 % of the total) in 2010, comprising about 30 % of all new doctorate holders in the country (Ministry of Education, Science, and Technology, Korean Educational Development Institute 2011).

However, female doctorate holders' entry into the labor market is not as smooth as that of men, posing a constant problem of under-utilizing their resources. Previous research (Kim and Kim 2003; Jin 2005; Song et al. 2007; Song 2009) has found that female doctorate holders are less likely to get a job, and even when they do, their jobs rarely meet their education level. Universities are one of the major employers of doctorate holders but the growth rate of professor positions in Korea is much lower than the rise in the number of Ph.D. holders. The number of newly hired professors was around 1,700 a year in the 1980s and 2,200 in the 1990s, and it

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peaked in 1995 at 10,764. But in the first half of the 2000s, the number dropped to an annual 800 (Song 2009). Moreover, female doctorate holders have a harder time entering the professor level, and often have to take the non-tenure track. This, in part, represents the higher flexibility in the university labor force under the neo-liberalism ideology. In short, for women, the "doctorate degree = professor" equation no longer stands.

There is therefore a need to look into the career development and employment patterns of female doctorate holders in Korea. Nurturing and utilizing female Ph.D.s is not just about developing individuals: it has wider implications in the labor market and is a matter of female status in society. The labor market for advanced degree holders has a higher number of men and shows various barriers towards, and discrimination against women (Park 2006). In this sense, studying female Ph.D.s' entry into the labor market provides an opportunity to look into the structural elements of Korean society such as patriarchal culture, gender, age, and education level and how they function to split the labor market. As with any other group, the labor market for advanced degree holders can be categorized by social attributes such as gender, age, and race (Park 2006). In addition, making use of female Ph.D.s is a crucial human resources policy issue as societies fight over talented human resources in the twenty-first century (Jin 2005; Song 2009).

Therefore, this study first looks into the current status of nurturing and hiring female doctorate holders, then analyzes the factors that hamper them from entering the professor community, and finally presents proposals to effectively channel those resources to the education-labor market.

Education for Women in Korea

In analyzing the existing state of nurturing and hiring female doctorate holders, the first step is to check the status and characteristics of women's education in the country. Education for women expanded dramatically in terms of opportunities under the principle of equal opportunity of education stated in the Constitution proclaimed in July 1947. However, there is a great discrepancy between women's educational attainment and their level of labor force participation. While major developed countries witnessed a 9 percentage points rise in female economic participation rate from the late 1970s to late 1980s when per capita income grew from 10,000 US dollars to 20,000, in contrast, Korea only saw a 1.1 percentage points increase during the decade following the 10,000 dollar point (Kim 2006).

In the 1950s, elementary education became compulsory, laying the systematic and legal groundwork for equal education. However, education was overshadowed by economic issues from the 1950 Korean War and gender division was clear in the labor market. Education for women was seen as more of "consumption" rather than an "investment" with most female students stopping schooling at the elementary level—only 22.3 % of middle school students were girls in 1958. This inevitably prevented them from working in the professional and technical fields.

In the 1960s and 1970s, education opportunities in secondary education slowly opened up to women. Policies were drawn up—The Middle School Admission without Exam Policy in 1969 and The High School Leveling Policy in 1974—which improved the figures. In 1975, 69.7 % of girls went on to middle school, and 72.3 % of these further transitioned to high school. More women received higher education, but the environment was not ready for them to participate in the labor force, leaving them to work mainly in the domestic arena as mothers and wives (Ahn 2011). Society still frowned upon working women in public sector as a clear division remained between the public and private sectors. Meanwhile, Korea embarked on aggressive economic growth at that time and witnessed a rise in demand for manual labor in the manufacturing industry under the name of "export industry workers." Manufacturers preferred young girls as workers and these took up the majority of labor-intensive export industry positions (Ahn 2011). A study carried out by Koo in 1987 found that 66 % of female factory workers were 17–21 years old, 95 % were under 25, 98 % were not married, and 88 % had middle school diploma or lower (Koo 1987).

During the 1980s to late 1990s, the transition rate from elementary to middle school reached 99.9 % for female students and 98.4 % from middle school to high school, achieving the level of universal education. The 1985 University Graduation Quota System gradually pushed up university entrance rates, resulting in 49.8 % of female high school graduates going on to college in 1995. As more women began to receive higher education, society became more aware of the gap between education achievement and labor participation of women. The government started to include education for women in its policies, for example in the Sixth Five Year Economic-Social Development Plan (1987–1991). The 1990s triggered policies designed to tackle gender inequality in school culture and knowledge, as opposed to just emphasizing improving figures. Frameworks were put in place to correct labor market conditions that discriminated against women. Education for women after 1998 focused on the goal of effectively developing human resources by diversifying majors in higher education and nurturing and utilizing women with high education achievements with. The Law for Nurturing and Supporting Female Scientists in 2001 encouraged women to major in sciences or engineering and helped them successfully transition to the labor market in those fields. WISE (Women in Science and Engineering), WIE (Women in Engineering), and NIS-WIST (National Institute for Supporting Women in Science and Technology) were established based on the law to support talented females in the fields of science and engineering (Ahn 2011). The Women Employment Quota System (2003–2007) and the Female Professor Quota System (2003) were adopted to increase the number of women in the management positions such as principals, vice-principals, and professors. In addition, the Gender Equality for University Workers system was put in place in 2004 to encourage the national and public universities to create and implement 3-year gender equality plans such as setting a goal to hire a certain proportion of female professors for each college. These plans are annually evaluated and high-performing universities receive funding from the government. In 2000, the focus shifted from interpreting female education as simply educating women to observing the effects

of policies with gender perspectives. General education policies were approached from a gender perspective, investigating the impact on each gender. The profile of women in the labor market also showed change—while young, unmarried production workers were the majority in the 1990s, the number of highly-educated professionals in management positions grew rapidly after 1998. This drove large companies and the government to invest in family-friendly corporate culture and work–life balance policies. The 1997 economic crisis entailed a more flexible labor market and a rise in female participation in the economy as one breadwinner per family no longer was sufficient. Even so, many women still enter the labor market as temporary workers. The remaining gender imbalance in the labor market combined with the long-lasting perception that housework is the women's responsibility leaves many female temporary workers bearing the double burden of work and family (Ahn 2011).

Method

Sample

This study focuses on the current state of new female doctorate degree holders and their employment. The discussion is limited to new Ph.D.s as investigating the employment of all female doctorate holders is not realistic. Also, the study only looks into the employment status of those who achieved degrees in Korea as raw data for overseas degrees is difficult to attain.

Data and Method

The study used document research, statistical analysis, and interview methods. First, previous research and reports on female doctorate holders was reviewed in order to understand the transition into the education-labor market and the current status of professor communities. The issue of utilizing female Ph.D.s surfaced in the 2000s. Early studies (Min 2002) focused on the production of female doctorate degree holders while the focus has now shifted to investigating their transition process into the labor market (Shin and Kim 2006; Lee et al. 2008; Song et al. 2007).

Statistical analysis was performed to find out the current status of female doctorate holders and their employment, and the status of female professors. Data used includes the *2010 Population and Housing Census*, the *Statistical Yearbook of Education in Korea*, the *Statistical Handbook of Women in Korea*, and the *Economically Active Population Survey Database*, all raw data provided by relevant institutions.

Interviews took place from May to June 2011 and were aimed at probing into the mechanism around hiring new professors and the existing barriers to women in the field. Interviewees included not only the women at stake—female Ph.D.s (Female Ph.D. no.1 and no.2), female professors (Female Professor no.1 and no.2)—but also men who were involved in appointing professors (Male Professor no.1 and no.2). The latter were included to capture the real problems that hinder women when they try to enter the profession and to understand the position of stakeholders at universities. Interviews lasted around an hour each with structured questionnaires.

Development and Employment Status of Female Doctorate Holders in Korea

Development Status of Female Doctorate Holders in Korea

The entrance rate to university from high school in Korea exceeded 80 % in 2005, while in 2009, the rate for women reached 82.4 %, 0.8 percentage points higher than that of men at 81.6 %. As of 2010, women received 49.4 % of all bachelor's degrees, 49.1 % of master's degrees, and 31 % of doctorates (Ju 2010). The gender gap in the entrance rate into graduate schools has been shrinking since 2000 and, as of 2010, 5.5 % of women graduating undergraduate school went on to graduate school compared with 7.1 % of men. This means that more women are taking the doctoral course than women in the past. The proportion of women in graduate school grew by 13.2 percentage points in a decade from 24.7 % (7,895 out of 32,001) in 2000 to 32.3 % (14,045 out of 43,472) in 2005, and to 37.9 % (20,327 out of 53,533) in 2010.

The rise in the proportion of undergraduates continuing to graduate level has resulted in more doctorate degrees and the gender gap in the number of newly attained doctorates is declining, as can be seen in Fig. 4.1. The proportion of overseas female doctorate holders rose steadily from 9.8 % in 1990, to 23.6 % in 2000, 28.6 % in 2005, 35.8 % in 2010, and to 40.4 % in 2011. Now women take up around 30 % of all new doctorates. Their average age is 42. And although many still receive degrees in-country, since 2005 an increasing number of women are studying overseas. Women accounted for 40.4 % of all overseas doctoral degrees in 2011, a huge 30.6 percentage points jump from 9.8 % in 1990. This is a major increase considering that the proportion of domestic female doctorate holders climbed by only 18.4 percentage points in the same period. This phenomenon can be interpreted in two ways. First, more women are investing in international degrees because it can raise the chances of becoming a professor. Second, women are also choosing overseas degrees to increase their value as the number of Ph.D.s rises. In Korea, the second factor is stronger as a doctorate no longer guarantees a life as a professor. As doctoral students strive to differentiate themselves in order to land a full-time job at research institutes, many choose to study abroad.

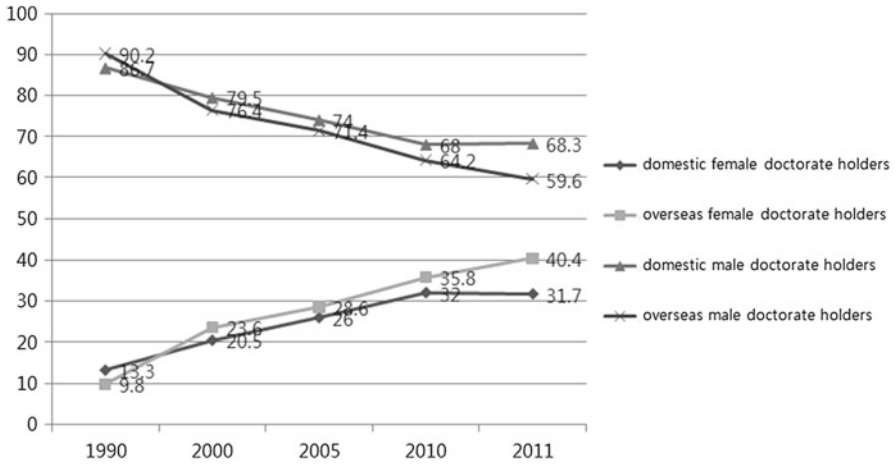

Fig. 4.1 Trends in the proportion of new female and male doctorate holders, 1990–2011 (Source: Ministry of Education, Science, and Technology, Korean Educational Development Institute, *Statistical Yearbook of Education*)

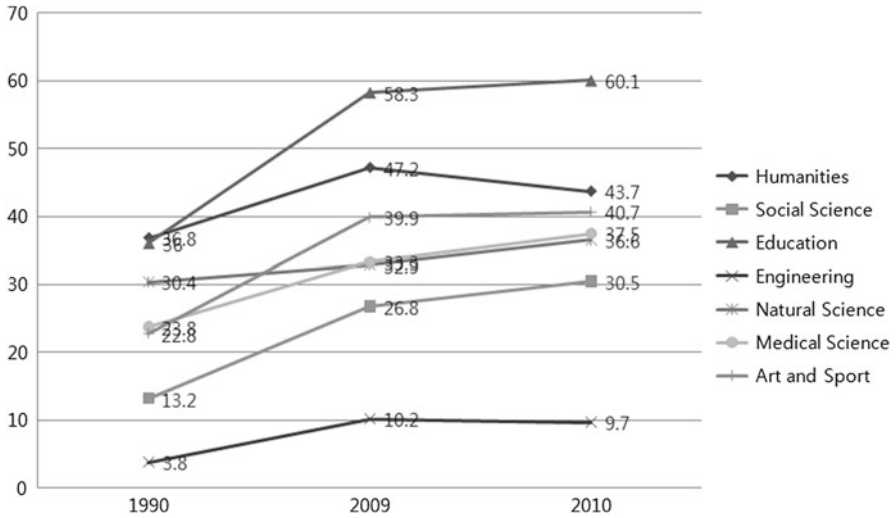

Fig. 4.2 Trends in the proportion of new female doctorate holders by field of study, 1990–2010 (Source: Ministry of Education, Science, and Technology, Korean Educational Development Institute, *Statistical Yearbook of Education*)

Figure 4.2 shows the proportion of new female doctorate holders by their fields. Education is the leader in terms of the proportion of females followed by humanities (43.7 %), art and sports (40.7 %), medical sciences (37.5 %), natural sciences (36.6 %), social sciences (30.5 %), and engineering (9.7 %). When only female

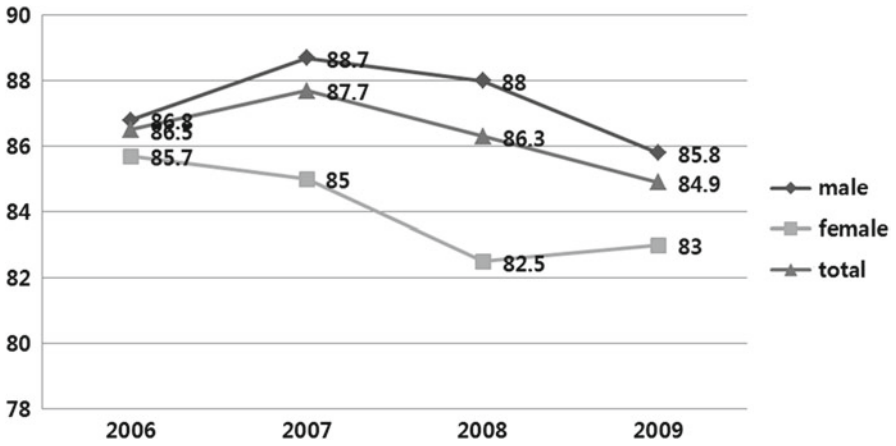

Fig. 4.3 Trends in the employment rate of doctorate holders, 2006–2009 (Source: Ministry of Education, Science, and Technology, Korean Educational Development Institute, *Statistical Yearbook of Education*)

doctoral degree holders are considered, medical sciences account for the largest (23.9 %), followed by natural sciences (19.9 %), social sciences (18.3 %), humanities (13.4 %), and education (10.6 %). This is a stark contrast with how male doctoral degree holders (45.3 %) are concentrated in the field of sciences and engineering. The proportion of female doctoral degree holders in the medical sciences is high because the proportion of females in nursing and pharmacy is high as well as the proportion of females in medicine is increase gradually (Shin et al. 2010).

Employment Status of Female Doctorate Holders in Korea

According to the *2006–2009 Statistical Yearbook of Education*, the average employment rate for doctorate holders from 2006 to 2009 is 86.4 %. The gender gap stands at 3.2 percentage points, with 87.3 % for men and 84.1 % for women during the same period. The rate for men increased from 2006 to 2007 but then declined, while the rate for women displays a continuous decline until 2008 and then a little increase in 2009 (Fig. 4.3).

Different fields show varying levels of employment rates, as seen in Fig. 4.4. Fields with the highest employment rates of doctorate degree holders are (in descending order): education, medical sciences, art and sports, social sciences, humanities, natural sciences, and engineering. The same goes for females with doctor's degrees—employment is high in education, medical sciences, and art and sports, while lower for natural sciences and engineering.

Long-term planning on utilizing female doctoral degree holders is not possible without resolving the issue of job security. From analyzing the *2006–2009 Statistical*

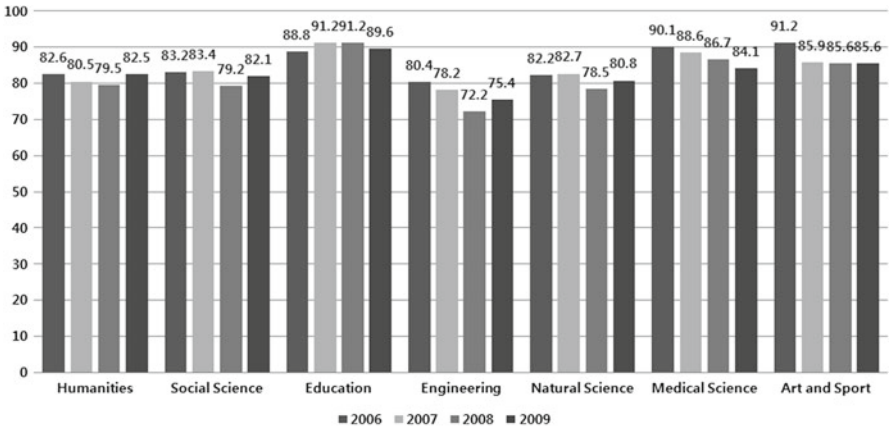

Fig. 4.4 Trends in employment rate of female doctorate degree holders by field of study, 2006–2009 (Source: Ministry of Education, Science, and Technology, Korean Educational Development Institute, *Statistical Yearbook of Education*)

Yearbook of Education, we learn that gender has a direct relationship with securing a permanent position (Jin 2005). The decline in the proportion of doctorate holders landing a full-time job is an overall trend but security is lower for women and they are less likely to get a permanent position than men. More female Ph.D.s work as part-time employees rather than becoming self-employed compared with male Ph.D.s, suggesting that job security may be a more critical issue for women. Table 4.1 shows the number of new doctorate receivers who obtained permanent positions. While an average of 70.6 % of male doctoral degree holders who got a job were employed full-time, the rate was much lower for women at 53.9 %. In 2009, in particular, the rate fell below 50 %, at 48.6 %.

The lower rate for women in full-time jobs is due in part to the larger proportion of women teaching part-time in universities after receiving their degrees. Table 4.2 shows that 29.1 % of new female doctorate degree holders in 2009 started their careers as part-time lecturers.

Next in line are professors, biotechnology researchers, and medical specialists. Women accounted for only 35 % (277 of 784) of professors in 2009. A large proportion of male Ph.D.s went on to teach part-time, but the number still stands at a relatively low 10.2 %. There are multiple factors that contribute to the concentration of female doctoral degree holders in part-time lecture positions, and one of them is that women face more difficulty in finding a job in the industries. This is in line with the fact that female engineering doctorate holders show the lowest employment rates. Jin's study (2005) found similar results—only 40 % of new doctorate receivers secured a full-time position and the remaining 60 % ended up getting part-time jobs such as instructors or were still searching for jobs. She found that men had a better chance of finding jobs, and those who graduated from a university in Seoul had a higher chance than those from a university outside Seoul.

Table 4.1 Employment percentage of new doctorate degree holders by employment type

	Male				Female				Total			
Year	Full-time	Part-time	Self-management	Total	Full-time	Part-time	Self-management	Total	Full-time	Part-time	Self-management	Total
2006	4,050	929	470	5,449	1,140	798	97	2,035	5,190	1,727	567	7,484
	(74.3)	(17.0)	(8.6)	(100.0)	(56.0)	(39.2)	(4.8)	(100.0)	(69.3)	(23.1)	(7.6)	(100.0)
2007	3,927	1,066	573	5,566	1,190	810	110	2,110	5,117	1,876	683	7,676
	(70.6)	(19.2)	(10.3)	(100.0)	(56.4)	(38.4)	(5.2)	(100.0)	(66.7)	(24.4)	(8.9)	(100.0)
2008	3,957	980	577	5,514	1,193	885	116	2,194	5,150	1,865	693	7,708
	(71.8)	(17.8)	(10.5)	(100.0)	(54.4)	(40.3)	(5.3)	(100.0)	(66.8)	(24.2)	(9.0)	(100.0)
2009	3,665	1,315	593	5,573	1,145	1,070	141	2,356	4,810	2,385	734	7,929
	(65.8)	(23.6)	(10.6)	(100.0)	(48.6)	(45.4)	(6.0)	(100.0)	(60.7)	(30.1)	(9.3)	(100.0)

Source: Ministry of Education, Science, and Technology, Korean Educational Development Institute, *Statistical Yearbook of Education* (2006, 2007, 2008, 2009)

Table 4.2 Employment fields of new doctorate degree holders (2009)

Male		Female	
Job	Person (%)	Job	Person (%)
Part-time lecturer at university	568 (10.2)	Part-time lecturer at university	685 (29.1)
Professor	507 (9.1)	Professor	277 (11.8)
Medical doctor	420 (7.5)	Researcher in biology sciences	163 (6.9)
Researcher in biology sciences	308 (5.5)	Medical doctor	136 (5.8)
Researcher in natural sciences	262 (4.7)	Researcher in natural sciences	85 (3.6)
Doctor of oriental medicine	238 (4.3)	Teacher in the secondary school	76 (3.2)
Dentist	221 (4.0)	Researcher in the social sciences	57 (2.4)
Researcher or expert of electronic engineering	168 (3.0)	Doctor of oriental medicine	57 (2.4)
Teacher in the secondary school	156 (2.8)	Dentist	56 (2.4)
Researcher or expert of mechanical engineering	154 (2.8)	Nurse	50 (2.1)
Researcher or expert of electric engineering	139 (2.5)	Public servant	38 (1.6)
Public servant	131 (2.4)	Elementary teacher	37 (1.6)
Researcher or expert of chemical engineering	118 (2.1)	Counselor or youth instructor	34 (1.4)
Civil engineering	110 (2.0)	Researcher of human sciences	31 (1.3)
High-ranking officers in company	92 (1.7)	General practitioner	29 (1.2)
Researcher in the social sciences	89 (1.6)	Educational manager	21 (0.9)
General practitioner	86 (1.5)	Coordinator of biologic sciences	21 (0.9)
Researcher or expert of metallurgy	68 (1.2)	School commissioner or educational specialist	19 (0.8)
Total	5,573	Total	2,356

Source: Ministry of Education, Science, and Technology, Korean Educational Development Institute, *Statistical Yearbook of Education*

Meanwhile, it is worth noting that more people are employed at the time of beginning their doctoral course. According to Shin et al. (2010), those who had a job when they started their doctoral studies tend to show higher employment rates after completing the course. According to the *2006–2009 Survey on the Employment of Higher Education Graduates* by Korea Educational Development Institute (2009), the proportion of doctorate holders who were employed at the point of entering the doctorate program grew by 14.2 percentage points from 16.9 % in 2006 to 31.1 % in 2009. The trend was evident for both genders—women from 12.8 % to 26.8 %, and men from 18.5 % to 33 % in the same period (Table 4.3). More choose to stay in the job as job security is low after attaining the degree.

Table 4.4 shows that references from professors, job search services in universities, and university websites were important channels for job attainment for both men and women. However, men secured jobs mainly through public hiring with university being a secondary source. Female doctorate holders used the university channel more as a great number of them turn into part-time instructors and most of those positions are filled by reference from professors or alumni.

Table 4.3 Employment rate at the point of entering the doctorate program

	Employment rate at the point of entering the doctorate program		Unemployment rate at the point of entering the doctorate program	
Year	Male	Female	Male	Female
2006	18.5	12.8	81.5	87.2
2007	25.6	22.6	74.4	77.4
2008	33.4	26.1	66.6	73.9
2009	33.0	26.8	67.0	73.2

Source: Ministry of Education, Science, and Technology, *Survey on the employment status of higher education graduates (2006–2009)*

Table 4.4 Job channel of new doctorate degree holders

		Person (%)	
Year	Job channel	Male	Female
2006	University channel	1,252 (23.0)	739 (36.3)
	Public hiring	2,485 (45.6)	764 (37.5)
	Recruitment agency	25 (0.5)	7 (0.3)
	Relative	29 (0.5)	16 (0.8)
	Self-management enterprise	640 (11.7)	138 (6.8)
	Website or broadcasting	134 (2.5)	67 (3.3)
	Miscellaneous	884 (16.2)	304 (14.9)
	Total	5,449 (100.0)	2,035 (100.0)
2007	University channel	1,362 (24.5)	794 (37.6)
	Public hiring	2,310 (41.5)	775 (36.7)
	Recruitment agency	33 (0.6)	6 (0.3)
	Relative	41 (0.7)	25 (1.2)
	Self-management enterprise	902 (16.2)	157 (7.4)
	Website or broadcasting	127 (2.3)	83 (3.9)
	Miscellaneous	791 (14.2)	270 (12.8)
	Total	5,566 (100.0)	2,110 (100.0)
2008	University channel	1,389 (25.2)	859 (39.2)
	Public hiring	2,266 (41.1)	757 (34.5)
	Recruitment agency	14 (0.3)	8 (0.4)
	Relative	50 (0.9)	24 (1.1)
	Self-management enterprise	878 (15.9)	168 (7.7)
	Website or broadcasting	164 (3.0)	84 (3.8)
	Miscellaneous	753 (13.7)	294 (13.4)
	Total	5,514 (100.0)	2,194 (100.0)
2009	University channel	1,402 (25.2)	971 (41.2)
	Public hiring	2,253 (40.4)	711 (30.2)
	Recruitment agency	18 (0.3)	6 (0.3)
	Relative	70 (1.3)	46 (2.0)
	Self-management enterprise	801 (14.4)	198 (8.4)
	Website or broadcasting	242 (4.3)	128 (5.4)
	Miscellaneous	787 (14.1)	296 (12.6)
	Total	5,573 (100.0)	2,356 (100.0)

Source: Ministry of Education, Science, and Technology, Korean Educational Development Institute, *Statistical Yearbook of Education (2006–2009)*

The *2009 Panel Research on Doctorate Holders* by Korea Research Institute for Vocational Education and Training looked into the match between the job and the education level received and the relevance between the actual work and the studies during the doctoral course. The results showed that 28.1 % of female and 26.3 % of male respondents replied that the jobs they were holding were below their education level.

While the number of available professor positions is on the decrease, a professorship is still one of the desired positions for doctoral degree holders. The study by Jin et al. (2000) found that 95 % of newly employed doctorate holders took the doctoral course with the goal of becoming a professor. However, another study by Jin (2005), which surveyed various job-seeking activities of Ph.D.s at home and abroad in the first 10 years following the completion of the course, showed that this number fell to 66.8 % in 2005. This clearly demonstrates that, in Korea, attaining a doctorate degree no longer automatically leads to becoming a professor.

The road to becoming a professor differs by field and track, but a doctorate degree is a prerequisite. The professor appointment process has three steps: application review, interview and job talk, and final interview. Like other labor markets, the market for professors has become more flexible with both tenure track (full-time lecturer, assistant professor, associate professor, professor) and non-tenure track. More universities are hiring professors through the non-tenure track in order to secure a certain proportion of full-time professors. Professors hired via the non-tenure track are less likely to be guaranteed tenures and face disadvantages in re-appointments and promotions regardless of their performance. They are also excluded from major decision-making in the department and university (Kim 2005).

The newspaper *Kyosu* surveyed a total of 134 universities and colleges, including 4-year universities, community colleges, graduate schools, and on-line universities, and found that 1,557 new professors were appointed in the first half of 2012. Of those newly appointed, 28.3 % were in social sciences, 18.2 % in medical sciences, 15.9 % in engineering, and 6.0 % in natural sciences (Kim 2012). Their average age was 41.6, 3 years older than the 38.6 in the first half of 2005. New professors in humanities colleges were the oldest with an average age of 44.2, followed by social sciences at 43.9, art and sports at 42.8, agriculture and fisheries at 41.5, and engineering at 41.2. The proportion of new female professors was increasing, but the growth was slow. The number was higher in 2004 due to the Female Professor Quota System in 2003 which mandated 200 female professor positions at national and public universities. The number has fallen since then and the 2007 global economic crisis hit the professor market and pulled down the numbers even further. However, the rapid increase in non-tenure track hiring has pushed up the proportion of new female professors since the late 2000s. Among 4-year universities, public universities fall behind private ones in terms of female professor growth rate with 13.6 % in 2000 and 19.5 % in 2011—still below 20 %.

Also, 43.2 % of newly appointed female professors (188 of 435) are in non-tenure positions compared with 38 % (407 of 1,071) of males, indicating the higher proportion of women in the non-tenure track (Kim 2012). This can also be confirmed by looking at the proportion of women by rank.

Table 4.5 Rate of female professors by ranking in 4-year universities

	2000	2005	2010	2011
Professor	11.8	12.4	8.6	13.2
Associate professor	12.5	14.5	13.1	19.2
Assistant professor	14	19.4	18.2	26.9
Full-time lecturer	22.6	29.5	26.3	37.1
Full-time total	13.6	16.1	19.0	19.5
Part time lecturer	36.3	41.6	36.6	47.9

Source: Ministry of Education, Science, and Technology, Korean Educational Development Institute, *Statistical Yearbook of Education* (2000, 2005, 2010, 2011)
Note: 4-year universities include teachers' college, industrial university, open university, university

Table 4.5 shows the fall in the proportion of women as the rank goes higher. The proportion of women in a part-time teaching role rose by 11.6 percentage points in a matter of a decade from 36.3 % in 2000 to 47.9 % in 2011. This can be called the "womanization" of the part-time instructor market. This trend is expected to continue as the job continues to be financially insecure and the gender gap persists in ranks. On the other hand, the proportion of women in assistant professor positions rose by 12.9 percentage points from 14 % to 26.9 % in the same period, suggesting that the gap may narrow in the future for associate professors and full professors as well.

Obstacles to Female Doctorate Holders' Labor Market Entry

As mentioned above, despite the small gender gap in employment rates, female doctorate degree holders are more concentrated in the part-time lecturing roles and in non-tenure professor positions. The various obstacles they face when they transition to the labor market are as follows.

First, women are less likely to have received career guidance before moving into the labor market. They do not know how to manage their career after gaining their degrees. This is in part due to few job-search programs. There is no program for job-searching during a graduate school—most universities focus on the job search for undergraduate students.

Also, professors have lower expectations of female students undertaking the doctorate course. The patriarchal structure in Korea continues to encourage beliefs that men are the breadwinners and women are the caregivers in a household (Lee and Chung 1999). This results in professors referring their male students when they come across a good opening, thinking that men need more secure jobs than women.

> Some may say I'm stupid, but I didn't know how to manage my career after receiving my degree. I started my doctoral course because I liked studying and doing research. I didn't really have a clear roadmap of my life. My academic advisor never brought up the matter of how to manage my career in the academic world after completing the course—maybe because I was a woman. *(Female Ph.D. no.1)*

Systematic career management can help women transition into the labor market. And the career guidance will be needed as soon as they select their major in college. In Korea, many students stay in the field of study they chose for undergraduate studies and continue studying the same major in master's and doctoral courses. Thus, the choice they make when entering university may determine their lifelong career. In this sense, they need to be provided with various opportunities to learn more about the reality of the majors so that they can make informed choices from a broad range of majors, including engineering.

The second obstacle for women when they transition to the labor market is that they suffer from lack of connections after they complete their course. Female doctorate holders tend to have fewer connections than their male counterparts (Jin 2005). Insufficient social networks mean lack of information, mentors, and access to resources and power. Although most open positions, including professor jobs, are filled through public competition, information about such positions and hiring plans is often shared through networks in advance. Men receive career management and recruitment information from their peers or seniors but women are less likely to do so. This, in turn, exposes women to fewer opportunities to publish papers, present at conferences, and access job opening information. The academic world values social status and reputation of scholars. The university one graduated from and the rank and reputation of an academic advisor of a student often override her or his personal accomplishments in a market for professionals (Long et al. 1993). This suggests that female candidates lacking connections are less likely to become a professor when competing with a male candidate with similar level of academic achievement (Long 1990, 2001; Kim and Kim 2003).

> Honestly, I think sexual discrimination is still there. It's not official, it is not intentional or personal. It's more of a gap in networking. The hiring process is perfectly open and transparent. But doctorate holders don't apply to any random positions. Usually they are either referred to by advisors or given information on opportunities that are available. And those who have connections are obviously more exposed to such information and women are weak on this front. I think the weakness in networking leads to unintentional and unofficial discrimination. *(Female Professor no.1)*

A third obstacle for women is that there is a discrimination factor in the practice of appointing professors. In Korea, objective indices like how good the applicant's thesis was and how relevant their major is to the open position are used to select candidates for the initial interview. Universities have processes in place to ensure fair screening of candidates and the process is open to applicants. The rules, however, do not necessarily lead to fairness in practice. Previous studies (Kim 2003; Kim and Kim 2003) found that even female candidates who successfully pass several stages of the evaluation process run into trouble in the final stage when they face the hiring committee consisting of men with prejudice towards traditional gender roles. They are asked questions that put women at a disadvantage: "What are you going to do with your kids?", "Can you go on business trips to other cities?", and "Can you work from universities outside Seoul?" These questions target candidates as women as opposed to them as professionals, and women as a group are victims regardless of their fields of study (Kim 2003).

> I went on to the final interview at several universities outside Seoul and I was at times asked, "What will you do with your kids?" or "Will you be okay with seeing your family only on weekends?" So I tell them, "No worries, my family will be moving with me." *(Female Ph.D. no.2)*

A fourth obstacle is that of stereotypes of women. There is prejudice that since women are responsible for taking care of family and children, they will be less committed to the job than men. This unfairly puts women on the defensive. As with other organizations, universities wish to hire someone who can get along with colleagues and is dedicated to the job, as a professor usually stays in the job for 20–30 years. Departments with a high proportion of male professors sometimes hesitate to hire women as they feel less comfortable accepting a female as their peer.

> Competence obviously matters. But personality is also a factor. How well that person can get along with existing members can and should be considered. *(Male Professor no.1)*

> When appointing a professor, I think we pick someone who can get along with us. There are more men in my department so we think a male candidate will fit in comfortably into our culture. But when it comes to a female candidate we don't know what will happen—it may depend on her personality, her husband's job or location may become a factor, so we're uneasy about it. *(Male Professor no.2)*

A fifth obstacle for female doctorate holders seeking jobs, including professor positions, is the double burden of housework and childcare. They have to juggle more work than men as they need to balance housework and childrearing with career development. This reduces the time they can spend on writing theses, working on projects, attending conferences, and other academic work. As a result, they may produce less impressive results and may get excluded from various research opportunities.

> I had a child in the middle of writing my doctoral thesis and it was not easy to get back on track after that. A year or two just flew by … Handling two things at once really stresses you out. And in the meantime I had to just watch my male peers building their careers step by step. *(Female Professor no.2)*

Housework and childcare continue to burden women even after they become a professor. And not just in Korea—marriage and childrearing hinder female professors from climbing the academic ladder in the US as well (Wolfinger et al. 2008). The Professor Evaluation System is now criticized as outdated as it was created when the majority of professors were men with stay-at-home wives (Wilson 2001). Male professors are supported by wives taking care of the household and can therefore concentrate on their academic work. But female professors, especially married ones, need to juggle both work and family. This forces women to choose between overworking themselves or giving up a part of their life as a woman and ending up marginalized as single or childless (Kim 2003).

Finally, a sixth obstacle is that even the labor market for the highly-educated is split by gender. The relatively low employment rate and higher proportion of part-time instructors and non-tenure professors among female doctorate holders is part of a larger issue of women suffering from being pushed into temporary jobs in job markets.

Conclusion and Proposal

This study looked into the current status of female doctoral degree holders and their employment and analyzed the obstacles they encounter in the process of entering the labor market. The results show a dramatic increase in the number of female Ph.D.s after 2000. As of 2011, females comprise 31.8 % of all new doctorate holders. Another phenomenon to note is that the growth rate in the number of women receiving doctorate degrees is higher overseas than in-country. The rates were higher in the fields of education, humanities, art and sports, medical sciences, and natural sciences. When looking at female doctorate holders as a group, the most popular fields were medical sciences, natural sciences, and social sciences.

In terms of employment status, doctoral degree holders face limitations in the type and number of jobs they can secure. Difficulty in the early transition stage affected the working conditions later on. Employment rates for women were 2–3 percentage points lower than for men and, further, they were more concentrated in temporary jobs and education services such as part-time lecturing. While only 10.2 % of male doctorate holders were part-time lecturers, the number was 29.1 % for females. Universities and public openings were the major source of employment for women. As receiving a doctorate no longer guarantees a professor position, women choose to take the double track of work and study. In addition to the traditional path of "bachelor's course – master's course – doctoral course – employment," a career development pattern of "bachelor's course – (employment) – master's course – employment – doctoral course – employment" has surfaced, displaying a combination of work and study. The rise in the number of people taking this path shows that doctorate holders are strategically dealing with the unfavorable labor market conditions. Although the proportion of women in the professor community is gradually increasing, a point that cannot be overlooked is that the proportion of women in the non-tenure track is much higher than that of men.

Obstacles female doctorate holders face when they transition to the job market are lack of strategic career development, shortage of information due to small networks, and limited access to resources and power. Discriminative hiring practices and prejudice against women add to their hardship. Furthermore, the double burden of housework and childcare hinders their efforts not only when getting into their jobs but throughout their career.

The problems female doctorate holders experience when they transition to the education-labor market should not be seen as just a matter of lack of individual capability. For a smooth transition, extensive career development support is needed in the nurturing stages of female Ph.D.s. They need various opportunities to utilize their expertise outside the walls of universities. As mentioned above, the "doctorate degree = professor" equation no longer holds true. In order to help doctoral degree holders find diverse career paths, career search programs, career development programs, and job information need to be provided from when they start their doctoral courses. In addition, the degree program should not be used as a way to delay entering the job market. The 1997 economic crisis in Korea drove many

students to continue on to graduate courses just because they could not find a job. Doctoral courses should not be chosen as a plan-B for those who have no other career options. Given the fact that job opportunities are less than plenty for doctorate holders, investing time and money may lead to waste not only for the individual but for society as a whole. Quality career development programs are required not only for undergraduate but also for graduate students. The university culture, for its part, needs to move in the direction of more gender equality, and professors involved in hiring need to be educated in gender equality training.

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Chapter 5
Educational Expansion and Labor Market Entry of New Graduates in Korea and Japan

Shin Arita

Introduction

During the last couple of decades, Republic of Korea has experienced an explosive expansion in the number of students seeking higher education. This phenomenon is attributed to several possible factors, including the South Korean government's relaxation of enrollment limits for higher education. Until recently, the South Korean government had rigidly controlled the enrollment at both public and private universities.

Another factor is that students and their parents in Republic of Korea place a tremendous significance on obtaining a college degree. The desire for educational achievement in Republic of Korea is not solely based on the possible economic benefits of higher education; there is a great deal of importance placed on taking up a prestigious occupation (Lett 1998; Arita 2006). Because there have been remarkably wide differences in prestige among occupations in Korea as compared with that in other countries (Lee and Kim 1966; Chang et al. 2007), the aspirations to take up prestigious occupations, usually assumed to be white-collar jobs, have also correspondingly increased. The idea that college degrees are required for white-collar work, in addition to the cultural value associated with these jobs, has produced a strong desire for higher education in Republic of Korea.

One possible consequence of the increase in the workers with a college or junior college degree could be the inability of workplaces to provide the expected occupational rewards of higher education. If the availability of prestigious white-collar

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An earlier paper on this subject appeared in Japanese as Arita (2011). This chapter is a different paper with much focus on the case of Korea and theoretical in-depth analysis, while the earlier paper widely explored the cases of East Asian countries from a rather descriptive perspective. The research was supported by Grant-in-Aids for Young Scientists and Scientific Research (B) from the Japan Society for the Promotion of Science and by the Abe Fellowship from the Center of Global Partnership and the Social Science Research Council.

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jobs is insufficient to meet this increase, it may make the transition from school to work more difficult and could possibly lead to youth unemployment. On the other hand, if the availability of white-collar jobs does keep pace with the increase in college graduates, the already high desire for college degrees will escalate, maintaining or further exacerbating the already severe competition for entrance into colleges.

This study empirically examines how a college degree has affected occupational status and how the effects have changed in the current environment of Republic of Korea. The author also explores how the labor market has reacted to the rapid changes in the educational composition of the workforce. In addition, the function of academic careers and school credentials in Republic of Korea's labor market is examined.

Data from both Republic of Korea and Japan was compared in this study, because it is expected that we can clearly depict the features of the educational systems and labor markets of Republic of Korea by comparing them with those of Japan thanks to their overall similarities and subtle differences. These two countries share many social similarities with regard to industrialization patterns and institutional and cultural conditions. Furthermore, both countries are regarded as "school credential societies," where people have high educational aspirations. These similarities make it possible to compare these two countries without being seriously worried by the lack of comparability brought about by the fundamental difference in the contexts. Meanwhile, the two countries have subtle differences with regard to their educational systems and labor market practices, which enable us to understand what the original features of each society are through the comparison.

Background

Educational Expansion in Republic of Korea

The educational system in Republic of Korea is similar to that found in Japan or the US: it is a single-tracked "6-3-3-4" school system. There are 9 years of compulsory education and 3 years of high school. These are followed by 4 years at a university, or 2–3 years of junior vocational college. High schools can be focused on either academics or vocational training; however, many graduates of vocational high schools have recently demonstrated a tendency toward attending academic universities, as will be shown in Table 5.2.[1]

[1] In Republic of Korea, most students aspire to obtain white-collar jobs because of the wide gap in the occupational prestige between white-collar and blue-collar jobs (Arita 2005, 2006). A considerable number of students, in fact, attend vocational high schools not because they hope to receive vocational training for manual occupations but because they treat these classes as a way to make up for not being able to advance to academic high schools, which would have been a far better path to higher education and white-collar jobs. Therefore, when the enrollment policies for higher education are relaxed, there occurs a rapid increase in the number of vocational high school students

Table 5.1 School enrollment ratio in Republic of Korea

	1965 (%)	1970 (%)	1975 (%)	1980 (%)	1985 (%)	1990 (%)	1995 (%)	2000 (%)
Elementary school	97.7	100.7	105.0	102.9	99.9	101.7	100.1	98.7
Junior high school	41.4	51.2	71.9	95.1	100.1	98.2	101.6	99.5
High school	26.4	28.1	41.0	63.5	79.5	88.0	91.8	95.6

Source: Social Indicators in Republic of Korea, various years

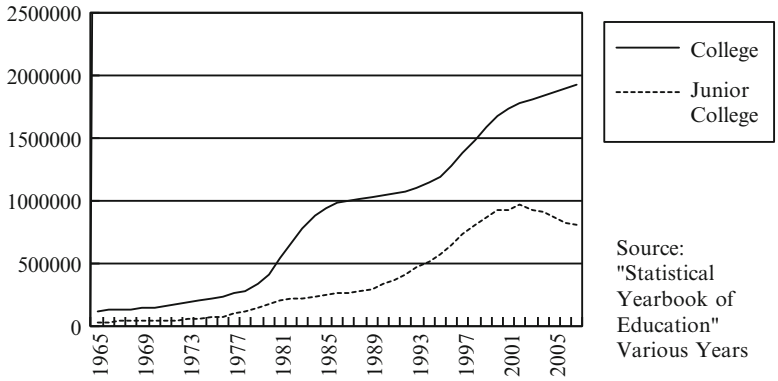

Fig. 5.1 Enrollment in higher education in Republic of Korea

Republic of Korea's school system has experienced an extremely rapid expansion since the country's liberation from Japan. Elementary education became available to all citizens during the 1950s, although per capita GDP was roughly 100 USD at that time. Junior high school followed in the 1960s, and high school became universalized in the 1970s as shown in Table 5.1.

Higher education also expanded rapidly, though the speed of the increase has varied over the years. Figure 5.1 and Table 5.2 show that enrollment in higher education rapidly increased during the early 1980s and again experienced a steep rise in the mid-1990s after the stagnation in the previous decade. The rate of expansion of higher education fluctuated because enrollment was rigidly controlled by the government and the enrollment policies had been changed several times in Republic of Korea; the old enrollment policies were relaxed around 1980, and again in the mid-1990s (Yun et al. 1996).

The higher education rate in Japan has also increased continuously over the last several decades as Fig. 5.2 shows. Further, although the speed of the increase has varied over the years, the extent of that variation is not as great in Republic of

who aspire to attend higher education. In addition, there is no restriction on vocational high school graduates from entering the academic universities in Republic of Korea.

Table 5.2 Advancement rates of high school graduates in Republic of Korea and Japan

		1965 (%)	1970 (%)	1975 (%)	1980 (%)	1985 (%)	1990 (%)	1995 (%)	2000 (%)	2005 (%)	2010 (%)
Republic of Korea	Total	28.9	26.9	25.8	27.3	36.4	33.2	51.4	68.0	82.1	79.0
	Academic	38.6	40.2	41.5	39.2	53.8	47.2	72.8	83.9	88.3	81.5
	Vocational	14.9	9.6	8.8	11.4	13.3	8.3	19.2	42.0	67.6	71.1
Japan	Total	25.4	24.2	34.2	31.9	30.5	30.5	37.5	45.1	47.2	54.3
	Academic	37.5	35.7	46.3	42.2	39.3	37.7	45.5	53.3	55.4	63.1
	Vocational	7.7	7.2	14.5	9.6	8.8	8.3	11.5	17.1	19.4	30.9

Source: Statistical Yearbook of Education (Korea), *Report on School Basic Survey* (Japan), various years

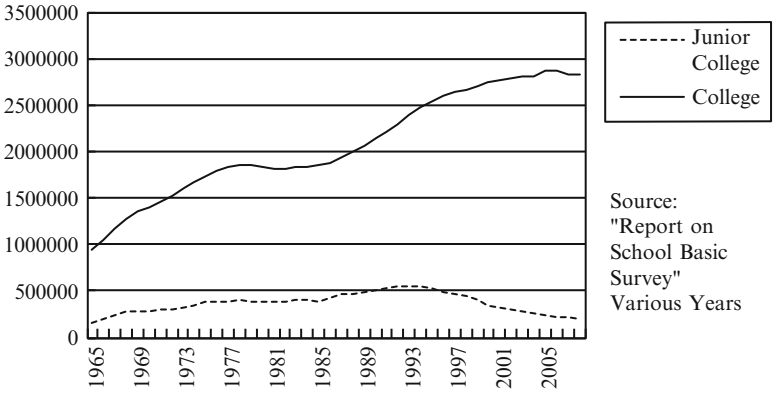

Fig. 5.2 Enrollment in higher education in Japan

Korea. This is because the enrollment controls on higher education imposed by the Japanese government were less rigid than those in Republic of Korea.

As described thus far, higher education has been expanded with different speeds in various periods due to institutional factors such as changes in the enrollment policy in Republic of Korea and Japan. Enrollment increases have consequently brought about an increase in the number of graduates, who are entering the labor market with college and junior college degrees after a lapse of several years. It is quite intriguing to investigate how employment opportunities and wages for new college graduates have changed (or have not changed) as a result of the expansion of higher education. An examination of the labor market's response to changes in the educational composition of the workforce allows us to understand how academic careers and school credentials function in the society. It also shows us how the educational expansion could affect educational aspirations through changes in the expected occupational and monetary rewards. This study focuses on these issues during the period after the mid-1990s.

Simultaneous Recruiting of New Graduates in Japan and Korea

Simultaneous recruiting of new graduates is a unique employment custom among firms, especially large firms, in Japan and Korea. Firms with this tradition concurrently hire new high school and university students just after graduation.[2] Students begin searching for employment and receive formal job offers from several months to 1 year before graduation, which makes it possible for new graduates to begin work immediately.

In addition, the implementation of this custom involves a few other features. First, the hiring process of new graduates is totally separated from that of other job applicants who have already started to work and hope to change jobs. Only new graduates or those who have graduated within the previous few years can apply for entry-level jobs, which are reserved for new workers. Therefore, new graduates do not compete with experienced workers when looking for employment, although these groups are potentially antagonistic, since the number of jobs assigned to new workers depends on the number that remain for those with job experience.

Second, jobs assigned to new graduates at the moment of hiring are not so functionally diversified. They are sometimes differentiated only as "clerical" and "technical" jobs. This lack of occupational differentiation can be attributed to the strong internal labor markets of Japanese and Korean firms. Firms, especially large firms, provide new employees with long-term, on-the-job training, including job rotation, and assign them to positions according to the aptitude that they demonstrate in the training process.[3] However, jobs for new graduates are diversified in terms of occupational function and hierarchical order, based on the educational background of graduates: most jobs assigned to college graduates are white-collar positions, while those of high school graduates involve blue-collar work.

The institutional conditions mentioned above make the transition from school to work of college graduates in Japan and Korea somewhat different from that in Western countries. In both countries, the jobs of new graduates depend on what jobs are assigned to them by firms every year. In addition, the competition for good jobs involves only those in the same age cohort, and new college graduates compete not only for obtaining the white-collar jobs set aside for them but also for winning employment in large firms, which generally offer employment stability, training opportunities, and high rewards. As a result, the competition among new college graduates for good jobs resembles the competition among high school graduates to pass the entrance examinations of prestigious universities in these countries.

The rapid increase in new college graduates may have tremendous effects on job opportunities and wages in Japan and Korea, where the labor market for new graduates is institutionally separated from that for other workers. In the empirical

[2] Firms usually hire new college graduates only once a year in Japan and twice in Korea.

[3] However, Korean firms are gradually losing their ability to give long-term training opportunities to new employees due to the severe business environment following the economic crisis that happened at the end of the 1990s.

examination of the following sections, we need to take into consideration these institutional conditions of the labor market entry of new graduates in both countries.

Research Literature on the Results of Educational Expansion

Theoretical Framework and Previous Research

What effect does the rapid expansion of higher education have on the employment opportunities and wages of those with college degrees? What is its effect on those without higher education? If we postulate that the industrial structure will not be changed by extrinsic factors, then the answer to these questions may differ depending on how wages and amounts of employment are adjusted to changes in the workforce composition. An additional factor to consider is the function of an academic career when determining occupation and wages.

If we consider neoclassical economics, which proposes the flexible adjustment of wages and amounts of employment in a labor market, any increase in new graduates can be easily absorbed into the market in exchange for a decrease in their wages. If this is the case, despite shifts in the educational composition of new entrants to the labor market, the occupational distribution will not change in the short and medium term. The occupational opportunities enabled by higher education will remain the same, because new graduates can get jobs that are appropriate for their occupational skills[4]; however, they will be subject to decreased wages. Thus, the monetary returns of higher education will obviously decline, because of the decrease in wage differences between those with and without higher education.

On the other hand, if we consider a labor market model such as the one proposed by Thurow (1975), which emphasizes the stability of employment structures and fixed-wage levels for each job, the flexible adjustment of wages and employment will not occur as a reaction to an increased number of graduates. Instead, employers will react by elevating the hiring standards of well-paying jobs. Based on Thurow's job competition model, employers always prefer workers with higher education when filling vacant positions in a company. In this model, educational credentials are used as a hiring standard for screening potential ability or "trainability" of workers, rather than specific skills or knowledge related to performing a job. As a result, "employers would substitute college workers for high-school laborers in what had been the best high-school jobs" (Thurow 1975, p. 116) because college graduates are regarded as having higher potential ability or trainability than high school graduates. This scenario would imply that the occupational status of high school graduates will greatly decrease, while that of college graduates will also decrease on average. Therefore,

[4] Neoclassical economics assumes that occupational skills are to be cultivated through school education (Becker 1964).

changes in occupational or monetary returns made possible by higher education will not be uniquely decided as a result of educational expansion.[5]

Park (1982, 1983) applied a similar framework to the case of Republic of Korea and examined labor market behavior in reaction to the changes in the educational composition of the workforce. Through an analysis of wages and the occupations of graduates, Park supported the hypothesis that quantitative adjustments, such as elevating hiring standards, are more predominant than wage adjustments in the labor market. Park's work examined Republic of Korea during the 1960s and 1970s; thus, it did not cover the 1980s, when Republic of Korea experienced unprecedented expansion in higher education.

The author also examined changes in the monetary and occupational rewards of South Korean college graduates during the 1980s and early 1990s (Arita 2006). This revealed that, during the 1980s, the wage gap between high school and college graduates shrank as new college graduates entered the labor market in greater numbers than ever before.[6] New graduates with tertiary education could still acquire white-collar jobs, which are assumed to be appropriate for college graduates in Korea, at relatively higher rates; however, newly graduated high school students suffered from a decrease in the number of white-collar jobs available to them. This resulted in a relative increase in the occupational returns of higher education.

Sandefur and Park (2007) examined changes in the effects of educational qualifications on occupational attainment in Republic of Korea. Through the analysis of the occupational prestige scores and the odds of entering an occupational class, they showed that despite the dramatic expansion of the educational system, the effects of college and junior college degrees on occupational status of their first job have not declined for men, while they have considerably decreased for women. They attribute these results to the occupational sex segregation in the Korean labor markets. This segregation allows male workers to be protected from the depreciation of their qualifications, while female workers have to compete for a limited number of high-skilled jobs reserved for women, which has resulted in many highly educated women being forced into low-status jobs (Sandefur and Park 2007).

Chang (2008) also examined changes in the effects of education on occupational status. He asserts that the advantage of tertiary education in obtaining more prestigious white-collar jobs has increased for men during the 1990s, despite the rapid expansion in the number of college graduates during that period.

Research Questions

Although recent sophisticated studies that apply statistical models to individual data from social surveys, such as the last two studies mentioned above, have been greatly

[5] However, the average wage of college graduates and that of high school graduates will decline compared with the average wage of all workers.

[6] The wage structure was easily altered due to the large labor-management disputes that occurred during this period.

useful, macroscopic changes in the relationship between each academic degree and occupational status have remained unexamined because multivariate analysis of individual data can measure only relative effects of a particular academic degree compared with another degree assumed as a reference in occupational attainment. It is true that these studies can minutely explore changes in the effects of education on occupational status, as well as other rewards in the labor market. However, even if the multivariate analysis showed that the effects of a college degree compared with that of a high school degree have been unchanged, we cannot determine whether there were no changes in the job distribution of both college and high school graduates or whether both college and high school graduates were concurrently pushed into low-status jobs.[7]

Therefore, this study carefully explored changes in the relationship between academic degrees and occupational status from a macro perspective. Such changes are regarded as a reaction of the labor market to the increases in tertiary education. Through this examination, we can understand the structural factors that affect occupational or monetary return of higher education in Republic of Korea.

This study focused on the effect that the rapid expansion of higher education after the mid-1990s has had on occupational opportunities for new graduates. This was done from a macro perspective, analyzing the collective data obtained from government statistics. We also examined the relationship between educational credentials and occupational opportunities in Republic of Korea and compared it with that in Japan.

Data and Methods

We analyzed the collective data obtained from government statistics in order to understand how the Korean labor market has reacted to the rapid changes in the educational composition of the workforce from a structural perspective. The general similarities in the government statistics in Korea and Japan make it possible to compare these two societies in a rigorous manner.

We then examined what changes occurred in the occupational composition of college graduates and high school graduates when a greatly increased number of new college graduates entered the labor market. Both Korean and Japanese governments conduct an annual census survey on employment and occupation of new graduates by obtaining information from all schools in the nation.[8] We can analyze the changes in occupational opportunities of graduates who entered the labor market immediately after graduation in both countries by analyzing the school census survey data.

[7] This also holds even when we use one's years in school as a metric variable, instead of dummy variables.

[8] They are published as *Annual Report on Educational Survey* in Korea and *Report on School Basic Survey* in Japan.

We also investigated changes in the occupational opportunities of the workers, mainly middle-aged workers, who have already entered the labor market. We did this by analyzing the population census survey data. The population census survey is conducted every 5 years in Republic of Korea and Japan, and it collects accurate data on the number of workers by occupation and age. From the data, we can detect changes in occupational opportunities of the target age cohort during the period when a large number of new college graduates were supplied to the labor market.

In the following analysis, we have focused on the opportunities of white-collar employment, which are regarded as being appropriate for college graduates in both countries. We define white-collar occupations as those comprising managerial, professional, semi-professional, technical, and clerical work. Clerical work in Republic of Korea is considered to be training for future managerial positions; thus, college education is a prerequisite for clerical jobs (Sandefur and Park 2007). This is also true in Japan (Ishida 1998). The analysis will consider the changes occurring during the period after the mid-1990s,[9] when a large number of college workers were supplied to the labor market.

Occupational Opportunities for New Graduates

Figure 5.3 shows the numbers of new graduates from high school, junior college, and college of Republic of Korea who obtained employment between the years 1993–2007. While the number of high school graduates who opted for employment instead of entering higher education has decreased dramatically over this period, the number of graduates who entered employment with a junior college degree is found to

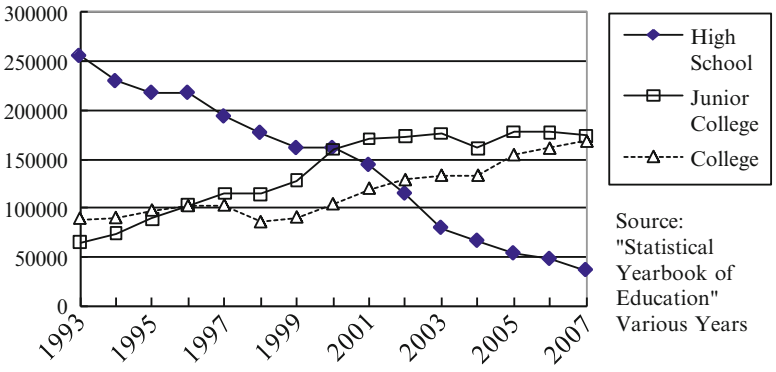

Fig. 5.3 Number of new graduates who entered employment in Republic of Korea

[9] It is difficult to detect occupational changes during the first half of the 1990s in Republic of Korea because of the alteration to the Korean Standard Classification of Occupations in 1992.

Table 5.3 Occupational composition of new graduates who entered employment in Korea

Male		1995 (%)	2000 (%)	2005 (%)
High school	White-collar	16.4	23.1	13.2
	Gray-collar	8.7	13.7	18.3
	Blue-collar	75.0	63.1	68.5
Junior college	White-collar	69.4	62.2	52.4
	Gray-collar	12.8	15.1	10.6
	Blue-collar	17.8	22.8	37.1
	Employment rate	70.9	78.2	82.6
College	White-collar	87.9	89.1	87.3
	Gray-collar	7.3	6.7	4.5
	Blue-collar	4.8	4.2	8.2
	Employment rate	50.0	53.4	62.3
Female		1995 (%)	2000 (%)	2005 (%)
High school	White-collar	67.2	54.4	32.0
	Gray-collar	16.2	21.7	27.0
	Blue-collar	16.6	23.8	41.0
Junior college	White-collar	77.1	78.0	78.7
	Gray-collar	17.2	15.9	15.5
	Blue-collar	5.7	6.0	5.8
	Employment rate	79.3	81.0	84.6
College	White-collar	86.2	89.5	92.8
	Gray-collar	11.0	7.9	5.1
	Blue-collar	2.9	2.6	2.1
	Employment rate	69.2	58.6	67.7

Source: Statistical Yearbook of Education, various years

have increased twofold since the mid-1990s. A similar twofold increase was noted among college graduates at the end of the 1990s.

What occupational opportunities could new graduates have access to after graduation? Could they obtain white-collar jobs at the same rate as the previous cohort? Table 5.3 shows the occupational composition and employment rate[10] of Korean new graduates by gender. It shows that the rate of new college graduates obtaining white-collar jobs has remained largely unchanged at around 90 % for males and has even increased for females, despite a spike in the number of college graduates during the period. The same rate for female junior college graduates has also remained unchanged. However, the rate of those who obtained white-collar jobs has declined for male junior college graduates and high school graduates of both genders. It can be assumed that college graduates and female junior college graduates today can obtain white-collar jobs at the same rate as previous college graduates by "pushing out" the less educated new graduates to other occupations.

[10] The employment rate is calculated by dividing the number of new graduates who entered employment immediately after graduation by the number of all new graduates, except for those who advanced onto higher education or enlisted for the army.

Table 5.4 Occupational composition of new graduates who entered employment in Japan

Male		1990 (%)	1995 (%)	2000 (%)	2005 (%)
High school	White-collar	14.9	10.5	8.3	7.4
	Gray-collar	29.8	30.6	30.5	28.3
	Blue-collar	55.3	58.9	61.2	64.3
Junior college	White-collar	74.6	66.1	66.4	69.0
	Gray-collar	14.3	20.1	19.6	12.7
	Blue-collar	11.1	13.8	14.0	18.3
	Employment rate	88.3	75.1	63.7	74.7
College	White-collar	75.5	67.8	66.8	61.0
	Gray-collar	24.2	31.7	32.8	38.0
	Blue-collar	0.2	0.5	0.4	1.0
	Employment rate	88.1	77.2	63.3	66.6
Female		1990 (%)	1995 (%)	2000 (%)	2005 (%)
High school	White-collar	49.1	36.4	29.8	29.0
	Gray-collar	34.9	44.6	48.0	48.4
	Blue-collar	16.0	19.0	22.2	22.6
Junior college	White-collar	89.3	83.0	80.0	82.5
	Gray-collar	10.4	16.5	19.4	16.9
	Blue-collar	0.3	0.5	0.6	0.6
	Employment rate	90.4	69.7	62.7	74.5
College	White-collar	88.1	81.4	76.7	74.0
	Gray-collar	11.9	18.4	23.1	25.8
	Blue-collar	0.0	0.1	0.2	0.2
	Employment rate	83.9	67.8	61.3	69.4

Source: Report on School Basic Survey, various years

Japan provides a stark contrast to Republic of Korea's case. As a result of the relative increase in college graduates, it is becoming increasingly difficult for new college graduates to obtain white-collar jobs. Table 5.4 shows that the rate of college graduates obtaining white-collar jobs has declined from 75.5 % to 61.0 % for males, and from 88.1 % to 74.0 % for females, between1990 and 2005. This was also the case for junior college and high school graduates during the same period in Japan. Moreover, finding even a basic form of employment has become more difficult for new college graduates, as evinced by the general decline in their employment rates.[11]

Table 5.5 shows the actual numbers of new graduates who obtained white-collar jobs in Japan and Republic of Korea between 1990 and 2005. As anticipated, the number of white-collar jobs in Republic of Korea for college and junior college graduates increased over the same period that saw an increase in the number of new

[11] Even so, the employment rate of new college graduates is higher in Japan than in Republic of Korea. This can be attributed to the well-established practice of simultaneous recruiting of new graduates, which is inextricably linked to the internal labor market in Japan. By contrast to this, previous years' graduates are allowed to apply for entry-level employment in Korea. That is why a lot of new graduates continue job-hunting rather than immediately enter employment after graduation.

Table 5.5 White-collar employment for new graduates in Republic of Korea and Japan

Republic of Korea	1990	1995	2000	2005
High school	–	94,575	65,162	12,544
Junior college	–	65,182	113,088	117,618
College	–	80,953	89,444	135,522
Total	–	240,710	267,694	265,684
Japan	1990	1995	2000	2005
High school	200,450	90,030	43,505	33,972
Junior college	165,118	135,187	81,997	58,837
College	254,087	232,161	205,539	214,549
Total	619,655	457,378	331,041	307,358

Source: Statistical Yearbook of Education (Korea), *Report on School Basic Survey (Japan)*, various years

Remark: Figures for Republic of Korea in 1990 cannot be shown due to the change in the Korean Standard Classification of Occupations

college graduates.[12] Moreover, the total number of white-collar jobs available to new high school, junior college, and college graduates in Republic of Korea increased, albeit slightly, following the expansion of higher education. Conversely, the number of white-collar jobs available to a new graduate has considerably decreased in Japan.

What factors explain the difference between these two countries? Japan could attribute this phenomenon to the protracted recession after the collapse of the economic bubble; however, it is difficult to say that economic conditions were much better in Republic of Korea in the same period. Republic of Korea suffered from its own serious economic crisis and struggled through many years of economic depression.

It is possible that South Korean college graduates have been smoothly absorbed into white-collar jobs in exchange for—as conventional economics would suggest—a decline in wages; however, the ratio of the average wage of college graduates in their twenties to the average wage of high school graduates in the same age group has remained almost unchanged or even undergone an increase throughout the decade (Ministry of Labor, *Survey Report on Wage Structure*, various years). The evidence suggests that we should reject the possibility of smooth absorption that is facilitated by wage decline.

How Could New College Graduates Be Smoothly Absorbed in Republic of Korea?

From the above analysis, we can conclude that the increase in college graduates has been absorbed into the white-collar workforce relatively smoothly in Republic of Korea, though the expansion of higher education was more rapid there than in

[12]The pattern of increase by periods seems to be similar to that of the increase in new graduates witnessed in Fig. 5.3. The number of white-collar jobs for new junior college graduates had increased remarkably in the latter half of the 1990s, while those for new college graduates had increased during the first half of the 2000s.

Japan. But it still remains unclear why the absorption was possible in Republic of Korea, while Japan did not obtain similar results. Some scholars attribute the reason to a pervasive, skill-biased technical change that demands workers of a higher caliber. However, this is a rather ad hoc explanation for sociologists, because "we do not know how to measure demand for the different qualifications in a manner that is truly independent of their supply" (Müller and Shavit 1998, p. 8).

Before totally relying on such ambiguous factors, we examined the possibility of a transition of occupational opportunities among generations. Some actually claim that young people now suffer from employment difficulties because middle-aged people are staying in their jobs for longer in Republic of Korea and Japan (Genda 2001; Woo and Park 2007). If we apply this argument to the issue of new graduates seeking white-collar jobs, we should focus on the substitutive relationship between the young and the middle-aged components of the workforce. Were there any changes to the occupational composition of middle-aged workers who had already entered labor markets during the period when new college graduates flooded the market?

In order to determine this, we examined net change to employment in white-collar jobs, as well as employment in all occupations, for age cohorts. Data of the population census that was conducted every 5 years was used to examine changes for 5 years. Employment rates for all occupations were expected to decrease for the middle-aged cohort, because they gradually exit from the labor market. All other conditions being equal, the rate of decrease in white-collar jobs, which are generally well-paying, should be relatively smaller than that for all occupations, because a well-paying job serves as an incentive to continue to work in a decision of whether to retire or not. If the rate of decrease in white-collar jobs is greater than that of all occupations for an age cohort younger than the official retirement age, which is generally around 60 for both Republic of Korea and Japan, it can be interpreted that there happens a considerable loss of opportunity for white-collar jobs in the age cohort.[13]

We first explored the net changes in employment by age cohort and gender in Japan. These results are shown in Table 5.6. The change ratios for males in white-collar professions for cohorts of thirties, forties, and early fifties are not only above the average change ratio for all occupations (i.e., relative increase), but also above 100 % (i.e., absolute increase). The only period that this is not the case is during the latter half of the 1990s. During this time period, numerous firms experienced corporate downsizing due to the recession.

This result demonstrates that there is a certain amount of occupational mobility from gray- or blue-collar jobs to white-collar jobs in a middle-aged cohort.[14] Middle-aged cohorts experienced an absolute increase in white-collar job opportunities during the very period when new graduates were declined white-collar jobs in Japan. This contrast can be attributed to institutional factors, such as a firm internal labor market and career-long employment practice, which are known as pillars of the Japanese employment system.

[13] This may be caused by increased retirement of white-collar workers and also by occupational mobility from white-collar jobs to other jobs.

[14] This may have come in the form of a promotion to a manager from a previous position as a gray- or blue-collar worker.

Table 5.6 Changes in employment for age cohorts for 5 years in Japan

	1990–1995 (%)		1995–2000 (%)		2000–2005 (%)	
Age	White collar	All occupations	White collar	All occupations	White collar	All occupations
Male						
25–29	163.1	127.6	160.7	121.4	184.5	119.7
30–34	104.7	101.1	103.7	98.2	104.4	94.1
35–39	104.1	99.7	100.5	97.1	103.0	94.1
40–44	104.9	98.8	98.4	96.8	103.6	95.5
45–49	103.7	98.1	*94.5*	95.6	101.4	95.3
50–54	101.8	96.6	*91.2*	94.1	101.6	94.9
55–59	96.1	93.5	*86.2*	90.7	98.3	93.6
60–64	*68.3*	73.5	*58.3*	67.5	*67.3*	73.7
Total	105.3	103.4	94.3	96.1	100.3	95.3
Female						
25–29	*85.1*	86.3	95.4	93.2	110.7	97.6
30–34	*76.2*	86.9	*78.3*	86.1	*82.4*	85.5
35–39	*109.4*	117.1	*105.5*	113.5	*102.9*	107.6
40–44	*112.1*	112.7	*111.1*	114.9	*114.1*	115.5
45–49	*102.2*	102.5	*99.6*	103.0	*105.1*	106.4
50–54	*92.0*	93.7	*89.5*	94.0	*94.4*	97.6
55–59	*83.4*	86.7	*80.0*	85.8	*86.3*	91.1
60–64	*65.8*	72.8	*58.8*	67.0	*62.7*	71.2
Total	109.8	104.7	102.0	99.9	102.7	100.0

Source: Report on Population Census, various years
Remarks: "Age" is that at the latter of two time points compared; italic figures show relative decrease of white-collar employment for the age cohort

The results for female workers are rather difficult to interpret. Total employment and white-collar employment for cohorts of late thirties and forties increased due to the M-shape pattern in labor force participation rates of Japanese women. Nonetheless, there is a relative decrease in white-collar employment for all middle-aged cohorts. This indicates that white-collar employment for middle-aged female workers shrank in contrast with that for male workers.

In Republic of Korea's case (Table 5.7), the change ratio for white-collar employment for middle-aged cohorts is generally lower than that of Japan for males. Furthermore, there was a relative decrease in white-collar employment for middle-aged cohorts; this is especially true during the first half of the 2000s. White-collar jobs for Korean middle-aged male cohorts declined during the period when there occurred a large influx of new college graduates to the labor market.

In absolute terms, there was a decrease of 263,000 white-collar jobs among the male cohorts aged 35–59 during the first half of the 2000s. This figure is equivalent to more than one third of the increase in the number of white-collar jobs, 717,000, for the younger male cohorts during the period. If the South Korean middle-aged group showed the same persistence to white-collar employment as Japan's middle-aged group, then the white-collar job increases for the younger groups might not be as large.

Table 5.7 Changes in employment for age cohorts for 5 years in Republic of Korea

	1995–2000 (%)		2000–2005 (%)	
Age	White collar	All occupations	White collar	All occupations
Male				
25–29	377.8	203.2	452.2	258.2
30–34	126.2	109.4	133.1	119.3
35–39	98.3	95.8	*99.7*	100.2
40–44	92.5	91.5	*94.1*	96.5
45–49	*88.3*	88.3	*90.1*	93.7
50–54	*82.1*	83.9	*86.0*	90.5
55–59	*66.6*	75.6	*75.4*	83.8
60–64	*46.7*	65.5	*57.4*	73.2
Total	107.7	99.0	107.2	102.7
Female				
25–29	90.7	85.5	132.7	120.6
30–34	*75.4*	96.4	*82.6*	91.2
35–39	*117.7*	132.8	*114.4*	119.7
40–44	116.5	116.3	110.2	108.6
45–49	108.3	103.7	99.9	96.1
50–54	92.0	90.8	92.4	86.7
55–59	*73.2*	83.3	83.3	81.6
60–64	*60.9*	78.0	*66.7*	77.9
Total	*121.3*	109.2	124.3	106.4

Source: Report on Population Census, various years
Remarks: "Age" is that at the latter of two time points compared; italic figures show relative decrease of white-collar employment for the age cohort

Meanwhile, it is difficult to find a consistent pattern in the results for female workers. White-collar jobs relatively decreased for workers in their thirties, while they increased for those in their forties. This inconsistency might be attributed to the fact that the ratio of white-collar workers is not so large for the middle-aged females.

Conclusion

This paper has examined changes in the occupational opportunities of new graduates in Republic of Korea and Japan from both a comparative and a macro perspective. The period examined was one that experienced a rapid increase in the number of college graduates. By doing so, the author attempted to explore how a labor market reacts to rapid changes in the educational composition of the workforce, and how academic careers and school credentials function in Korea's labor market.

The analysis reveals that the occupational returns of a college degree have never decreased in Republic of Korea, despite the large increase in graduates entering the labor market during the late 1990s and the early 2000s. The rate of new college graduates who obtained white-collar jobs is kept constant by their pushing out the

less educated graduates into lower status jobs. Thus, the effectiveness of a college degree in obtaining a white-collar job has relatively increased, despite the expansion of higher education. Given these conditions, Republic of Korea's already high aspirations for educational achievement will be maintained, or possibly escalate even further.

Considering the substitutive relationship between younger and middle-aged workers, this paper also examined changes in white-collar jobs available for middle-aged workers during periods when the number of new college graduates rapidly increased. Middle-aged male workers enjoyed an absolute increase in white-collar employment in Japan, even during periods when new graduates suffered from rapid decreases in white-collar jobs. On the other hand, white-collar employment for middle-aged male cohorts declined considerably during the 2000s in Republic of Korea, while white-collar employment of new graduates increased.

These results suggest that increases to the number of recent college graduates have transferred opportunities for white-collar jobs from the less educated middle-aged workers to the more educated young workers.[15] More empirical studies are necessary to determine whether such a substitution has actually been carried out within each company; however, we can conclude that college graduates in Republic of Korea would have faced greater difficulties in finding white-collar work if their middle-aged male counterparts had held on to their white-collar jobs, as was seen in Japan.

Taking these results into consideration, we could not assert that the youth in Republic of Korea are seriously deprived of opportunities in the labor market. It is obvious that South Korean youth do suffer from serious employment difficulties; however, these difficulties should be attributed to the rapid increase in college graduates and the scarcity of employment opportunities to match their high occupational aspirations and expectations, which are inflated by obtaining college degrees. On the other hand, Japanese youth are faced with employment difficulties that could be attributed to the fact that middle-aged male white-collar workers are protected by institutional factors, such as Japan's career-long employment practice.

What factors can explain the differences between Republic of Korea and Japan? Hypothetically, the function of one's educational career in the labor market could provide an answer. If we consider the human capital theory, which assumes that school education can directly enhance the productivity of individuals, then barring other factors, better educated young workers would be preferred over less educated middle-aged workers. On the other hand, if we consider the screening theory, which assumes that school education functions as a device for screening the potential ability or trainability of individuals, the educated youth workers who could possibly add to their education thanks to the recent increase in educational opportunities are not always preferred over less educated middle-aged workers to whom adequate educational opportunities were not provided. This is because only a

[15] Although we could not mention the results in this paper, the decrease in white-collar employment for the middle-aged cohorts is more severe for those without college degrees than for those with college degrees.

relative amount of educational achievement within one's birth cohort is significant to employers. Considering these possibilities, Republic of Korea's case could be better explained by the human capital theory, while the screening theory is more appropriate in the case of Japan.[16]

Thus there are significant differences between the experiences of a Japanese and South Korean graduate seeking to enter the job market in their respective countries. Further comparative studies on these issues would be useful to understand the characteristics of the educational systems and labor markets of these countries.

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[16]Another possibility is that Japanese firms place more significance on how much OJT workers have had than Korean firms do.

Part II
Educational Reforms in a Changing Economy

Chapter 6
Evaluation of Educational Reform Measures and Future Directions for the Knowledge Economy: Focusing on Higher Education

Hyunsook Yu

Introduction

In a small nation like Korea with poor natural resources, education has been acknowledged as one of the key contributing factors of growth. Both the government and the people have invested hugely in education with the belief that education is the only way to escape from absolute poverty (Yu 2011a, c; Lee 2008; KEDI 2008).

The knowledge-based economy began in the mid-to-late 1990s, and has influenced every social sector in Korea. According to the World Bank (2002), about 75 % of GDP per capita growth of Korea from 1960 to 2000 was based on the broad range of knowledge accumulation. In terms of the knowledge economy indicators, Korea shows similar or higher competencies in gross capital formation, college entrance rate, R&D investment proportionate to GDP, element-inputs, including Internet hosting services, and hardware infrastructure when compared with those of the G7 countries (Germany, Japan, USA, UK, France, Italy, Canada) (Ministry of Knowledge and Economy 2007). The importance of education in a knowledge-based economy is strongly emphasized because it is understood that sustainable growth is no longer possible solely based on land and capital, which were the traditional production factors. Instead, human resources with creative ideas and thinking skills are the main elements for increasing the country's productivity and competency. In Korea, higher education has played a major role in producing highly skilled human capital which matches the need of the nation (Yu 2011a). In this study, I describe key features of the Korean higher education system and various reform measures and policies being introduced. I conclude with some issues to be discussed for future directions of higher education reform.

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Key Features of Korea's Higher Education System

According to the Higher Education Act (Article 2), institutions of tertiary education in Korea are divided into seven categories: colleges and universities, industrial universities, universities of education, junior colleges, broadcast and correspondence and cyber universities, technical colleges (polytechnic colleges), and miscellaneous schools.

Universal access. As of 2012, Korea has 432 higher education institutions with 3,725,802 students. In 2011, 71.1 % of the age cohort attended higher education. In 2008, 83.8 % of students transitioned to higher education from high schools (MEST & KEDI 2012).

Hierarchical structure. Higher education institutions are structured by ranking, institutional type, and location. Several universities are close to world class, whereas others face difficulties in attracting students. Universities are ranked in regard to prestige.

Large private sector. Private institutions have played a very important role in the growth of Korea's higher education. National and public universities alone could not meet the surge in education demand that occurred after liberation. At this time, farmland reform was underway, and many landowners established private universities to avoid having their land confiscated by the government. This creation of new institutions was actively encouraged by the government. As a result, the private sector now accounts for a large share of Korean higher education institutions. The proportion of junior colleges that were privately run increased from 57.0 % in 1970 to around 95 % in the late 1990s. The proportion of privately run universities decreased from 75.4 % in 1970 to 71.5 % in 1980, but began to increase in the early 1980s due to a rising student population, resulting in a 78.7 % share in 2007. Thus almost all junior colleges and more than three quarters of universities are private (MEST & KEDI 2010, 2012).

Oversupply. Higher education institutions are expected to face increasing difficulty in academic management, as the university-aged population is foreseen to grow only until 2012 (690,000 persons) before it makes a downward turn. This is anticipated to create a situation where the higher education admission quota outnumbers the actual number of high school graduates, possibly starting in 2016. In particular, the lack of freshmen students will likely become a major challenge for private universities. Financial difficulties arising from the situation are apt to bring about a deterioration of educational quality, leading to an insufficient fulfillment of students' basic rights to quality education. Meanwhile, in the face of the decreasing number of primary school-aged youngsters, teachers' colleges may cut their admission quota in order to balance the demand and supply of primary school teachers. It may even happen that teachers' colleges, which are currently operated as independent higher education institutions, will lose their administrative effectiveness. If the current transition rate to higher education and the current college enrollment level are maintained, universities are expected to have a shortfall of 150,000 students in 2020. In other words, many universities are expected to be at risk of being closed due to lack of students (Hahm 2004, cited by Sohn 2009).

Heavy reliance on private expenditure. In 2005, the OECD countries spent on average about 1.1 % of GDP on higher education; by contrast, Korea spent only 0.6 %, and this percentage has remained constant for the past 6 years. This low expenditure by the public sector reflects the excessive amount paid by the private sector for education expenses, showing that Korea has depended on the beneficiary payment principle for higher education (OECD 2010).

Competitiveness of Korean Higher Education

The international competitiveness of Korean secondary education is reflected in the high average learning outcomes of the students as indicated by the high achievement scores of Korean high school students in PISA, conducted by OECD.[1] (MEST & KEDI 2010) However, in the case of higher education, despite universalization of educational opportunities,[2] the educational competitiveness of higher education is still at a low level, and the widely held view shared by the government and the public is that low competitiveness of higher education leads to low national competitiveness.

In the last 30 years, higher education has played a major role in fostering highly skilled human capital to meet the needs of industry and other social sectors. Under this premise, the government and the public have made continuous investment in public education, which has greatly improved its quality. By strengthening public education, Korea has been able to maintain a relatively high enrollment ratio. In particular, the completion ratio in higher education is as high as that of major developed countries. However, it is true that Korea's quality of higher education has not kept pace with its quantitative expansion. In other words, the quantitative growth has not been sufficiently met by qualitative improvements, and this has resulted in a gap between the skills and values that are taught at higher education institutions and those required for social activities. In the 2009 *Times 100 World University List*, only two Korean universities were included: Seoul National University (52) and KAIST (95). According to the 2011 *World Competitiveness Yearbook* of the International Institute for Management Development (IMD), Korea ranked 39 out of 59 countries in terms of universities' satisfaction rate of meeting socioeconomic demands (IMD 2011).

It is from the mid-1990s that higher education reform projects have been implemented. Internal factors, such as the decrease in quality as a result of

[1] In 2010, Korea ranked number 1 in mathematics and reading and number 3 in science in the OECD Program for International Student Assessment (PISA).

[2] In order to fully understand universalization of higher education in Korea, the elementary and secondary education opportunity expansion policy should be understood as a background. After independence, an open-door policy for middle school was applied in 1969 with the implementation of a no-exam system, and for high school was applied in 1977 with the high school equalization policy. In 1980, the government implemented an open-door policy for colleges to double the entrance rate by promoting normalization of education and a graduation quota system (currently abolished).

universalization of college education and the need for an effective strategy to lower college tuition, led to the demand for reform. The international rankings of college education were the external factor. These rankings provided an objective status of universities in Korea, and it was argued that it is impossible to respond to the demands of a knowledge-based economy without improvement.

Since the 1990s, college education reform has been one of the core projects in education in Korea. This paper will provide an overview of the higher education reforms Korea has implemented in response to its emergence as a knowledge-based economy, and also the elements to be considered in the reform process.

Major College Education Reforms

It was after the late 1990s that Korea began to enter the knowledge-based economy, and college education reform also began around this time. The government started to invest a great deal of money for university reforms in the context of relatively long-term plans and more specific purposes compared with the previous years. Moreover, university competitiveness was considered as a key factor for developing national strength in the global context. The major higher education reforms implemented since the late 1990s are as follows (Yu 2010).

Autonomy and Accountability

One of the core strategies of college education reform is to enhance the autonomy and accountability of higher education institutions. This includes abolishing a major part of the regulations imposed on institutions by introducing new schemes, such as the admissions officer system, the higher education information disclosure system, and the evaluation and accreditation system. In return, institutions are to strengthen accountability and build infrastructure for self-development.

Deregulation

Higher education policy had been centrally controlled for much of recent history (Kim 2008). Accordingly, the higher education management system and policy implementation process contained many regulatory factors. However, deregulation issues have been the main issues of each presidency since the beginning of 2000. In March 2007, the Ministry of Education created the University Autonomy Committee, and began university autonomy efforts. This was aimed at improving university competitiveness by allowing universities to voluntarily develop themselves in a creative way. Although liberalization efforts had been continuing for years, the actual results had been limited. In particular, it indicated that universities could not

respond to social changes due to excessive regulations. The basic direction of the plan was as follows. First, tertiary education institutions should be liberalized according to their capacity to fulfill their social functions. Thus, gradual liberalization would be implemented with linkages to information disclosure systems, the corporatization of national universities, the establishment of tertiary education evaluation bodies, etc. Second, tasks that were formerly regulated should be liberalized, and evaluation should be strengthened. Therefore, follow-up inspection and evaluation of liberalization efforts would be strengthened (evaluation through a tertiary education evaluation group, etc.). Third, minimum regulations should be kept to ensure the public's right to education and to protect social unity. Regulations on universities in Seoul to promote balanced regional development would be maintained. Regulations that conflict with each other due to the characteristics of universities should be discussed by the parties involved and be gradually adjusted. As a condition for participating in the government's various financial support projects, the responsibilities of universities would be maintained or supplemented (Kim 2008; Kim and Lee 2002).

Autonomy in Administering University Admission

An admission officer system has been introduced as one of the main liberalization measures for ensuring university autonomy. Since its introduction in 2007, this system has allowed institutions to administer admission screening according to their own criteria, especially in terms of deciding how extensively they will reflect students' high school records and the standardized College Scholastic Ability Test scores in the course of screening. Moreover, the major higher education associations are allowed to approve general matters related to student admission agreed among universities and junior colleges through their own consultation. Under this system, higher education institutions have been given opportunities to employ, nurture, and utilize experts on university admission who screen and select freshmen on the basis of a comprehensive review of their academic performance, personal circumstances, potential, aptitude and skills, etc.

By taking such criteria into consideration in addition to exam scores and other academic attainments, institutions are now increasingly able to recruit students paying attention to their strengths and specialization, and nurture them into highly qualified human resources. When the system was first introduced, it was expected that admission exam scores would play less of a key role in the admission process to ease unnecessary competition and consequently normalize primary and secondary education.

On further development, the role of these admission officers has expanded to become a wider support for the students to adapt to the college environment. In its initial stage (2007–2009), the system aimed to develop its infrastructure through the designation of 10 leading universities and formulation of programs to foster and train experts on university admission. The system expanded its domain in the next stage (2010–2011), and, by 2011, a total of 118 leading universities had implemented the system.

H.E.I. Information Disclosure System

One of the most important elements required in a knowledge-based economy is formulation of policy based on data and information (Yu et al. 2009). Securing information with transparency and public confidence in resource distribution and evaluation for higher education are crucial. In an attempt to ensure enhanced transparency in higher education administration and to ensure the rights of citizens to educational information access, the government launched a higher education information disclosure system on December 1, 2008, pursuant to which institutions are disclosing details about their school operation via the Internet (MEST & KEDI 2009). This system required all universities and junior colleges in Korea to display key information updates on their own home pages and on the shared portal site (www.academyinfo.go.kr) on a regular basis. Currently, a total of 439 universities are under this system. Information is being disclosed based on indicators including the graduate employment rate, student admission results, tuition level, scholarship provision, faculty research achievements, number of enrolled students, and educational environment. The disclosure system is expected to continue helping students and parents make informed choices while enabling institutions to identify their own strengths and weaknesses. This system is expected to bring more sound competition into the higher education sector, and lead institutions to voluntarily reform themselves to achieve stronger competitiveness.

University Accreditation System

The higher education evaluation and accreditation system is an important tool for quality assurance of college education at the minimum level. Following the revision of the Higher Education Act, the government initiated a higher education evaluation and accreditation system on January 1, 2009, in a bid to reinforce the autonomy and accountability of higher education standards. Under the system, institutions first conduct self-review and self-evaluation, the results of which are assessed and accredited by accreditation agencies recognized by the government or by an independent external body. The self-evaluation process will enable institutions to monitor their education and research status in detail, and formulate strategies for institutional development and performance management according to evaluation outcomes. This is intended to lead to a promotion of educational environment and quality, as well as provide students, parents, and industries with a means of making better-informed choices.

University Restructuring

As demand for university admission plummeted in the new millennium, many universities were unable to fill their student quotas, and some were in danger of closing due to financial difficulties (Kim 2008; Yu 2011b). A consensus began to

form regarding the crisis facing universities, and demand for innovation, such as regulatory reform, increased. In 2011, the University Restructuring Committee was established to select unqualified universities using various criteria (in many aspects). The Committee (1) designates government-funded colleges ranking in the lowest 15 % on the evaluation based on the absolute indicators which the colleges have officially reported, (2) designates colleges with a student loans limit, (3) promotes structural reform of private colleges with poor management, and (4) implements election of public university heads, college management performance systems, vitalization of undergraduate education, and enhancement of undergraduate management. These efforts are still continuing.

At the same time, the corporatization of national universities was in process in order to provide management consulting services for institutions that experience managerial difficulties and help raise their operational effectiveness. For institutions that fail to self-sustain even after consultation and improvement measures, the government presents various methods of school closure, such as mergers and acquisitions (M&A), voluntary closing down, and transformation into a public corporation. In such ways, the government intends to facilitate the autonomous reform efforts of private institutions.

Financial Reform

Following the increased opportunities for college education, the need for public investment is increasing as well. In addition, performance enhancement of the investment is in high demand. Since the late-1990s, public investments on higher education have been mainly large-scope, long-term investments.

Application of Formula Funding

The government's financial assistance program stresses application of formula funding as well as result-based assistance. Formula funding is formulated through the following process. First, the financial cost of universities is calculated using an objective measurement based on indicators. Second, the appropriate amount of financial assistance is provided, and then the formulation and execution of the practical budget is fully mandated to universities.

The strengthening capacity building project, which started last year, uses formula funding. In the case of this project, the amount of financial assistance is calculated by factoring in 55 % of the value for three indicators of performance (employment rate, the reinforcement ratio of enrolled students, and the degree of globalization) and 45 % of the value for three indicators of educational conditions (the full-time lecturer ratio, education cost per capita, and scholarship rate). In 2008, a total of 50 billion won was allocated to 64 universities; and in 2009, 264.9 billion won was distributed in eight categories based on the location and the size of

universities, which covers 45 % of the assistance to universities with an average amount of three billion won per university.

The block grant funding delivered to the director of the university can be used to enhance educational capacity under the condition of spending more than 15 % for student employment programs and more than 10 % for scholarships. Under this project, the government plans to promote university projects for leading schools with superior educational function, separately from the strengthening educational capacity project. It is expected to choose ten universities and to support them to boost their educational capacity. However, there are some controversies about how this project is different from the former strengthening educational capacity project.

Income-Contingent Tuition Assistance Policy

The Korean government is promoting assistance systems for free scholarship, tuition loan guarantee, and loan interest (MEST 2010). In 2008, the government provided 4.2 million won in scholarships to freshmen who are basic livelihood security recipients. It also considers the level of income to determine the government tuition loan guarantee interest rate, and provides no-interest loans to those in the bottom two deciles of income level.

Moreover, starting this year the government has decided to adopt an income contingent loan (ICL) system. In 2010, in order to relieve the tuition burden for university students in lower income families, the government increased the budget for tuition assistance, and will provide full scholarships for all university students (previously up to second grade) who are basic livelihood security recipients. The tuition loan interest will be supported as before. The government is planning to increase customized tuition assistance systems according to the income level and has established the Korea Student Aid Foundation for this purpose. The contribution from private donations is also being expanded to provide student oriented school expenses.

Globalization

Of the various university globalization projects the government has currently planned, two will be introduced below for the strong impact they have on higher education.

Brain Korea 21 Project

The Brain Korea 21 project refers to an intensive human resources development program initiated in 1999 in an effort to upgrade the research infrastructure and graduate-level training of higher education institutions. Target specialty areas that have high growth potential are assigned, and excellent graduate schools in these areas are selected through open competition to receive substantial financial support for master's, doctoral and post-doctoral research.

The first-phase BK21 invested a total budget of 1.3 trillion won for 564 project teams during the 7-year period 1999–2005. The initial project is evaluated as having raised the overall research capacity of Korean universities one step above.

In the second-phase BK21, which started in 2006, the range of support has expanded substantially. It has focused on developing three major areas: fostering a stabilized national system of research-oriented universities; nurturing top-class personnel in key areas that lead national development, including fundamental/new growth-generating technologies; and expanding financial support for highly qualified next-generation scientists at the graduate level. Specific objectives were to provide annual support for a minimum of 20,000 master's and doctoral students in leading universities, and foster 10 world-class research-oriented universities by 2012. The second-phase BK21 required universities to allocate a minimum 70–80 % of the project funds to directly supporting graduate students and new research personnel.

World Class University Project

Under the national World Class University project, launched in 2008, concentrated financial support for universities was provided to recruit top-notch researchers from abroad, who will collaborate with Korean scholars to activate research in key growth-generation fields and contribute to enhancing the competence of Korean universities. For selected universities, the government offers full wages for foreign scholars, fees for their joint research with Korean scholars, and laboratory establishment expenses. A total subsidy of 925 billion Korean won has been allocated for the project during the years 2008–2012, which is being funded according to three project types.

There has been a total of three project group designation processes, in December 2008, in April 2009, and in October 2010. With an annual assessment in October 2009 and a mid-assessment in October 2010, as of May 2011 there were a total of 33 universities undertaking the project.

However, the impacts of this project have not been verified yet. Various issues are recognized as a result of this WCU project, and the Ministry of Planning and Finance has asked several research institutes to evaluate the impacts for upgrading the competitiveness of research universities. Also, there are those who criticize the negative impact of recruiting foreign scholars. It is very important to have productive dialogue among universities, government, and industry for these kinds of projects (Kim et al. 2010).

Conclusion: Future Directions for Korean Higher Education Reform

Currently, a considerable amount of attention is paid to college education and its pivotal role in a knowledge-based society. It is recognized that college education in Korea is incapable of leading a knowledge-based society solely by quantitative

expansion of opportunities for college education or hardware reform. The outcomes will be most efficient when the universities and colleges become self-motivated for reform activities. In this concluding section, issues arising in the college education reform process and questions that need to be discussed in the future process are covered.

What Will Be Taught in College?

College education reform should not be centered solely on hardware reform. The issue of what kind of knowledge and core skills should be taught is the most important topic for discussion in higher education. Advancement into a knowledge based society has changed the traditional concept of the basic abilities. Since a knowledge-based society requires a continuous supply of new skills and competencies, an in-depth discussion is necessary to identify the core skills to meet the demand of the society.

So far, the discussion on the issue of determining which capacities to develop through the education system has been limited to the primary and secondary education level. This is because the issues in college education were strongly weighted towards providing educational opportunity and implementing structural reform. Therefore, issues of what should be taught in college and what kinds of capacity the graduates should develop have not been actively discussed (Lee and Choi 2008; Kim and Lee 2003; Yu et al. 2011; Kim et al. 2002). However, as these issues are closely linked to the ultimate objectives and outcomes of the college education, a considerable amount of attention should be paid.

The skills and competencies required in a knowledge-based society include problemsolving creativity, communication skills, and teamwork. Recently, there was a survey examining the factors related to college students' learning outcomes, especially focusing on two core competencies: communication skills and high-order thinking skills (Yu et al. 2011). Using national survey data of 2,019 students from more than 20 colleges and universities in Korea, this study identified such factors affecting communication skills and high-order thinking skills as gender, student level, major, and school size. In addition, both non-classroom activities, including group study and thinking strategies outside the classroom, and classroom activities, including in-class interaction, active participation, and student–professor interaction, affect those two competencies. Therefore, this study shows the importance of both in-class and out-of class activities for developing students' communication skills and high-order thinking skills. In reality, however, it is not easy to reflect the defined skills in the university curriculum.

Meanwhile, in response to the question of what kinds of knowledge and core skills should be taught, some propose that skills and competencies required from industry ought to be taken into account. The mismatch between the skills taught in college and the skills demanded by industry is recognized as a major problem in human resource development.

College education is gradually putting more emphasis upon practical and field-applicable skills, while training provided by enterprises is emphasizing humanities and liberal arts. From reviewing the research, the core competencies identified to develop through higher education include academic knowledge in the field of study, thinking skills, communication skills, self-directed learning skills, leadership, problem-solving skills, and teamwork (Yu 2002). The study by Kim and Lee (2003) indicates that the core capacities for undergraduates to develop are academic knowledge in the field of study, logical thinking skills, learning skills, creativity, leadership, communication skills, and values and. In addition to these elements, enterprises including Samsung, LG, and SK seek those with an international mind-set and challenging spirits.

Identification of the competencies is important as it may lead to changes to the college education curriculum. Many colleges in Korea are turning to strengthening global capacity by adopting courses in English and improving the educational environment; however, these efforts are insufficient to direct the current college education curriculum to a competency based curriculum. In order for the college education to respond to the demands of a knowledge-based society, it is necessary to continue the discussion on what kind of knowledge and core skills should be promoted in the changing society.

What Is the Role of the Government in Higher Education?

In terms of economic development, there has been a high level of government intervention despite the fact that the government strategies and policies were aiming at the market economy. In fact, such economic strategies have been considerably effective, as is shown by the historical economic growth rate. However, a criticism is that the strong government intervention through economic strategies brought in strict regulation of the market, which consequently resulted in structural weakening of the economy. Some even propose that this structural weakening led to the foreign currency crisis in 1997. In line with this criticism, concerns about the government-led higher education policies are raised as these policies may give the government excessive control over the educational market, which in turn, it is feared, may cause its structural deterioration.

On the other hand, there are those who advocate involvement of the government in higher education development. They claim that the market is not inherently perfectly stable. Their logic is based on the fact that today's market in a democratic political system is in a complex form both in theory and practice. From this perspective, government intervention to a certain level in the process of higher education development is necessary.

There is also a third stance with respect to the government's intervention in the market, called "market formative intervention" This approach suggests that the government just provides the venue for market operation, instead of regulating the transactions in the market; for instance, by making fair transaction rules, setting quality

standards, and constructing infrastructure and institutions for the market. According to this approach the government can do the following: provide the venue through the constructed infrastructure and institutions; invest in higher education and promote its function as the framework for the development; and set up standards for both quality improvement of higher education and transaction/exchange service. Higher education policies as the framework includes the issue of resources mobilization and allocation/reallocation; and setting the standards regarding higher education includes curriculum, skill certificates, and competency testing (Chung 2001, cited by Yu 2002).

Which of the three perspectives the government will apply to their higher education policy decisions will determine both the intensity and content of its involvement? From historical experience of the foreign currency crisis, it has been discovered that government policy with a high level of regulation is not viable within the global economy. On the other hand, the government's efforts have been highly valued as a certain degree of intervention has been proven to be necessary to prevent market failure. It appears that identifying the appropriate level of government intervention in the process of higher education policy decision is a major issue to be considered (Yu 2002).

How Can the Supply and Demand in Higher Education Be Balanced?

As stated earlier, higher education institutions are expected to face increasing difficulty in academic management, as the university-aged population is foreseen to grow only till 2012 (690,000 persons) and then take a downward turn. This social change is expected to create a situation where the higher education admission quota outnumbers the actual number of high school graduates, possibly starting from 2016. In particular, the lack of freshmen enrollment is likely to become a major challenge for private universities. Financial difficulties are apt to bring about a degradation of educational quality, again leading to a failure in fulfillment of students' basic rights to quality education.

Meanwhile, as the number of primary-school-aged youngsters is expected to decrease, teachers' colleges may cut their admission quota in order to balance the demand and supply of primary school teachers (Yu 2009). If so, there exists a high possibility that the teachers' colleges, which are currently operated as independent higher education institutions, will lose their administrative effectiveness.

If the current transition rate to higher education and the current college enrollment level are maintained, universities are expected to have a shortfall of 150,000 students in 2020. According to statistics, many universities are expected to be at risk of being closed due to lack of students (Hahm 2004, cited by Sohn 2009). Under these circumstances, a criticism is arising that Korea's human resources development policy has been overly supply-centered. Human resources development policy up to now has focused upon supplying the workforce needed in the labor market,

which is no longer an effective policy owing to today's labor market instability. Moreover, the criticism is that the human resources development policy concentrating on supply of workforce has increased the "mismatch" phenomenon, which includes causing an oversupply of workforce, generating unemployment, and forcing individuals to perform occupational duties that do not fit their academic background. In this context, critics claim that the future human resources development policy should be shifted away from a supply-centered policy to a job creation policy, which is grounded in demand (Jeong 2001, cited by Yu 2002). These criticisms arose from the recognition of the unstable labor market as a result of the foreign currency crisis in which the unemployment rate increased, the number of paid workers diminished, hiring went down especially in the fields of manufacturing and construction, and, particularly, the number of highly educated unemployed persons increased. These all point to a new policy direction that regards demand instead of supply.

A human resources development policy taking demand into account should consider the following aspects (Yu 2002). First, determination of the institutional mechanism for creating demand should be considered. Clarifying such a mechanism is a prerequisite for identifying the role of government in national human resources development. As a resolution, an assorted license system can be considered. A license system can be an important indicator to measure the quality of human resources needed to succeed in the labor market. In order to cope with the shift of human resources development policy from supply to demand-oriented, numerous licenses governmental and non-governmental origin are appearing in Korea nowadays. At the same time, accrediting these license systems has become an important function of the government. However, it should be noted that just as the supply-centered human resources development has caused inflation of academic credentials, a demand centered human resources development could cause inflation of various kinds of license systems.

Second, the operational definition of "demand" should be clarified. The government's definition of demand-centered human resources development is confined to the economic demand that is, the demand of the labor market. But as a more general concept, the term should include the social demand for education as well. In the case of Korea, the social demand for education has been expressed in a relative neglect of the labor market. Most people consider education as a kind of saving for future affluence and a means for upward social mobility, with many other additional benefits to consider as well. Therefore, in the human resources development a policy focusing only on the demand of the labor market should be reconsidered.

It should be acknowledged that the competitiveness of education in Korea has been weakened because the suppliers of education have not competed against one another to sell better educational goods to the consumers.[3] Thus, implementing

[3] Korea implemented an equalization policy at high school level in 1974. Since the equalization policy, high schools have not carried the burden of recruiting students, who are automatically supplied by lottery. Also, colleges had no difficulties in recruiting freshmen because the number of applicants far exceeded available seats for admission, That is, the consumers had to compete to purchase the educational goods, while the suppliers did not have to compete at all. But now this situation is changing rapidly due to the decreasing number of university applicants (Yu 2002).

a human resources development policy that shows a balance between supply and demand is likely to be a major challenge in national human resources development.

What Should Be the Response to the Transformation of Higher Education Demand?

When consumers are given the choice, they demand more diversity in the contents and levels of programs in higher education. There are various consumers in higher education: students, parents, the public, enterprises, etc. These consumers want different kinds of programs, study terms, and teaching styles. For instance, many universities in Korea operate an Academy of Continuing Education in which various kinds of adult education are provided such as general interest or major fields of study. Responding to the high demand, universities are putting more efforts into these Academies. On the other hand, enterprises are complaining that universities do not meet their need. The poor rankings of Korean colleges by IMD might be due to entrepreneurs' low evaluation of college graduates. Higher education in Korea is therefore facing the challenge of satisfying consumers' diverse needs.

In addition, universities in Korea have expanded without specialization of their functions and roles. In many cases, universities focused solely on the expansion of total quota and enlargement in size. Numerous universities were first founded as 2-year educational institutions, and then converted into 4-year ones with an increase of programs. As an example, a 2-year "Open University" changed into a "University of Technology" and later converted into a 4-year "Polytechnic."

In order to resolve this issue, the government tried to promote specialization of universities by designating research-oriented universities and teaching-oriented universities. This attempt has failed as departments were created in universities and colleges only to be arranged in the same manner as sections in a department store. However, it is time to plan for specialization in higher education for the survival of universities. In some areas, for example, many students may prefer vocational colleges to regular universities.

The functions and roles of public and private universities are overlapping. They have undifferentiated educational programs. Although public university tuition is said to be lower than that of private university, this is no longer a strong factor in the decision of students on enrollment. Furthermore, the efficiency problem of public universities has been raised recently, and the government is encouraging incorporation in response to the problem. Things are not much different for the private universities as they also receive a considerable amount of funding from the government, and must compete with public universities for this support.

In addition, the programs in non-university higher education should be expanded along with greater opportunity. Opportunities for on-line, cyber, and digital education in higher education should be expanded to equip students with the skills required in the information age. Individual-led learning processes, such as the credit bank and

individual study, should be provided and highly supported. Plus, enterprises should be supported to establish their own educational institutions for training college students into the workforce that they need. To do this, regulations related to the establishment of higher educational institutions should be reduced.

How Should Financial Resources for Higher Education Be Allocated Appropriately?

The problem here is the affordability of higher education. Since 1980, the rapid quantitative expansion of higher education has increased the need for financial investment. However, the weight of financial investment in higher education in Korea shows a huge difference from that of the international (OECD) level. Public funding for higher education should be increased and personal expenses should be reduced. Especially, as Korea has many private universities, the allocation of financial resources among these is a challenge, with universities relying on student tuition for a significant portion of their budget.

Recently, the government has increased student scholarships and expanded income-contingent loans (ICL) for individual students. However, the funding support for higher education is allocated through competition of institutions. This kind of support process shows limitation of efficiency as it is difficult to monitor the appropriate uses and outcomes.

Government's funding support in higher education should gradually switch from the institutional unit to the individual unit. Although funding support for institutions assists those universities with limited budget and promotes reform projects, the negative factors are more prominent. For instance, the difficulty in measuring the effects of funding support makes it hard to prove that the original purpose of the government has been fulfilled through proper usage of the funding. In the long run, the funding support for an individual student or professor should be expanded to increase individual competitiveness, and, moreover, the competitiveness of each university.

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Chapter 7
Youth Key Competencies in Korea

Kihun Kim

Introduction

Youth academic achievement in Korea is rated as one of the best in the world. According to the Program for International Students Assessment (PISA) 2009 in which a total of 75 OECD member and non-OECD member countries participated, Korean students ranked second in reading literacy assessment, fourth in mathematics literacy assessment, and sixth in science literacy assessment. Even though Korean students are one of the best in terms of academic achievement in secondary schools, however, they are still very poor in affective attitudes such as academic motivation and interest. According to PISA 2003, Korea ranked 31st in interest in math and 38th in academic motivation. Students' school membership was low as well. According to PISA 2000, Korea was the lowest in terms of students' sense of school belonging. In other words, even though Korean students study hard with high school-attendance rates, it appears that most of them are reluctant to go to school.

A problem was also found in students' use of time. Most Korean adolescents have been very poor in participating in various useful youth activities. According to a comparison of adolescents' (aged 15–24) participation and volunteer activity time based on the results of a Time Use Survey in each country, Korea (1 min.) was shorter than the US (8 min.), the UK (5 min.), Germany (11 min.), Sweden (5 min.), and Finland (7 min.) in terms of average daily activity time (Chang and Kim 2009). According to the Adult Literary & Life Skill Survey (ALL) in the OECD, Korea (0.7 %) was far lower than the US (19.6 %), Norway (22.7 %), and Canada (17.9 %) in terms of youth's (aged 16–24) rate of civic participation in the community. Korea was also low in other categories such as rate of joining a sport activity (9.2 %).

Despite high levels of academic achievement, many Korean adolescents are not satisfied with their lives. According to the OECD report (OECD 2006), when asked

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if they are satisfied with their lives, only 44.9 % of youth under 25 responded that they are satisfied (7 or higher out of 10 points) in Korea. In the case of Finland, which also showed high academic achievement in PISA, the figure almost doubled (81.6 %). Japan (50.3 %), which has a college entrance exam system similar to the system in Korea, was higher than Korea as well.

In addition, there has been criticism of the Korean education system. It has been said that Korean education is poor at building the individual talents and competencies which are needed in a knowledge-based society. In a knowledge-based society, it is important in order to succeed at work and in life to develop basic skills (reading, writing, and speaking skills) and the competency to figure out the cause of a problem with critical thinking and resolve a conflict by convincing others. It is also important for students to build the ability to create new knowledge and integrate existing knowledge instead of accepting or memorizing conventional facts or knowledge. This kind of ability is referred to as "key competency," different from the conventional multiple intelligence or particular technology.

Led by advanced countries, many countries around the world are now moving toward a competency-based learning system (Eurydice European Unit 2002). Korea also proposed "strengthening key competency and extending personality education" as an educational goal in the revised educational curriculum 2009, integrated the optional activities and extracurricular activities into a new curriculum, "creative and experiential learning activity," for practicing consideration of and sharing with others. And Korea increased the activity hours per week: 3 h for elementary and middle school students and 4 h for high school students (Ministry of Education, Science and Technology 2009). However, Korea still focuses on a subject-centered curriculum. The courses focus on a single subject and aim to build on the subject-related knowledge. Therefore, Korean students may not have enough opportunities to integrate contents gained in different subjects or to engage with interdisciplinary learning. It is necessary to have a serious discussion about how to promote and apply methods of creative and experimental learning activities. Considering the growing need for the new educational goals, this study[1] attempts to assess Korean young students' competency levels using international reference data of PISA and the International Civic and Citizenship Education Study (ICCS) 2009.

Concept and Measurement of Key Competencies

Definition of Key Competencies

Since the concept of competencies captured broad attention from numerous organizations including enterprises, it has been widely manifested in vocational education and lifelong learning. Consequently, it wields enormous

[1] A draft paper was published as a report to the National Youth Policy Institute in Korea, *Youth key competency development and promotion plan III* (Kim et al. 2010). This work was supported by the National Research Foundation of Korea Grant funded by the Korean Government (NRF-2012S1A3A2033331).

influence over the educational curricula and learning system. With the reputation as the "competency movement," such competency-based approach now stands at the forefront of the massive social discourse about educational reform (Voorhees 2001).

The concept of competency was originally designed to define the capability of successful work fulfillment in business or at the workplace, and thus the measurement of competency belonged to the process of performance assessment. Since governments embarked on the creation of national common standards for work or occupation, there has been a growing necessity for the conceptualization and measurement of common competencies expected from every job. In this process, the notion of "key" was added, and consequently several nations are now proceeding with their projects aimed at measuring such key competencies required from every job, including SCANS' Workplace Know-how (US), GNVQ's Core Skills (UK), the Mayer Committee's Key Competencies (Australia), and NZPC's Generic Skills (New Zealand).

Competencies are necessary for individual success not only in careers but also in everyday life. A case in point is found in the Definition and Selection of Competencies: Theoretical and Conceptual Foundations (DeSeCo) Project in the OECD (2005). The DeSeCo Project went on for 7 years from 1997 to 2003 with the involvement of a total of 12 nations (Austria, Belgium, Denmark, Finland, France, Germany, Netherlands, New Zealand, Norway, Sweden, Switzerland, and the US), and it provided both conceptual and theoretical bases for key competencies.

In the DeSeCo Project, a competency refers to the ability to successfully meet complex demands in a particular situation through the mobilization of psychosocial prerequisites (Rychen and Salganik 2003). Key competencies mean the capabilities for satisfaction of primary desires, formation of relationships with others, accomplishment and satisfaction, access to economic resources, employment, political participation, and access to information. At the social level, they denote the driving force behind peace and well-being, economic accomplishment and wealth, social integration, equality, human rights, and environmental preservation.

The current study defines key competency of youth by considering the following. First, it basically follows the DeSeCo project for the definition of key competency. Second, it uses the term "key" not in a meaning of "basic" or "everybody should have," but rather in a meaning of "most important" and "required." Third, it emphasizes the aspect that it is a core requirement for the youth period within the lifetime development cycle. Finally, it assumes that key competency can be learned not only from formal education, but also from the local community or home. In short, this study defines key competency of youth as follows: "Key competency is a complex total competence including the knowledge, technology, and attitudes essentially required in the youth period within the lifetime development cycle for not only the successful life of the individual but also the contribution to society which can be learned from not only formal education, but also from the local community or home" (Kim et al. 2010, p. 22).

A Threefold Categorization of Key Competencies

The OECD's DeSeCo Project classifies key competencies into three categories (Rychen and Salganik 2003; OECD 2005): *Using tools interactively*, *interacting in heterogeneous groups*, and *acting autonomously*. First, using tools interactively means the ability to use language, symbols, text, knowledge, information, and technology interactively. And it requires the ability to create and adapt knowledge and skills. This requires familiarity with the tool itself as well as an understanding of how it changes the way one can interact with the world and how it can be used to accomplish broader goals.

Second, interacting in heterogeneous groups means the ability to relate well, cooperate, and manage and resolve conflicts with others. As societies become in some ways more fragmented and also more diverse, it becomes important to manage interpersonal relationships well both for the benefit of individuals and to build new forms of cooperation.

Third, acting autonomously means the ability to act within the big picture, to form and conduct life plans and personal projects, and to assert rights, interests, limits, and needs. It requires an awareness of one's environment, of social dynamics, and of the roles one plays and wants to play. It requires individuals to be empowered to manage their lives in meaningful and responsible ways by exercising control over their living and working conditions.

Current Status of International Surveys Regarding Key Competencies

No international comparative survey clearly specifies the notion of key competency. Nevertheless, there are various international comparative surveys specifically geared towards the measurement of capabilities equivalent to key competencies.

In particular, the OECD has spearheaded the creation and measurement of key competency indices on a global basis since 1987 through the project aimed at the creation of indices for national education systems. The most typical example is found in PISA, which officially began in 2000. PISA places emphasis more on practical competency for daily life, such as basic literacy for utilization of knowledge according to situations and purposes, than on the mastery of knowledge based upon the school curriculum. The findings of PISA are classified into the category of using tools interactively according to the definition of key competencies in the DeSeCo Project.

In addition to PISA, this study utilizes data from ICCS with the aim of gauging the democracy-related knowledge and attitude of youth across nations. ICCS is based on data collected from 38 countries during 2008–2009. The study was carried out by the International Association for the Evaluation of Educational Achievement (IEA). The ICCS questionnaire consists of specific questions

regarding knowledge of basic elements of democracy and the level of citizenship, such as trust in social actors (others, public agencies, enterprises, politicians, organizations, etc.) and participation willingness. It also contains a survey of the educational context to identify how much education about democracy and citizenship is institutionalized within the context of educational curricula (Schulz et al. 2010). The findings of ICCS are classified into the category of interacting in heterogeneous groups.

Unfortunately, no international comparative survey is available to provide a measure that would cover the last category of key competency, acting autonomously. Based upon existing results of surveys for youth such as the PISA and ICCS 2009 findings, this study is intended for the construction of indices equivalent to the concept of key competencies using the two categories *using tools interactively* and *interacting in heterogeneous groups*. Moreover, it can serve as a guide towards prediction of validity or implications for future international comparative surveys as well as an indirect gauge of the current status surrounding key competencies of Korean youth.

Construction of Key Competency Index

How to Construct a Key Competency Index

This study follows the method which Bonnet et al. (2003) harnessed for the development of the Decent Work Index related to the quality of work life. The normalization procedure in this method is based on the Human Development Index in the United Nations Development Program (UNDP). First, indicators are combined to create a specific index by the following procedure. The first step is to convert the difference between a given nation's index score and the minimum score within a given index into a gap (range) between the maximum and minimum scores within a given index, which will result in the normalized index value z(i). The formula is as follows:

$$\text{Normalized Index Value}\left(z(i)\right) = \left[x(i) - \min\left(x(i)\right)\right] \Big/ \left[\max\left(x(i)\right) - \min\left(x(i)\right)\right]$$

The second step is to calculate the average of the normalized index values equivalent to each sector's index ($Z(i)$). The formula is as follows:

$$\text{Average of Normalized Index Values } \left(Z(i)\right) = \sum_{i=1}^{K} z_i / k$$

In addition, Bonnet et al. (2003) allocated weights to the input-process calculation indices during overall integration of index values. However, most indices in this study belong to calculation indices with no weight allocation. In other words, each index in this study is granted equal weight.

Index Composition by Categories

The composition of index by category follows the conceptual structure of key competencies' sub-categories under the DeSeCo Project to ensure that each index reflects a more concrete definition of a given category.

Using tools interactively includes four indicators in PISA 2009. Three indicators are measured by national means of reading, mathematics, and science literacy test scores of 15-year-old students. One remaining indicator is the Information and Communication Technology (ICT) skills. This is measured by a student's response on the set of questions, "I can do this very well by myself": (1) editing digital photographs or other graphic, (2) creating a database (e.g., using Microsoft Access), (3) using a spreadsheet to plot a graph, (4) creating a presentation (e.g., using Microsoft PowerPoint), and (5) creating a multi-media presentation (with sound, picture, video). The number of skills that a student reported being able to do well is included as the fourth indicator of using tools interactively.

Interacting in heterogeneous groups includes three indicators in ICCS 2009. The first indicator is measured by national averages of civic knowledge test scores of Grade 8 students (usually 13–14 years old). Civic knowledge refers to the application of civic and citizenship cognitive processes to the civic and citizenship content described in the ICCS Assessment Framework (Schulz et al. 2010).

The second indicator is students' trust and expectation. The level of students' trust in civic institutions is measured by the percentage of students who reported that they trusted "completely" or "quite a lot" the national government, political parties, media (television, newspapers, radio), schools, and "people in general." The level of students' expectations of volunteering time to help people in the local community is measured by the percentage of students who will certainly or probably volunteer time to help people in the local community.

The third indicator for interacting in heterogeneous groups is civic participation in the wider community, which is measured by students' reporting whether they had participated "within the last 12 months," "more than a year ago," or "never" in a voluntary group doing something to help the community or an organization collecting money for a social cause.

Comparison Results by Category

Category of Using Tools Interactively

Key competency indices for using tools interactively produce the results as shown in Table 7.1. PISA 2009 encompasses the 34 OECD member countries and 41 partner countries and economies; however, this study reports only the results of the 29 OECD member countries that participated in the international option survey on the ICT familiarity component for the student.

As shown in Table 7.1, Korea holds the second position among the 29 countries in terms of competency for using tools interactively (the index as a whole).

Table 7.1 Results for the *using tools interactively* index

	Reading		Mathematics		Science		ICT		Total	
Nation	Mean	Score	Mean	Score	Mean	Score	Mean	Score	Mean	Ranking
Australia	515	0.73	514	0.74	527	0.75	52.34	0.77	0.75	4
Austria	470	0.23	496	0.60	494	0.44	59.41	0.93	0.55	20
Belgium	506	0.63	515	0.75	507	0.56	49.72	0.71	0.67	10
Canada	524	0.83	527	0.85	529	0.77	51.25	0.75	0.80	3
Chile	449	0.00	421	0.00	447	0.00	26.46	0.21	0.05	29
Czech Rep.	478	0.32	493	0.58	500	0.50	55.27	0.84	0.56	18
Denmark	495	0.51	503	0.66	499	0.49	48.68	0.69	0.59	17
Estonia	501	0.58	512	0.73	528	0.76	51.65	0.76	0.70	8
Finland	536	0.97	541	0.96	554	1.00	37.97	0.46	0.85	1
Germany	497	0.53	513	0.74	520	0.68	49.86	0.72	0.67	9
Greece	483	0.38	466	0.36	470	0.21	33.85	0.37	0.33	26
Hungary	494	0.50	490	0.55	503	0.52	46.74	0.65	0.56	19
Iceland	500	0.57	507	0.69	496	0.46	47.01	0.66	0.59	16
Ireland	496	0.52	487	0.53	508	0.57	40.95	0.52	0.54	21
Israel	474	0.28	447	0.21	455	0.07	34.43	0.38	0.24	27
Italy	486	0.41	483	0.50	489	0.39	44.53	0.60	0.48	24
Japan	520	0.79	529	0.86	539	0.86	17.01	0.00	0.63	12
Korea	***539***	***1.00***	***546***	***1.00***	***538***	***0.85***	***40.63***	***0.52***	***0.84***	***2***
Netherlands	508	0.66	526	0.84	522	0.70	50.90	0.74	0.73	6
New Zealand	521	0.80	519	0.78	532	0.79	43.93	0.59	0.74	5
Norway	503	0.60	498	0.62	500	0.50	53.87	0.81	0.63	11
Poland	500	0.57	495	0.59	508	0.57	48.92	0.70	0.61	14
Portugal	489	0.44	487	0.53	493	0.43	62.78	1.00	0.60	15
Slovak Republic	477	0.31	497	0.61	490	0.40	42.25	0.55	0.47	25
Slovenia	483	0.38	501	0.64	512	0.61	54.15	0.81	0.61	13
Spain	481	0.36	483	0.50	488	0.38	48.09	0.68	0.48	23
Sweden	497	0.53	494	0.58	495	0.45	41.47	0.53	0.53	22
Switzerland	501	0.58	534	0.90	517	0.65	50.96	0.74	0.72	7
Turkey	464	0.17	445	0.19	454	0.07	22.19	0.11	0.13	28
Max	539	1.00	546	1.00	554	1.00	62.78	1.00	0.85	
Min	449	0.00	421	0.00	447	0.00	17.01	0.00	0.05	
Mean Total	496.10		498.93		503.93		45.08		0.57	

Source: OECD (2010a), *The PISA international database*
Note: Author's construction

With Finland topping the list of nations, Canada takes the third place behind Korea. This outcome seems to mostly reflect the results of the PISA test scores which mainly constitute the index. Korea is the highest performing country in reading literacy (with a mean of 539 points)[2] and also in mathematics literacy (with a mean

[2] Top-performing among the 75 countries or economies participating in PISA include Shanghai-China (556), Finland (536), Hong Kong-China (533), Singapore (526), Canada (524), New Zealand (521), Japan (520), and Australia (515). In this case, Korea holds the second position in the PISA 2009 reading assessment (OECD 2010b).

of 546 points).[3] In science assessment, Korea holds the third position (with a mean of 538 points).[4] This result may indicate good performance of the Korean educational system. However, the result may also reflect the extreme competition for entering universities and the expansion of shadow education (such as private tutoring and private cram schools). In contrast to the high rank of Korea with respect to academic achievement, Korea holds the 23rd position among the 29 countries in ICT skills. Although Korea has become a world leader in ICT policy in the educational system, the ICT skills of Korean students are poor.

Category of Interacting in Heterogeneous Groups

Key competency indices for interacting in heterogeneous groups (Table 7.2) contrast starkly with the using tools interactively indices. The Korean youth hold the 21st position among a total of 22 nations in the OECD countries in terms of competency for social interaction.

Korean youth earn higher marks in the knowledge level of democracy and citizenship, whereas they obtain much lower scores in civic participation or trust and expectation. Of the nations under comparison, the Korean youth hold the lowest position in the competency index for interacting in heterogeneous groups except for youth from the Czech Republic, who show the same level as Korean youth. In order to achieve a more balanced development of Korean youth, it is a matter of urgency for the Korean society to build public trust and adopt a policy approach toward the reinforcement of their social interaction. This result suggests that Korea may not offer an educational environment suitable for all-round development, rather focusing on competition among students in schools.

Conclusion

This study analyzes key competencies in Korea. The results can be summarized as follows. According to an evaluation on students' key competency, Korea was significantly higher in terms of *using tools interactively* but very much lower in terms of *interacting in heterogeneous groups* than other countries. In other words, Korea has primarily focused on the development of intellectual ability in terms of youth and education policy. This is related to the extreme competition for entry into high-ranked universities. In Korea, many high school graduates have spent one or more

[3] Korea holds the second position after Shanghai-China (600) among the 75 countries or economies participating in the PISA 2009 mathematics assessment.

[4] Countries performing better than Korea among the 75 countries or economies participating in the PISA 2009 science assessment are Shanghai-China (575), Finland (554), Hong Kong-China (549), Singapore (542), and Japan (539).

Table 7.2 Results for the *interacting in heterogeneous groups* index

	Trust and expectation		Civic participation		Civic knowledge		Total	
Nation	Mean	Score	Mean	Score	Mean	Score	Mean	Ranking
Austria	59.10	0.51	43.00	0.90	503.00	0.41	0.52	4
Belgium	52.00	0.18	41.50	0.85	514.00	0.50	0.47	10
Chile	68.50	0.96	40.00	0.81	483.00	0.25	0.52	4
Czech Republic	50.40	0.10	21.00	0.24	510.00	0.47	0.31	21
Denmark	50.60	0.11	24.00	0.33	576.00	1.00	0.45	15
United Kingdom	58.00	0.46	42.50	0.88	519.00	0.54	0.53	2
Estonia	57.30	0.43	29.50	0.49	525.00	0.59	0.44	16
Finland	52.00	0.18	17.00	0.12	576.00	1.00	0.42	18
Greece	63.40	0.72	29.00	0.48	476.00	0.19	0.38	19
Ireland	61.90	0.64	46.50	1.00	534.00	0.66	0.60	1
Italy	68.60	0.96	23.50	0.31	531.00	0.64	0.50	8
Korea	***48.30***	***0.00***	***13.00***	***0.00***	***565.00***	***0.91***	***0.31***	***21***
Luxembourg	58.60	0.49	40.00	0.81	473.00	0.17	0.44	16
Mexico	69.40	1.00	45.00	0.96	452.00	0.00	0.51	7
New Zealand	58.30	0.47	43.50	0.91	517.00	0.52	0.53	2
Norway	55.40	0.34	36.00	0.69	515.00	0.51	0.47	10
Poland	56.20	0.37	41.50	0.85	536.00	0.68	0.52	4
Slovak Republic	62.20	0.66	26.50	0.40	529.00	0.62	0.46	13
Slovenia	59.90	0.55	34.00	0.63	516.00	0.52	0.47	10
Spain	64.70	0.78	29.00	0.48	505.00	0.43	0.46	13
Sweden	55.30	0.33	18.50	0.16	537.00	0.69	0.38	19
Switzerland	52.00	0.18	37.50	0.73	531.00	0.64	0.48	9
Max	69.40	1.00	46.50	1.00	576.00	1.00	0.60	
Min	48.30	0.00	13.00	0.00	452.00	0.00	0.31	
Mean total	58.28		32.82		519.23		0.46	

Source: IEA (2010)
Note: Author's construction

additional years preparing for admission to the university of their choice. In 2012, the number of repeat applicants for the scholastic ability test was 142,564 (21.3 % of total applicants). Further, the burgeoning expansion of private tutoring has been a serious problem in Korea. In 1980, 14.9 % of all students experienced private tutoring, while 73.6 % of all students experienced it in 2010. For more balanced youth development, therefore, it is urgent to establish a policy approach to help students build social interaction.

The Korean society should prioritize research and development activities for social interaction behavior rather than intellectual behavior when it proceeds with the development of a key competency index. In particular, clarification of subcategory relationships is necessary for the competency index for social interaction to ensure proper weight allocation. On the other hand, the competency for autonomous behavior seems to require further studies which cover the detailed conceptualization and development of measurement methods. The key competency for

autonomous behavior is difficult to convert into an index based upon the measurement tools of PISA and ICCS.

Schools need to see and promote a competency-based learning system from a long-term perspective. It is important to start with a pilot school for the competency-based learning system and encourage more schools to join the project.

In addition, it is necessary to reach international consent agreement by adjusting global key competencies in consideration of Korean circumstances. An effort to figure out indigenous key competencies has also been found in various foreign case studies on innovation of educational curricula. For example, New Zealand has chosen five competencies as follows: thinking, use of language/symbol/text, self-management, interrelation and participation, and contribution (Hipkins et al. 2007). The State of Victoria in Australia has also identified three key competencies: self-management ability individually or in relationship with others, understanding of surroundings, and ability to act effectively.

In Korea as well, there have been many efforts to identify key competencies appropriate to Korean circumstances. Because these efforts have resulted in researchers producing key competencies in different categories, they have not been properly applied to school education. Therefore, it is necessary to come up with unified key competencies which are essential to Korean students.

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Chapter 8
Effects of Ability Grouping on Middle School Students' Affective Outcomes

Yeo-Jung Hwang

Introduction

In Western society, ability grouping has been one of the most controversial issues over the last 80 years in education. According to its proponents, classes conducted in homogeneous groups should better satisfy students' particular needs and better control order of the class, as well as better encourage students to study than classes comprised of students with varying abilities (Hooper et al. 1989; Kulik and Kulik 1982; Lou et al. 1996; Mulkey et al. 2005). In contrast, opponents assert that the positive effects of ability grouping have not been substantiated enough, and even if so, the successes are only for upper-level students. Rather, it is harmful for low-level students in terms of their academic achievements and self-confidence (Braddock and Slavin 1993; Esposito 1973; Gamoran et al. 1995; Hallinan 1994; Kerckhoff 1986; Oakes 2005).

In spite of the ambivalence of its effects, ability grouping in schools seems to be internationally prevalent. This trend is not unfamiliar in Republic of Korea, whereby the government is pushing for its increased implementation in secondary schools. Accordingly, homogeneous grouping has been on the rise in recent years, particularly in English and mathematics, the two subjects for which ability grouping was the most requested by parents and students alike. Consequently, according to South Korean government reports, approximately 77 % of middle schools were executing it by 2009 (Yonhap News 2009 .9.20).

Currently, even though this practice has been well underway in secondary education on an extensive scale, empirical studies on how ability grouping impacts student outcomes in Korea are uncommon. In particular, there has been little research carried out on the relationship between ability grouping and students'

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affective outcomes, whereas previous research has focused mainly on the effects of ability grouping on academic achievement (e.g., Hwang 2008; Kim 2009). However, students' educational outcomes should be examined from various aspects, not only from a cognitive perspective but also from an affective one.

Particularly, a scheme such as ability grouping is likely to be related to emotional aspects of students. As is widely known, under the circumstances in which ability grouping works, students should be separated by academic achievement, and these distinctions can promote an atmosphere of disharmony between students. In addition, they can cause stigma effects and lower the self-esteem for those students who are assigned to a lower track (Oakes 2005).

This problem can be particularly apparent in Republic of Korea, where academic competition among students is very fierce. As a result, ability grouping may carry special meanings for students, who attach importance to academic competition and getting ahead of their competitors. For this reason, it is necessary to investigate the effects of ability grouping on students' affective outcomes in the context of Korean society.

With this in mind, this study examines the effects of ability grouping on affective outcomes among Korean middle school students. However, to gain a more profound insight into the internal mechanisms of ability grouping—that is, rather than simply looking at the effects of participation in homogeneous grouping—this study pays special attention to the effects of group placement (i.e., in an advanced class versus a remedial class). Furthermore, this study seeks to examine whether or not a student's "competitive disposition"—as indicated by the degree of his or her desire to excel over others in educational competitions—moderates the effects of ability grouping on educational affective outcomes. As previously mentioned, students who have a strong competitive orientation may be more affected by this kind of program in the Korean context, where educational competition is very fierce. This study attempts to evaluate this possibility empirically.

This approach will contribute towards a more accurate understanding of the mechanisms of ability grouping and their effects on educational outcomes in the highly competitive educational climate of Republic of Korea. Also, this study is expected to offer useful recommendations on ability grouping within Republic of Korea.

Background

The Process and Current Status of Ability Grouping in Republic of Korea

Ability grouping in Republic of Korea became common during the mid-1990s and has seen a dramatic increase as of late. Initially, ability grouping was adopted in the wake of Republic of Korea's Secondary School Equalization policy (adopted in varying forms, and in certain regions, beginning in the 1970s), having assigned

students via lottery to schools within their local area. Prior to the Equalization policy, students competed fiercely in their attempts to enter a few prestigious high schools. Following the implementation of this policy, such competition abated but schools found themselves with student bodies of highly disparate ability levels. As a result, the government introduced ability grouping within schools as a way to ameliorate this problem.

Under the scheme operating in the 1970s and 1980s, students were separated by their total score for all subjects, not by each subject. This method can be regarded in various ways as a strict type of grouping. In these circumstances, students were prohibited from moving upward from their ability-grouped classes. Therefore, once placed in a certain track, they had to learn all subjects from within the track. For this reason, ability grouping was criticized for its undemocratic and permanent aspects, and the scheme seemed to be in decline until the early 1990s. Ability grouping, however, has re-emerged in the wake of the "5.31 Education Reform" in 1995. In fact, as the "5.31 Education Reform," the most famous and influential reform plan in Korean education, strongly emphasized ability grouping, this system has begun to receive a lot of attention again.

To reflect these circumstances, in February of 2004, ability grouping as a key component of the official education policy was announced to compensate for the defects of its secondary school equalization policy. In December of 2004, this policy was introduced as the core of the Educational Excellence Program to alleviate any side-effects stemming from the equalization policy. Also, in 2007, the Korean Ministry of Education announced that restrictions hindering the adoption of ability grouping would be eased in 2008 and that ability grouping would be implemented in most secondary schools within a few years.

As a result, ability grouping—followed by level-based instruction—has rapidly increased. At the middle school level, the implementation of ability grouping practices rose from 16.4 % in 2004, to 67.3 % in 2007, and to 77.0 % in 2009. In South Korean high schools, the implementation rose from 38.0 % in 2004, to 63.7 % in 2006, and to 79.0 % in 2009 (Yonhap News 2009 .9.20.).

However, the way ability grouping has been conducted recently is somewhat different from the rigorous "tracking" in the 1980s and 1990s. While the two systems are similar in that the most important and decisive criterion for placement is academic achievement, there are differences in specific processes. In detail, whereas students were separated by total grades from all subjects in the past, track placement in recent days is carried out by considering each grade from each subject such as English or mathematics. The number of track levels offered varies from school to school. For example, some have two tracks (honored and remedial class), and others three (honored, middle, and remedial) or more. Once students and their parents choose the level of the ability group to be placed in considering the level of their academic achievement, their teacher makes a decision to assign them according to students' and parents' choice and other related matters. In addition, the number of students placed in classes at each level can differ between schools. Some schools assign fewer students to lower-level classes than higher-level because lower-level students need more attention and care.

In the last 3 or 4 years, however, ability grouping has been expanded more and more in Republic of Korea. The Korean government has put a strong emphasis on academic achievement and believes that ability grouping is the most effective way to improve students' academic performance. For this reason, the government has promoted this scheme very strongly. As a result, the scheme has spread too rapidly with the government was not sufficiently prepared for this.

Overview of the Effects of Ability Grouping on Students' Affective Outcomes

Previous research on the effects of ability grouping on students' affective outcomes shows conflicting results. For example, Kulik and Kulik (1982) and Seaton et al. (2008) analyzed the effects of ability grouping on students' affective outcomes regardless of track placement. Kulik and Kulik (1982) performed meta-analysis on the findings from 52 separate studies done on ability grouping, carried out in secondary schools. They analyzed its effects on various affective outcomes such as the attitudes of students toward the school, their attitudes toward subjects, and their self-efficacies. Fifteen studies dealt particularly with self-concept or self-esteem. Among them, seven studies reported that self-concepts for the case of students in grouped classrooms were higher, whereas six studies showed that the self-concepts for students from ungrouped classrooms were higher. And in two studies, self-esteem was equal for the two groups.

Seaton et al. (2008) performed a large study with representative samples from Netherlands, France, and Germany to investigate the influences of ability grouping on students' self-concepts. They found negative effects of ability grouping on students' self-evaluation. Similarly, in Republic of Korea, there has been a study on the relationship between ability grouping and students' educational aspirations, although not on self-concepts or self-evaluation. Hwang and Hwang (2011) investigated the effects of ability grouping on educational aspirations of middle school students in Republic of Korea. They found that students who participated in ability grouping have relatively lower aspirations compared with students who have not experienced homogeneous grouping.

In contrast, various studies including Chiu et al. (2008), Maddux et al. (1982) and Vaughn et al. (1991) maintained that homogeneous grouping has no effect on students' affective outcomes. For example, Chiu et al. (2008) found that ability grouping influenced children's mathematics self-concepts but not their overall self-esteem. However, when controlling the effects of students' academic grades, the impact of ability grouping on self-concept was no longer significant. From these results, they asserted that there is a high probability that differences in students' self-concepts were caused by grades rather than track level. Maddux et al. (1982) and Vaughn et al. (1991) also reported that there is no statistically significant relationship between ability grouping and a student's self-concept.

Effects of Ability-Group Placements on Students' Affective Outcomes

Effects of Being Placed in Honored Classes

When investigating the relationship between ability grouping and students' affective outcomes, it is necessary to consider the effects of track placement. Numerous previously carried out studies found that the effects of ability grouping can differ by track placement—high track or low track. However, such studies have produced somewhat conflicting findings. Some studies, such as Ireson and Hallam (2009), Seaton et al. (2008), and Trautwein et al. (2006), concluded that ability grouping has positive effects on higher-level students. In particular, Ireson and Hallam (2009) emphasized that students in high-ability groups tend to have significantly higher self-concepts in all subjects than students in low-ability groups.

There are two different explanations for why students in the higher track might benefit more from ability grouping than those in the lower track. The first is that students in the higher track have a higher self-concept because they actually have higher levels of academic achievement. For instance, Seaton et al. (2008) and Trautwein et al. (2006) have shown that students in the higher track have higher grades than those in the lower track, and their higher academic self-concepts are caused by having achieved higher grades, rather than as a result of ability grouping.

The second is related to "social comparison." In terms of social comparison, it seems that high-track students are likely to benefit from an "assimilation effect" rather than a "contrast effect." An assimilation effect occurs when one sees oneself as similar to a comparison group. In this view, for students placed in the high track, the comparison with similar students has a high possibility of improving their self-concepts and self-esteem because students who compare themselves to other high-achieving students may feel that they can do as well as those students, and this very feeling improves their own self-beliefs (Chiu et al. 2008).

In contrast, some studies reported that students placed in the high track can be disadvantaged from ability grouping. Marsh (1984) asserted that a student's academic self-concept is negatively affected by school-average achievement. For this reason, he contended that after controlling for individual characteristics such as family background and student academic ability, being placed in a high track can cause a substantially lower level of academic self-concept. Likewise, Catsambis et al. (2001), Gamoran (1992), and Marsh et al. (1995) also concluded that being placed in the high track is against students' social and psychological development.

Effects of Being Placed in the Lower Track

It is known that ability grouping has a negative effect on students' affective outcomes in the low track. Many studies suggest that students placed in the low

track tend to think that they are labeled as less able students, as a result of which they lose confidence and develop lower academic self-concepts or self-esteem.

Specifically, Oakes et al. (1992) assessed that there is a tendency for high-track students to benefit psychologically as well as academically when compared with students in lower-track classes when ability grouping is carried out. Similarly, Eitzen and Zinn (2003) reported that students placed in the low track are disadvantaged by ability grouping because of an inadequate curriculum and negative track labels, which can affect their self-concepts or self-esteem.

For the reason that ability grouping has a negative effect on low-track students' affective and psychological development, some researchers have asserted that social comparison plays a vital role in causing those results. Specifically, they suggested that students with low abilities tend to make upward comparisons with students in the higher track and thereby know that they are labeled as the less able students (Ireson et al. 2001; Redd et al. 2002; Zeleke 2004).

In contrast, other studies have concluded that ability grouping lowers the self-concepts or self-esteem of high-track students and raises low-track students' affective outcomes (Chiu et al. 2008; Hallam and Ireson 2003; Wigfield et al. 1998; Zeleke 2004). The rationale for this position is that social comparisons made within tracks have a larger effect on self-esteem and self-concepts than social comparisons made across tracks. This means that low-achievers in heterogeneous classes would have lower self-concepts than high-achievers because they tend to compare themselves with their higher-achieving classmates. On the other hand, in homogeneous classes, they are likely to possess more positive self-concepts because they compare themselves to the same level of 'lower-achieving' students.

Effect of Psychological Factors

The effect of ability grouping can be closely related to students' psychological factors as well as the objective conditions under which this scheme operates. As mentioned earlier, the concept of "social comparison" plays a very important role in explaining the relationship between ability grouping and students' affective outcomes such as self-efficacy. In other words, while students' self-efficacy may go up when students feel superior to others through comparing with the reference group, it may be reduced when they feel a sense of inferiority. In this regard, Marsh's studies provide practical implications. Marsh (1984) argued that students are compared within groups more often than between groups. For this reason, the more capable and stronger the reference group is, the lower the self-concepts and self-efficacy students tend to have. Based on this theoretical framework, it can be inferred that students who hate to lose, wish to outpace others, and excel in class are highly likely to have their self-concepts and self-efficacy undermined when they are placed in the advanced track and are thus compared with more capable peers.

In a similar context, it can be inferred that there can be a difference in effects of ability grouping on students' affective aspects according to psychological characteristics such as the sensitivity in comparison with others. This leads to the assumption that those who are competitive and value getting ahead possess strong convictions and have pride in their own capabilities. This explains the close positive relationship between competitive disposition and the level of self-efficacy. Furthermore, in Korea, this aspect may be pronounced because there is a tendency to strongly emphasize academic competition among students and thus for students to be very sensitive to academic achievement. Therefore, there is a need to examine how this effect appears to the students who are relatively sensitive to competition with others.

Method

Data Source

In order to verify the hypotheses, this study used a nationally representative sample of third year middle school students (9th graders) from the Korea Education Longitudinal Study (KELS), which began in 2005. Much like the National Education Longitudinal Study (NELS) in the United States, KELS provides data about a variety of students' demographic, social, psychological, familial, and school-related variables, including a set of items about ability grouping. From the base year (2005), KELS followed a sample of 6,908 seventh graders from 150 middle schools. In this study, we first employed data for 6,508 students surveyed in all three waves. However, due to missing cases in the data for participation in ability grouping and affective outcomes, the final sample was ultimately reduced to 5,462 ninth graders from 141 schools. In order to overcome the obstacles of incomplete data, we carefully applied multiple imputations.

Variables

Dependent Variable

As a dependent variable, this study used students' academic self-efficacy, which is one of various affective outcomes. Students' academic self-efficacy was measured by the mean value of the ninth graders' responses to four items: "If I want to learn something, I am able to master it even though it is very difficult," "If I hope to earn good grades, I can achieve the goal," "If I hope not to miss a certain question, I am definitely able to get the correct answer," and "If I hope to learn something very well, I am able to master it" (1 = very weak, 5 = very strong). These questions were separately measured in English and mathematics.

Independent Variables

Independent variables associated with students. Variables measuring demographic characteristics and family background of students include gender, family income, and parents' education and occupation. Also, parents' cultural capital was included to measure cultural background. Specifically, students' gender was measured by a dummy variable (0 = male, 1 = female); family income was indicated by the logarithm of the total monthly income; parents' education was measured by years of parental schooling. In the baseline KELS parents' questionnaire, parents reported their highest levels of educational attainment. The higher of the mother's and father's schooling level is used as parental education in this study. Likewise, derived from parents' open-ended responses on their occupation and coded in accordance with the International Socio-Economic Index (ISEI) of Occupation Status (Ganzeboom and Treiman 1996), parental occupation status was based on either the father's or mother's ISEI, whichever is higher.

In addition, this study employed various control variables such as prior academic achievement, prior academic self-efficacy, the length of time students studied on their own, participation in private tutoring, student's educational aspiration, parental educational expectation, and parental educational involvement. More specifically, for prior academic achievement, test scores in eighth grade were used, assuming a temporal causal relationship. Likewise, academic self-efficacy in eighth grade was employed for controlling prior academic self-efficacy.

The length of time students studied on their own was measured by actual amounts of hours students spent on studying by themselves per day, separately for English and mathematics. Participation in private tutoring was indicated by a dummy variable (0 = no participation in private tutoring, 1 = participation in private tutoring). To measure the student's educational aspiration, the responses (middle school, high school, junior college, 4-year university, and Master's or Ph.D) to the question "Which level of education do you wish to complete?" were changed to "years of schooling," and 9, 12, 14.5 (due to the fact there are both 2- and 3-year junior colleges in Republic of Korea), 16, 18, and 22 respectively.

In addition, parents' educational expectations of their child and parents' educational involvement were used to control the effects of parents' assistance and support on students' academic self-efficacy. Parents' educational expectation of their child was measured by the level of educational attainment that the parents wanted their child to complete. Parents' educational involvement represents a kind of social capital in the family. It was measured by the mean of parents' responses to four questions about the parental involvement or support: setting up optimal environment in the family for their child's studies, caring about their child's grades, collecting information about good private tutoring, and encouraging their child to study hard.

Moderating variable. To examine the mechanism causing the effects of ability grouping more closely, this study paid special attention to the students' psychological characteristics. Particularly, this study employed "competitive tendency" to reflect

students' psychological properties. For "competitive tendency", the six questions "I want to do better in my studies than other students," "My goal is to get better grades than other students," "It is very important for me to perform better in class than other students," "I study because I often fear I would fall behind other students," "I study to avoid doing worse than other students," and "I give a lot to avoid falling behind other students" were answered on a scale of 1–4, from "totally disagree (= 1)," to "totally agree (= 4)." The mean value was calculated for these six responses. The Cronbach's alpha on these six questions indicated 0.853.

Ability grouping measures. To investigate the difference by track placement, the study created variables which measured the type of ability-group placement. Students were divided into those who were in advanced class, middle class, remedial class, and non-participants in ability grouping. Then, the author created three dummy variables, with the students who did not participate in ability grouping as a reference group.

Independent variables describing schools. Variables for describing the characteristics of school include region, school-average socioeconomic status (SES), school-average students' academic achievement, and ability grouping. Region was measured by degree of urbanity in location of schools (1 = very large city, 2 = large city, 3 = small city, 4 = rural). In this case, three dummy variables were created, separately comparing very large city, large city and small city with the rural. The school-average parental socioeconomic status in each school was measured by the aggregated values of the student's family socioeconomic status from individual level, which was the composite value of family income, parental schooling, and parental occupational index. School-average academic achievement was measured by the aggregated values of the academic achievement test scores from student level.

Statistical Analysis

In most studies conducted in school settings, individual students or school characteristics are not distinguished. This clustering effect causes problems related to appropriate levels of analysis, aggregation bias, and heterogeneity of regression. Moreover, associated problems of model misspecification arise due to the lack of independence between measurements at different levels (Raudenbush and Bryk 2002). Therefore, in order to cope with these problems, this study employed multilevel models. Specifically, the study used two-level hierarchical linear modeling with students nested within schools, and analyses were performed separately in both English and mathematics academic self-efficacy. The multilevel model used for this research is as follows:

Level-1 model: $Y_{ij} = \beta_{0j} + \beta_{1j}X_{1ij} + \beta_{2j}X_{2ij} + \ldots + \beta_{qj}X_{qij} + r_{ij}$ $(\beta_{nj}, q = 0, \ldots, N)$
Level-2 model: $\beta_{0j} = \gamma_{00} + \gamma_{q1}W_{1j} + \gamma_{q2}W_{2j} + \ldots + \gamma_{q}s_{q}Ws_{qj} + u_{0j}$

$$\beta_{1j} = \gamma_{10}$$
$$\cdots\cdots$$
$$\beta_{Qj} = \gamma_{Q0}\left(Ws, s = 1,\ldots,Sq\right)$$

In this model, Y_{ij} refers to the academic self-efficacy of student i in school j. β_{0j} is the intercept, $\beta_{1j} \sim \beta_{qj}$ are sets of coefficients of the student-level variables representing students' characteristics, and r_{ij} is the unique contribution of each student i in school j. We assume that each level-1 error, r_{ij}, is normally distributed with a mean of zero and a constant level-1 variance σ^2. Next, the level-2 model explains the average of students' academic self-efficacy of the jth unit employing school-level variables. β_{0j} is just the mean outcome of the jth unit and is assumed to be a random effect. Also the effects of other level-2 variables are assumed to be fixed. When continued, γ_{00} is the average intercept across the level-2 units, $\gamma_{q1} \ldots \gamma_{qsq}$ are the regression slope across the level-2 units. We assumed that the level-2 error, u_{0j}, is normally distributed with a mean of zero and a constant level-2 variance tau_{00}. The variables included in this model are centered on the grand means, excluding categorical variables. For estimating the parameters of the multilevel models, HLM6.08 was used.

Handling Missing Data

In addition, the study employed a multiple imputation method to handle missing values. When observations are missing, the available options are to delete the data or to replace the missing value with an imputed value. Among these options, listwise deletion (complete cases analysis) has been used frequently until now. But listwise deletion reduces the sample size, which can be problematic if missing observations occur for many subjects. The loss of data results in fewer degrees of freedom, less statistical power, and larger standard errors. Therefore, under the assumptions that missing data is MAR (Missing at Random), we conducted multiple imputations using the EM algorithm. Five imputed data were constructed for missing data and used in the analyses that follow. This strategy is generally considered to be more reliable than listwise deletion or simple imputation (Little and Rubin 2002). Table 8.1 shows the descriptive statistics of variables which were included in this study.

Results

This study systematically examined the effects of ability grouping on the affective outcomes of South Korean middle school students. Based on the findings by Slavin (1990) and Mulkey et al. (2005), that homogeneous grouping can have different effects depending on subject, separate analyses of English and mathematics were conducted.

Table 8.1 Descriptive statistics for variables

	Data sets									
	m = 1		m = 2		m = 3		m = 4		m = 5	
Variables	M	S.D.	M	S.D.	M	S.D.	M	S.D.	M	S.D.
Student's level variables										
English academic self-efficacy	2.46	0.70	2.46	0.70	2.46	0.70	2.46	0.70	2.46	0.70
Mathematics academic self-efficacy	2.50	0.67	2.50	0.67	2.50	0.67	2.50	0.67	2.50	0.67
Gender (female = 1)	0.47	0.50	0.47	0.50	0.47	0.50	0.47	0.50	0.47	0.50
Parental education	12.83	2.22	12.83	2.23	12.84	2.23	12.84	2.23	12.83	2.23
Family income (logged)	5.73	0.93	572	0.93	5.73	0.92	5.72	0.92	5.72	0.92
Parental occupation status	44.42	13.91	44.51	13.91	44.38	14.01	44.41	14.01	44.5	14.13
Time for self-studying (English)	1.99	2.08	1.99	2.08	1.98	2.08	1.99	2.08	1.99	2.08
Time for self-studying (mathematics)	2.12	2.16	2.12	2.15	2.11	2.15	2.12	2.16	0.69	0.46
Participation in private tutoring (English)	0.69	0.46	0.69	0.46	0.69	0.46	0.69	0.46	0.70	0.46
Participation in private tutoring (mathematics)	0.70	0.46	0.70	0.46	0.70	0.46	0.70	0.46	0.72	0.45
Student's educational aspiration	16.39	1.9	16.38	1.92	16.4	1.9	16.38	1.91	16.39	1.90
Parental educational expectation of their child	17.05	2.27	17.06	2.27	17.07	2.28	17.07	2.27	17.05	2.27
Parental educational involvement	3.49	0.65	3.49	0.54	3.49	0.65	3.49	0.65	3.49	0.65
Prior academic achievement (English)	56.12	24.49	56.12	24.49	56.12	24.49	56.12	24.49	56.12	24.49
Prior academic achievement (mathematics)	51.27	24.6	51.27	24.6	51.27	24.6	51.27	24.6	51.27	24.60
Competitive disposition	2.58	0.58	2.58	0.58	2.58	0.58	2.58	0.58	2.58	0.58
Participation in ability grouping in English										
Participation in advanced class	0.15	0.36	0.15	0.36	0.15	0.36	0.15	0.36	0.15	0.36
Participation in middle-level class	0.06	0.24	0.06	0.24	0.06	0.24	0.06	0.24	0.06	0.24

(continued)

Table 8.1 (continued)

	Data sets									
	m = 1		m = 2		m = 3		m = 4		m = 5	
Variables	M	S.D.	M	S.D.	M	S.D.	M	S.D.	M	S.D.
Participation in remedial class	0.08	0.28	0.08	0.28	0.08	0.28	0.08	0.28	0.08	0.28
Participation in ability grouping in mathematics										
Participation in advanced class	0.16	0.36	0.16	0.36	0.16	0.36	0.16	0.36	0.16	0.36
Participation in middle-level class	0.07	0.25	0.07	0.25	0.07	0.25	0.07	0.25	0.07	0.25
Participation in remedial class	0.08	0.27	0.08	0.27	0.08	0.27	0.08	0.27	0.08	0.27
School-level variables										
Region (reference group = rural)										
Very large city	0.17	0.37	0.17	0.37	0.17	0.37	0.17	0.37	0.17	0.37
Large city	0.26	0.44	0.26	0.44	0.26	0.44	0.26	0.44	0.26	0.44
Small city	0.45	0.5	0.45	0.5	0.45	0.5	0.45	0.5	0.45	0.5
School-average SES	–0.06	0.53	–0.06	0.53	–0.06	0.53	–0.06	0.53	–0.06	0.53
School-average academic achievement (English)	55.16	9.81	55.16	9.81	55.16	9.81	55.16	9.81	55.16	9.81
School-average academic achievement (mathematics)	53.12	8.91	53.12	8.91	53.12	8.91	53.12	8.91	53.12	8.91
Ability grouping in English	0.29	0.45	0.29	0.45	0.29	0.45	0.29	0.45	0.29	0.45
Ability grouping in mathematics	0.31	0.46	0.31	0.46	0.31	0.46	0.31	0.46	0.31	0.46

Before conducting the analysis on an established conditional model, each level-by-level variance was examined based on the unconditional model. If the analysis of the unconditional model indicates school-level variance to be statistically significant, it can be interpreted that every school has an unequal students' academic self-efficacy, which subsequently ensures that extrapolating results from an addition of school-level variance is valid.

Table 8.2 shows the results of the unconditional model. In these results, it is indicated that school-level variance accounts for 4.1 % in English and 4.0 % in mathematics. It shows that disparity among schools is statistically significant and multilevel modeling is adequate for this data. Therefore, though students' academic self-efficacy is mainly determined by individual factors, it is necessary to apply multilevel modeling including school-level factors to these analyses.

The main results of the multilevel modeling analyses are shown below. First, Table 8.3 illustrates the impact of ability grouping on academic self-efficacy in the

Table 8.2 Estimates of unconditional models for English and mathematics

	English	Mathematics
Intercept	2.454***	2.499***
Variance within school (σ^2)	0.470	0.431
Variance between school (τ_{00})	0.020	0.018
Intra-class correlation (ICC)	0.041	0.040

***$p < .001$

subject of English. Model I included gender, parental education, family income, parental occupation, parents' expectations of their child, parents' educational involvement, the length of time students studied on their own, participation in private tutoring, educational aspirations, and prior academic achievements as control variables. Among them, all those except for family income and parental occupation were found to be closely related to English self-efficacy. English self-efficacy was found to be lower in female students than in male students. It increased, however, if parents had higher educational backgrounds and educational expectations of their children, and were more supportive and involved in their children's education. Students who received private tutoring, studied longer hours on their own, and had higher educational aspirations as well as academic achievements were found to maintain relatively higher self-efficacy levels.

Variables which were related to ability grouping, the main focus of this study, were included in Model II and beyond. Compared with those who have not experienced ability grouping, the analysis of Model II suggests that students who are placed in advanced classes are highly likely to have their self-efficacy raised, while those who are placed in remedial classes are more likely to have their self-efficacy lowered. This means that self-efficacy differs depending on the level of track they are placed in. About this phenomenon, Seaton et al. (2008) and Trautwein et al. (2006) explained that higher performing students had higher self-concepts and self-efficacy because they had strong confidence levels in their academic abilities based on their objective achievements. This study revealed, however, that the effect of track placement was statistically significant even when prior academic achievements were controlled, indicating that the upper track was likely to produce positive effects while a lower class was expected to generate negative ones regardless of students' academic achievements. In the meantime, middle track placement was found to have no meaningful effects.

In Model III, prior English self-efficacy was added in order to identify whether the effect of track placement, verified in the preceding stage, was valid when prior academic self-efficacy was controlled. As expected, previous academic self-efficacy was closely related to the self-efficacy measured afterwards. While the benefit of upper-level placement lost its statistical significance with the input of prior academic self-efficacy, the negative effect of lower-level placement remained significant. Given the high covariance with regard to the correlation coefficient of $r = .561$ between self-concepts measured before and after, this result supports the fact that the negative effects of lower classes are strong and firm.

Table 8.3 Effects of ability grouping on English academic self-efficacy

	Model 1		Model 2		Model 3		Model 4		Model 5	
	b	se	b	se	b	se	b	se	b	se
Intercept	2.404***	.022	2.404***	.023	2.410***	.021	2.413***	.020	2.324***	.034
Student-level										
Gender (female)	−.038*	.019	−.037†	.019	−.017	.017	−.022	.017	−.023	.017
Parental education	.014**	.004	.012**	.004	.002	.004	–	–	–	–
Family income	.014	.009	.012	.009	.015†	.009	.020*	.009	.021*	.009
Parental occupational status	−.001	.001	–	–	–	–	–	–	–	–
Parental educational expectations	.010*	.004	.010*	.004	.006	.004	–	–	–	–
Parental involvement	.042**	.014	.039**	.014	.023†	.013	.019	.013	–	–
The length of time students studied on their own	.074***	.004	.072***	.004	.050***	.004	.047***	.004	.047***	.004
Participation in private tutoring	.104***	.024	.102***	.024	.078***	.021	.076**	.020	.075**	.021
Student's educational aspiration	.032***	.005	.031***	.005	.022***	.005	.021***	.004	.021***	.005
Prior academic achievement	.007***	.001	.007***	.001	.004***	.0004	.004***	.0004	.004***	.0004
Ability grouping										
Placement in advanced track			.051†	.027	.025	.023	.031	.022	.034	.023
Placement in middle-level track			.031	.041	.031	.035	.021	.033	.025	.033
Placement in remedial track			−.115**	.035	−.057†	.031	−.056†	.031	−.055†	.031
Prior academic self-efficacy					.412***	.017	.401***	.017	.402***	.017
Competitive disposition							.157***	.019	.158***	.019
Interaction effect										
Competitive disposition*placement in advanced track							−.076†	.046	−.076†	.046
Competitive disposition*placement in middle-level track							.114†	.067	.117†	.068
Competitive disposition*placement in remedial track							.073	.051	.073	.051

School-level						
Region						
Very large city					.134**	.042
Large city					.125**	.037
Small city					.076*	.034
School-average SES					−.046†	.027
School-average students' academic achievement					.0003	.001
Variance						
Variance within school	0.361	0.360	0.292	0.284	0.284	
Variance between school	0.008	0.008	0.006	0.005	0.004	
Total variance	0.369	0.368	0.298	0.289	0.288	
Intra-class correlation	0.022	0.022	0.020	0.017	0.014	
R^2 Within school	0.232	0.234	0.379	0.396	0.396	
Between school	0.600	0.600	0.700	0.750	0.800	
Total	0.247	0.249	0.392	0.410	0.412	

***$p<.001$; **$p<.01$; *$p<.05$; †$p<.10$

Model IV tried to determine whether the effects of track placement were associated with psychological factors. In order to do so, the tendency of comparing oneself with others, placing a value on getting ahead of others, and feeling strong pressure when falling behind were conceptualized as "competitive disposition." When its interaction with ability grouping was investigated, the higher the competitive disposition was, the higher the level of self-efficacy became. In the middle and lower tracks, however, the interaction between competitive disposition and track placement did not have a negative effect as is the case in the upper track. Some students with competitive disposition were found to experience moderately positive effects on their self-efficacy when placed in the middle track. This result shows that students who are competitive and often compare themselves with others tend to have their self-confidence raised when placed in middle and lower tracks which separate them from higher performing peers.

The school-level variables were added in Model V. The results show that there are no differences between model 4 and model 5 even though various school-level control variables are employed in the analysis. These results are presented in Table 8.3.

Next, the effect of ability grouping on mathematics self-efficacy was examined. Estimates of the unconditional model in Table 8.2 suggest that the mean value of students' mathematics self-efficacy is not very high, at 2.499 out of 4, similar to that of English self-efficacy. Furthermore, only 4 % of the total variance is accounted for by school-level factors, explaining that mathematics self-efficacy is determined mostly by individual-level variance, as is the case with English self-efficacy, leaving only limited room to be influenced by school-level variables. However, school-level variance estimated in the unconditional model is found to be statistically significant, making it necessary to include school-level variables.

Table 8.4 shows the result of conditional models including various explanatory variables. The result is discussed with the focus on ability grouping's effects, which is the main interest of this study. Model II, including track placement information in addition to student-level control variables in Model I, shows that students placed in the advanced track experience higher academic self-efficacy when compared with those who did not experience homogenous grouping, and students placed in the remedial track experience reduced academic self-efficacy.

The impact of lower track placement was found to be considerably strong. Placement in both advanced and remedial tracks continued to maintain their effects after the prior self-efficacy was controlled. Given the strong covariance between the two variables of previous and later self-efficacy in mathematics, with the correlation coefficient value of $r = .590$, ability grouping seems to have a strong and firm effect on the formation of students' academic self-efficacy.

Meanwhile, competitive tendency, which was added to Model IV, was closely related to self-efficacy. The more competitive a student was, the stronger his self-efficacy was analyzed to be. Such a tendency reversed, however, when track placement information was considered. Just as is the case with English, competitive students experience negative effects when they are placed in the advanced track. This seems to be the case because students who value others' views and

Table 8.4 Effects of ability grouping on mathematics academic self-efficacy

	Model 1		Model 2		Model 3		Model 4		Model 5	
	b	se	b	se	b	se	b	se	b	se
Intercept	2.514***	.018	2.518***	.019	2.501***	.017	2.507***	.017	2.437***	.036
Student-level										
Gender (female)	−.168***	.017	−.167***	.016	−.092***	.014	−.096***	.014	−.096***	.014
Parental education	.001	.004	–	–	–	–	–	–	–	–
Family income	.027**	.009	.023*	.009	.023**	.007	.022***	.007	.025**	.007
Parental occupational status	−.001	.001	–	–	–	–	–	–	–	–
Parental educational expectations	.007†	.004	.007†	.004	.001	.003	–	–	–	–
Parental involvement	.063***	.013	.061***	.013	.036**	.011	.030**	.011	.031**	.011
The length of time students studied on their own	.066***	.003	.064***	.003	.045***	.003	.042***	.003	.043***	.003
Participation in private tutoring	.098***	.017	.092***	.017	.062***	.016	.056**	.016	.058**	.016
Student's educational aspiration	.041***	.005	.040***	.005	.026***	.005	.023***	.004	.023***	.005
Prior academic achievement	.008***	.0004	.007***	.0004	.004***	.0003	.004***	.0004	.005***	.0004
Ability grouping										
Placement in advanced track			.074*	.029	.056*	.023	.056*	.023	.053*	.023
Placement in middle-level track			.009	.040	.009	.031	.003	.030	.002	.030
Placement in remedial track			−.156***	.030	−.105***	.027	−.105***	.028	−.107***	.028
Prior academic self-efficacy					.438***	.017	.431***	.017	.431***	.017
Competitive disposition							.122***	.019	.122***	.019
Interaction effect										
Competitive disposition*placement in advanced track							−.063†	.038	−.064†	.038
Competitive disposition*placement in middle-level track							.041	.070	.041	.070
Competitive disposition*placement in remedial track							.005	.053	.005	.053

(continued)

Table 8.4 (continued)

	Model 1		Model 2		Model 3		Model 4		Model 5	
	b	se	b	se	b	se	b	se	b	se
School-level										
Region										
Very large city									.118*	.046
Large city									.101*	.038
Small city									.056	.039
School-average SES									−.021	.030
School-average students' academic achievement									−.003†	.001
Variance										
Variance within school	0.308		0.306		0.242		0.238		0.238	
Variance between school	0.011		0.010		0.007		0.007		0.006	
Total variance	0.319		0.316		0.249		0.245		0.244	
Intra-class correlation	0.034		0.032		0.028		0.029		0.025	
R^2 Within school	0.285		0.290		0.439		0.448		0.448	
Between school	0.389		0.444		0.611		0.611		0.667	
Total	0.290		0.296		0.445		0.454		0.457	

***$p<.001$; **$p<.01$; *$p<.05$; †$p<.10$

wish to get ahead of others are highly likely to lose confidence in themselves and their academic ability when they are compared with more powerful peers in the advanced track.

In addition, the effects of school-level variables were examined through Model V. As with the results for the English, there were no significant differences in the results despite adding various school-level variables. These results are presented in Table 8.4.

Conclusion

With the recent shift in education paradigm from that which is traditional supplier-centered to that which is consumer- and student-centered, the interest in ability grouping is also increasing in Korean education. Ability grouping has been considered to be an effective solution to education consumers' unmet demands for ability-based learning. Both upper- and lower-level students had been taught in the same classroom level in Korea, leaving their varying demands unmet. Ability grouping was viewed as a good solution to satisfy these demands and came to be implemented widely.

Ability grouping also received a lot of attention as part of raising the quality of public education in Republic of Korea, thereby helping to accomplish the necessary task of increasing the competitiveness of school education. There have been, however, only a few research studies conducted in Korea on the effects of ability grouping in general, and particularly for affective outcomes.

Against this backdrop, this study assessed the effects of ability grouping on affective outcomes in a systematic and rigorous way. Unlike previous studies which considered participation in ability grouping only, failing to consider potentially differential effects for students in different tracks, this study was intended to picture the reality more accurately with the use of track placement information. In order to also reflect the hyper-competitive educational environment in Republic of Korea, this study moreover included the psychological factor of competitive disposition as a variable.

There are several points to be highlighted from the current study. First, just as a variety of earlier studies on ability grouping suggest, the effects of ability grouping differ depending on the track students are placed in. While the experience of upper track placement brings about positive effects on academic self-efficacy, lower track placement is more likely to have a negative effect. Such a result has proven to be statistically significant in many cases wherein previous academic achievements and academic self-efficacy are controlled, indicating that this difference is highly likely to be caused solely by homogeneous grouping.

In advanced classes, teachers have high expectations of students and teacher–student interactions are more active. Placement into advanced classes itself serves as a symbol and brings about positive effects on students. In remedial classes, on the other hand, teachers have lower expectations and teacher–student interactions are

more likely to be limited. As a result, placement into the remedial track is highly likely to produce a labeling effect. Such a different classroom climate seems to systematically put lower track students at a disadvantage.

Second, this study pays attention to students' psychological dispositions, an area which has received little attention in both domestic and overseas studies. The result confirms that students' psychological dispositions collectively serve as a significantly important moderating variable in the way homogeneous grouping influences academic self-efficacy. In this study, "competitive disposition" is defined as a tendency to put a high value on competition and getting ahead of others, as well as being afraid of falling behind. Analysis was conducted with the focus on the relationship between such disposition and ability grouping and found that the more competitive student tends to experience more negative effects as a result of ability grouping.

Such an outcome was found to be more pronounced in advanced-level students. While placement into an advanced class in itself has a positive effect on academic self-efficacy, competitive students rather experience negative effects. This indicates that the effect of ability grouping is determined not only by an objective environment but also considerably by micro-social and psychological factors.

This outcome provides a useful clue to the question of why homogenous grouping has not achieved the intended purpose in Republic of Korea. The competition-oriented atmosphere prevalent in Korean society may serve as a socio-cultural condition to prevent ability grouping from achieving its intended goals. As a matter of fact, Koreans are unusually known to be competitive. They simply want to stay ahead of others and win the competition. Such a mentality is displayed very strongly in the education system and plays a key role in creating demand for education (Kim 2004).

When the result of this study is reviewed with the consideration of the competitive atmosphere in Korean society, it is highly likely that this socio-psychological climate in Korean society prevents homogeneous grouping from bringing about the intended effects. Homogeneous grouping implemented in the most competitive area of the education field in an already competitive South Korean society can increase psychological pressures on upper-level students through contact with more powerful peers, while officially labeling lower-level students as stragglers.

According to the study by Ryoo (2008) on ability grouping in high school, while advanced-level students were satisfied with the classroom environment, they were under a great deal of pressure out of the fear that they might be placed downward into middle- or lower-level classes. Such a socio-psychological environment may cause homogenous grouping to have more unclear and ambiguous effects in Korean society as opposed to the West.

Also, as widely known, according to famous studies such as Braddock and Slavin (1993) and Oakes (2005), ability grouping, although it was not intended, is very likely to increase the gap in academic achievement, thereby aggravating educational inequality between upper- and lower-level groups. Special attention is required, therefore, because such a side-effect was unplanned, developing naturally in the process of implementing the system. Unless active countermeasures are implemented with fundamental questions in mind, the above-stated harmful effects might worsen with the increasing penetration of the system.

Therefore, interest in and efforts for homogeneous grouping need to be focused on providing accurate and valid information required to make a prudent decision. It is necessary to discover the kind of conditions needed to make the system work effectively and the causes of its positive and negative effects. A more accurate analysis is also necessary to decipher why upper-level classes have positive while lower-level classes have negative effects, and whether the negative effects experienced by lower-level students are because of ability grouping itself or due to the poor implementation of it. If the system is flawed, serious consideration has to be given to the abolition of the system. If the implementation process is flawed, however, more focus has to be directed towards maximizing positive effects while minimizing negative ones. Hasty judgments and decisions made without adequate levels of information are most likely to bring about higher levels of losses than gains.

More studies must be carried out in the future on the mechanism and the ways through which ability grouping can become more effective. In this regard, studies by Gamoran (1993) and Valli (1990) on the context in which homogeneous grouping has positive effects on lower-level students have numerous implications. They paid attention to the fact that, while generally suffering from disadvantages by ability grouping, lower-level students could also have meaningful experiences on a limited scale. They conducted qualitative research studies to show these cases. They maintained that lower-track students had positive experiences when being taught as rigorously as upper-track students and teachers had a more optimistic image of them. In order to accurately judge the possibilities and limitations of ability grouping, closer investigation into the mechanism through which the system works effectively in Korea is necessary.

Finally, ability grouping will achieve the intended goal in Republic of Korea only when efforts are made to mitigate the hyper-competitive atmosphere in its system of education. According to the results of this study, a competitive environment and disposition tend to disturb the effects of homogeneous grouping. It also implies that policy authorities need to take into consideration their designs of various educational systems and policies in that their effects can be swayed by psychological factors pertaining to students and their parents. A system cannot attain its intended goal unless it fully takes into account the characteristics of individuals who are integral parts of that system.

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Part III
Demographic Changes and Educational Challenges

Chapter 9
Single Parenthood and Children's Education in Republic of Korea: An Update

Hyunjoon Park

Introduction

During the past two decades, Korean society has experienced a sharp increase in divorce. The crude divorce rate (number of divorces per 1,000 population) in 2003 (3.5) has risen to more than three times the rate in 1985 (1.0) (Korean Statistical Information Service—Vital Statistics, various years). Although the crude divorce rate has somewhat decreased since the peak at 2003, the current level (2.6 in 2006) is as high as the levels in most European countries.[1] The comparably high level of divorce in Korea is also confirmed by a recent study that provides life-table estimates of the risk of divorce using vital statistics (Park and Raymo 2013). According to the study, the proportion of marriages dissolving within 10 years of marriage is estimated to be 21 % for a synthetic cohort of the year 2003 in Korea, similar to that in Sweden and even higher than that in France (15 %). In other words, both crude divorce rates and life-table estimates highlight a considerable level of divorce in current Korean society. In only two decades, Korea has changed from a low-divorce to a high-divorce country.

A large body of research in the United States and Europe has addressed consequences of family disruption for children's education and well-being (McLanahan and Sandefur 1994; Borgers et al. 1996; Kiernan 1992). Although not always robust, a consistent finding across a variety of contexts (at least Western societies) is the negative association of single parenthood, especially caused by divorce, with

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[1] In 2005, crude divorce rates were 2.6 in the United Kingdom, 2.2 in Sweden, 2.2 in France, 1.1 in Spain, and 0.8 in Italy (Lanzieri 2006).

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children's educational outcomes. The negative impacts of family disruption on children's education are alarming, particularly in light of recent trends in family behaviors. In countries such as the United States, divorce and nonmarital childbearing are increasingly concentrated on women with less education than their counterparts with more education (Martin 2006; McLanahan 2004). The growing concentration of divorce on women with low socioeconomic resources has important implications for educational success and well-being of the next generation. Considering losses in economic resources and parenting associated with divorce, widening differentials in divorce between women with more education and women with less education likely lead to rising disparities in parental resources and parenting, which are critical to children's education and well-being, between children of more-educated women and children of less-educated women (McLanahan 2004). Therefore, family instability increasingly becomes an important mechanism through which intergenerational transmission of socioeconomic disadvantages occurs (McLanahan and Percheski 2008).

The recent rise of divorce in Korea raises a similar concern for intergenerational transmission of disadvantage through family instability. First of all, similar to the trend in the United States, educational differentials in the risk of divorce have widened with a much more rapid increase among men and women with less education. The result is that Korean men and women with less education are much more likely to divorce than their counterparts with more education. According to Park and Raymo's (2013) research, the percentage of all marriages in 2002 which were disrupted within 4 years of marriage was five times higher for women with education less than high school (23.5 %) than the percentage for women with college education (4.6 %). The pattern was very similar for men. The growing concentration of divorce among people with less education suggests that children who are already disadvantaged in their economic circumstances are also more likely to face disadvantages associated with family disruption.

The implications of the recent divorce trend for bifurcation may be particularly notable in Korea with its distinctive social, economic, and cultural contexts. Park (2008) and Park and Raymo (2013) point out major contexts of Korea that make the trend of rising divorce particularly alarming. First, under Korea's conservative welfare system, public support to families with children is fairly limited in general (Jacobs 1998). It was not until 2002 that a welfare program specifically geared toward single-parent families was enacted. But even this program has been the subject of criticism due to its ineffectiveness and low level of support to single-parent families (Kim et al. 2005). The welfare provision by the state to single-parent families may buffer negative impacts of growing up with a single parent, given that economic insecurity is a major factor responsible for educational disadvantages associated with single parenthood (see McLanahan and Sandefur 1994). Indeed, cross-national comparative studies have shown that the effects of single parenthood on children's educational outcomes are much less detrimental in countries with strong welfare systems (Pong et al. 2003). Therefore, with meager public support single parents and their children in Korea are likely to be at considerably high risk of poverty, which may render comparably negative the

association between single parenthood and children's education. Weak child support enforcement in Korea adds economic difficulty to single-mother families. In a small-scale study of divorced single mothers, Chang and Min (2002) found that only a small number of those women received child support from their ex-husbands.

Second, limited economic opportunities of married women in Korea are likely a serious barrier for single-mother families to avoid poverty. Although Korea has a comparably large share of young women with college education, the overall level of women's labor force participation is considerably low by international standards. Moreover, Korea is one of the few industrial countries where the M-shaped age profile of women's labor force participation is still prevalent (Brinton 2001). A significant proportion of women leave labor markets at their late twenties or early 30s, associated with marriage and childbirth. Then, only after children get older, do some women return to work. The retreat of women from the labor force at ages of marriage and childbirth reflects relatively limited opportunities for married women in Korean labor markets, especially jobs that would allow women to combine work and family. Korean women are considerably disadvantaged relative to their male counterparts not only in participation in the labor force but also in payment in jobs. Korea shows the largest gender wage gap among all OECD countries (OECD 2007). In sum, in the Korean economy married women have fairly limited economic opportunities, which suggests vulnerable economic conditions of single-mother families.

Finally, although gradually weakening, social norms against and stigma on "deviant" family behaviors including divorce are still substantial, adding another array of disadvantages to single parents and their children (see Chang and Min 2002). According to Eun (2007), Korean respondents, along with those in other Asian countries, have much more negative attitudes toward the statement "divorce is usually the best solution when a couple cannot seem to work out their marriage problems," than respondents in Europe and the Americas. In a survey of attitudes toward divorce, the majority of respondents indicated that divorce would have negative consequences for their children's well-being, despite their overall open attitude toward divorce (Han and Lee 2002).

In contrast to these social, economic, and cultural contexts that may cause considerably negative consequences of growing up with a single parent, traditionally "strong" family ties in Korea may help moderate the negative consequences of single parenthood for children's education (Park 2007a; Park 2008; Park and Raymo 2013). Of course, along with industrialization and modernization, the traditional family system has substantially weakened in Korea, as seen in significant changes in family values, norms, and behaviors (Yang 2006). However, it is not unreasonable to consider contemporary Korean society, along with other Asian countries, as one in which, through "strong" family ties, economic and social exchanges among family members are an important part of family life (see Reher 1998; Goh et al. 2005). Strong family ties can be a particularly useful source for vulnerable family members such as single parents and their children from which to draw financial and social support.

The Current Study

In short, distinctive social, economic, and cultural contexts of divorce make it of importance to carefully examine implications of recent trends in divorce for disparities in parental resources associated with family structure, which ultimately affects educational and occupational outcomes of children. As a first step, it is necessary to systematically document how children living with a single parent fare on a range of educational outcomes and what factors explain such differences, if any, between children from single-parent and two-(biological)-parent families. Despite growing public concerns for the rapid increase in divorce, there is a noteworthy shortage of comprehensive and rigorous empirical evidence showing a full picture of differences in educational outcomes between children from single-parent and two-parent families.

Park's (2008) study is an attempt to achieve this goal of providing rigorous empirical evidence of the association between single parenthood and children's education. In particular, the study distinguishes single-parent families by gender of the single parent and causes of single parenthood and thus compares educational outcomes among five different types of families: divorced single-father, widowed single-father, divorced single-mother, widowed single-mother, and two-(biological)-parent families. The results from the study highlight heterogeneity in the effects of single parenthood across diverse types of single-parent families. Specifically, students (the combined sample of middle school seniors and high school seniors) from divorced single-father and divorced single-mother families are significantly less likely to aspire to 4-year university attendance, and are more likely to disengage from school than their counterparts from two-parent families. Interestingly, students with a widowed single father or with a widowed single mother do not show significant differences from their peers with two parents in the two educational outcomes.

The current study aims to provide an update of Park's (2008) study. Due to the data limitation, Park could only examine two educational outcomes: educational aspiration of 4-year university attendance and student disengagement. Although educational aspiration and student disengagement are important outcomes of education that deserve attention, educational attainment and achievement have received much attention as major educational outcomes among researchers of single parenthood (see McLanahan and Sandefur 1994; Kiernan 1992). Therefore, in the current study I examine how children with a single parent fare on three pivotal outcomes of education: transition from middle school to academic high school, transition from high school to university (not including 2-year junior college), and test scores on mathematics and Korean language among middle school students.

Obviously, the transition from high school to university is a critical juncture at which a considerable proportion of young people drop out of education. A great deal of research across a variety of countries has addressed how family background characteristics influence students' transition from high school to university (Shavit and Blossfeld 1993; Shavit et al. 2007). In Korean education, transition from middle school to high school is another critical point in one's educational career that shapes students' prospects for tertiary education. Compared with the US school system

in which high schools are comprehensive, in the Korean school system students are sorted into two different types of high schools after finishing middle schools which are comprehensive and compulsory: academic high schools and vocational high schools. Academic high schools prepare students for tertiary education and therefore attending an academic high school is a critical step for entering university. Although a growing number of students in vocational high schools proceed to tertiary education rather than immediately enter labor markets, the major aim of vocational high school education is to prepare students for job markets (Park 2007b). Academic high schools are regarded as more prestigious than vocational high schools. About 75 % of 2008 high school entrants attended academic high schools, while 25 % went to vocational high schools (KEDI 2009).

Importantly, the current study examines the effects of single parenthood across students in different grades/ages. The sample for the analysis of transition from high school to university consists of high school seniors in the baseline year who were traced up to 2 years after high school. The data for the analysis of transition from middle school to high school refer to the middle school senior cohort in the baseline whose members were followed up for 2 years after middle school. In addition to educational transitions, I examine the association of single parenthood with academic achievement by comparing mathematics and Korean language test scores among ninth graders who were in different family types in seventh grade. In other words, three cohorts of Korean middle and high schools (first year middle school students [seventh graders], middle school seniors [ninth graders], and high school seniors [twelfth graders] in the baseline) are examined to see how the effects of single parenthood are consistent across students in different grades (ages).

Data

Korean Education and Employment Panel (KEEP): High School Senior Cohort

To compare the likelihood of enrolling in university by 2 years after high school between students from single-parent and those from two-parent families, I use data from a national representative survey of high school seniors, the Korean Education and Employment Panel (KEEP).[2] The survey began in 2004 when respondents were high school seniors and two follow-up surveys were conducted in 2005 and 2006. The original sample in 2004 consisted of 2,000 academic high school students and 2,000 vocational high school students. As mentioned above, the current ratio of students attending academic high schools to students attending vocational high schools is about 3:1. Therefore, the equal number of academic high school students and

[2] More detailed information on the KEEP survey, including the survey design, questionnaires and sampling methods, can be found from its website in English (http://eng.krivet.re.kr/eu/eg/prg_euFAADs.jsp).

vocational high school students means over-representation of vocational high school students in the pooled data, which should be adjusted with an appropriate weight.

In the baseline survey, students filled in a student questionnaire to provide information on their experiences in high school, while parents (mostly mothers) completed a household questionnaire through which information on a variety of family characteristics, including family structure and socioeconomic conditions, was collected. In the first and second follow-up surveys, respondents reported their educational status, that is, whether they enrolled in university or 2-year junior college. Therefore, by connecting the baseline and the two follow-up surveys, I can distinguish high school seniors who lived with a single parent and those with two parents in the baseline year, and identify who enrolled in university by 2 years after high school. Among the total 4,000 samples in the baseline survey, information on university enrollment status by 2 years after high school is available for 3,566 respondents. Excluding those who have missing information on family structure and those living in other types of families (stepfamilies, living with grandparents, or others) besides two-parent or single-parent families reduces the final sample to 3,357.

Korean Education and Employment Panel (KEEP): Middle School Senior Cohort

In the baseline year, KEEP surveyed a nationally representative sample of 2,000 middle school seniors (ninth graders) separately from 4,000 high school seniors. By the second follow-up survey conducted in 2006, information on transition to high school is available for 1,853 respondents. Note that in Korea nearly all students make transition to high school immediately after middle school. Therefore, I used the second follow-up survey mainly to identify high school enrollment for those who did not report enrollment status or did not participate in the first follow-up survey; while for those who participated in the first follow-up survey, enrollment information was drawn from the first follow-up. In the first and second follow-up, respondents reported their high school enrollment status and the type of high school they enrolled in. Information on family background, including family structure, parental education, household income, and others, was collected in the baseline year through a questionnaire filled in by parents (mostly mothers). After excluding cases with missing information on family structure and those living in other types of families besides two-parent or single-parent families, the final sample consists of 1,773 students.

Korean Educational Longitudinal Study (KELS): First Year Middle School Cohort

The KEEP data provide useful information on transition from middle school to high school and transition from high school to university. An important limitation of KEEP, however, is the lack of information on students' academic achievement,

which is an important outcome of education. KEEP did not administer a standardized test. In order to address how single parenthood affects students' academic achievement, I utilize another dataset from the Korean Educational Longitudinal Study (KELS).[3] The study began in 2005 with a nationally representative sample of the first year middle school cohort (seventh graders), and follow-up surveys were conducted in 2006 and 2007. For the current analysis, I use data only from the baseline and the second follow-up survey to predict students' scores on standardized mathematics and Korean language tests in the second follow-up survey (i.e., ninth grade) by their family types in the baseline (i.e., seventh grade). In the baseline year, parents filled in a questionnaire with which information on family structure and socioeconomic conditions was collected. Out of a total of 6,908 respondents in the baseline year, 6,568 were resurveyed in the second follow-up. I exclude from the analysis those with missing information on family structure and/or standardized tests, and those who live in other types of families besides two-parent or single-parent families, reducing the size of the final sample to 6,158 for mathematics and 5,917 for Korean language.

Variables

Family Structure

In both KEEP and KELS, parents provided information about living arrangements of students with their parents (i.e., whether students lived together with each parent) and causes of single parenthood if students lived with a single parent. By combining information on gender of a single parent with whom students lived together and causes of single parenthood, I can distinguish four single-parent families from two-parent families, similar to Park's (2008) study: divorced single-father, widowed single-father, divorced single-mother, and widowed single-mother families. Note that the current study excludes from the analysis students who lived in stepfamilies and therefore two-parent families as used in the study refer to two-biological-parent families.[4] I construct the variables of family structure using data from the baseline survey to predict educational outcomes in later years.

Control Variables

In order to appropriately assess the association between family structure and students' educational outcomes, it is necessary to control for some students' demographic and family characteristics that are likely associated with either family structure or/and

[3] The KELS website (http://kels.kedi.re.kr) provides detailed information on the study, including survey design, items of questionnaires, data collection, and more.

[4] Using KEEP data, Park (2008) showed that less than 2 % of middle school senior cohort and of high school senior cohort lived in stepfamilies.

educational outcomes. I include gender, number of siblings, and parental education. The number of siblings indicates the total number of siblings students have and is included in multivariate models as a continuous variable. Parental education indicates the higher between the father's and mother's education level and is classified into three categories: less than high school, high school, and tertiary education.

Economic Conditions of Family

Literature in the United States has shown that poverty is a critical factor responsible for educational disadvantages associated with single parenthood (McLanahan and Sandefur 1994). To assess the extent to which the effect of single parenthood is explained by economic conditions, I include two measures that tap into economic conditions of family: household income and home ownership. In both KEEP and KELS, parents reported their monthly household income and whether they owned (or rented) a home. Logged monthly household income and a dichotomous variable of owned home are included in multivariate models.

Educational Outcomes

As mentioned above, using the baseline through second follow-up surveys of KEEP middle school senior cohort, I identify who went to academic high schools (vs. vocational high schools) by 2 years after middle school. It is notable that only a few cases did not make transition to high school and therefore they were included into the category of vocational high school. For the KEEP high school senior cohort, I identify who went to university by 2 years after high school. Although 2-year junior college is another option for tertiary education, I simply distinguish between those who enrolled in university and those who did not (including those who enrolled in 2-year junior college). The outcomes for the analysis of academic achievement using KELS data are students' scores on mathematics and Korean language tests collected in the second follow-up survey (i.e., when they were ninth graders).

Prevalence of Single Parenthood

Table 9.1 presents the distributions of students in each dataset by family structure. For instance, about 3 % of seventh graders (i.e., first year in middle school) live with a divorced single father, while only 0.5 % live with a widowed single father. The percentages of seventh graders living with a divorced single mother and living with a widowed single mother are 3.6 % and 1.6 %, respectively. In other words, 8.4 % of seventh graders live with a single parent. There are 7.5 % of students living with

Table 9.1 Distributions of students by family structure

	KELS 2005 1st year middle school cohort (7th graders)	KEEP 2004 middle school senior cohort (9th graders)	KEEP 2004 high school senior cohort (12th graders)
Divorced single father	2.9	2.7	3.4
Widowed single father	0.5	0.2	0.7
Divorced single mother	3.4	2.3	3.6
Widowed single mother	1.6	2.4	3.3
Two-parent	91.6	92.5	89.1

a single parent among the middle school senior cohort and 10.9 % for the high school senior cohort, respectively.

In regard to gender of a single parent and causes of single parenthood, there are two notable patterns that are consistent across the three cohorts (see also Park 2008). First, the percentage of students living with a divorced father and the percentage of students living with a divorced mother are comparable. This is in sharp contrast to the pattern in Western countries such as the United States and the Netherlands where children are more likely to live with their mothers after parental divorce (Saluter and Lugaila 1998; Borgers et al. 1996). Second, the percentage of students living with a widowed father is much smaller than the percentage of students living with a widowed mother, which is comparable to the share of students living with a divorced mother. The smaller share of students living with a widowed father than those living with a widowed mother reflects higher mortality of men than women commonly found in other countries as well.

Single Parenthood and Academic Achievement

In order to examine the effects of single parenthood on academic achievement, regression analysis is conducted to predict test scores measured in the second follow-up survey (i.e., ninth grade) by single parenthood and other demographic and socioeconomic variables in the baseline (i.e., seventh grade). Table 9.2 presents the results for mathematics and Korean language test scores, respectively. The first model shows differences in test scores in ninth grade among students from diverse types of families (measured in seventh grade), after controlling for parental education, gender, and the number of siblings. By adding household income and home ownership to Model 1, Model 2 assesses the extent to which the effects of single parenthood in Model 1 are accounted for by the economic conditions of single-parent families.

Although coefficients of other variables are of interest as well, I limit discussion to the effects of single parenthood. In order to facilitate discussion on differences by family structure, Figs. 9.1 and 9.2 present the effects of single parenthood graphically by showing differences in test scores between students from two-parent families and students from each type of single-parent family. In Fig. 9.1 for mathematics, for

Table 9.2 Effects of single parenthood on academic achievement

	Mathematics in 9th grade		Korean language in 9th grade	
	Model 1	Model 2	Model 1	Model 2
Family structure in 7th grade (ref: two parents)				
Divorced single father	−29.764 (4.081)***	−23.346 (4.188)***	−23.936 (4.647)***	−20.448 (4.746)***
Widowed single father	−14.990 (11.680)	−6.919 (11.311)	−5.914 (10.982)	−1.638 (11.077)
Divorced single mother	−24.249 (3.904)***	−13.589 (3.932)**	−12.704 (4.194)**	−7.293 (4.223)†
Widowed single mother	−12.054 (5.570)*	−2.876 (5.797)	−6.794 (5.621)	−2.295 (5.636)
Female	−2.766 (2.385)	−2.570 (2.368)	28.174 (2.544)***	28.212 (2.541)***
Parental education (ref: LT HS)				
High school	12.874 (2.775)***	9.165 (2.933)**	12.165 (3.146)***	9.992 (3.202)**
Tertiary	40.644 (3.354)***	32.671 (3.377)***	34.038 (3.485)***	29.534 (3.543)***
Number of siblings	−4.594 (1.024)***	−4.411 (1.008)***	−4.810 (1.144)***	−4.626 (1.116)***
Household income		9.150 (1.590)***		5.063 (1.607)**
Home ownership		8.768 (1.632)***		3.759 (1.668)*
Intercept	496.614 (3.392)***	443.465 (9.202)***	474.344 (3.947)***	445.873 (9.492)***
R^2	0.079	0.092	0.105	0.109
N	6,158		5,917	

Source: KELS first year middle school cohort, baseline though second follow-up, 2005–2007

***$p<.001$; **$p<.01$; *$p<.05$; †$p<.10$

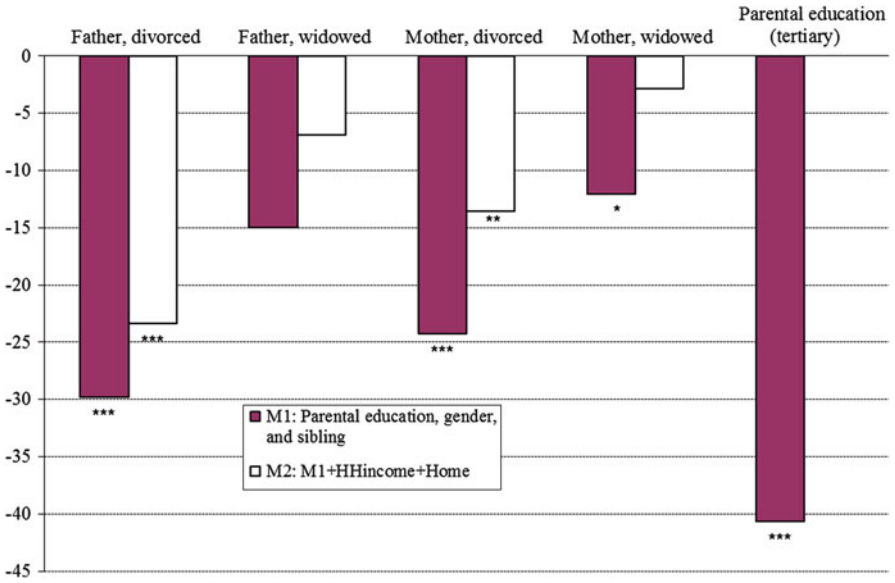

Fig. 9.1 Differences in ninth-grade math test scores (single-parent family – two-parent family) (*Note*: Statistical tests indicate differences between two-parent families and each corresponding type of single-parent family. Refer to Table 9.2)

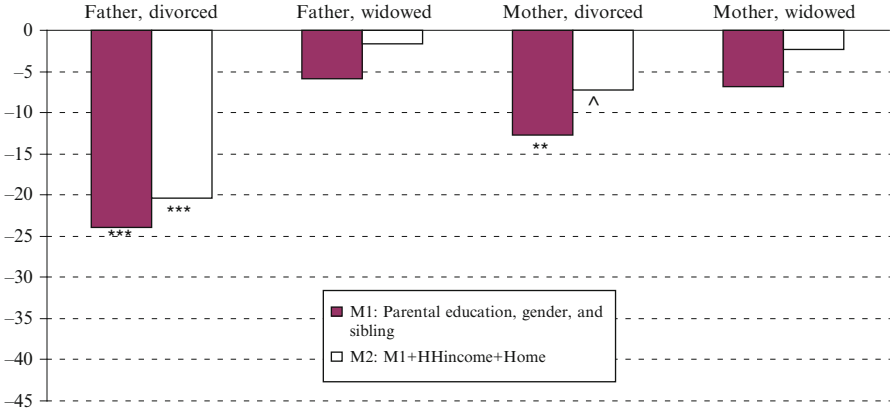

Fig. 9.2 Differences in ninth-grade Korean language test scores (single-parent family – two-parent family) (*Note*: Statistical tests indicate differences between two-parent families and each corresponding type of single-parent family. Refer to Table 9.2)

instance, the dark bar for divorced, single-father families indicates that students living with a divorced single father perform worse by 30 points than their counterparts from two-parent families, when parental education, gender, and number of siblings are held constant. The difference is statistically significant. For comparison, the dark bar marked by "parental education" indicates the difference in the mathematics

test score between students of parents with tertiary education and students of parents with less than high school education. Given that the difference by parental education is about 40 points, the difference of 30 points between students from divorced single-father families and students from two-parent families is considered substantial. The white bar, next to the dark bar, shows that the disadvantage associated with divorced single-father families is reduced from 30 points in Model 1 to 23 points in Model 2 after household income and home ownership are taken into account. In other words, poorer economic conditions of students living with a divorced single father than those of students living with two parents explain about 22 % of the effect associated with single fatherhood due to divorce.

Two findings are noteworthy. First, even after the economic conditions of the family are held constant, students living with a divorced single father and those living with a divorced single mother perform worse than their counterparts with two parents. Interestingly, however, students living with a widowed father or a widowed mother do not significantly differ from those with two parents. Thus it seems more likely that it is the causes of single parenthood that matter for children's academic achievement rather than the gender of the single parenthood. Regardless of the gender of the single parenthood, divorce is significantly associated with substantial disadvantage in mathematics achievement. The findings are consistent with those of Park's (2008) study which examined effects of single parenthood for educational aspiration and school disengagement.

Second, although both single fatherhood and single motherhood due to divorce have negative association with students' academic achievement, the extent to which the economic conditions of the family explain the association seems to differ. Taking into account household income and home ownership reduces the coefficient of single motherhood due to divorce as much as 44 % from −24.2 in Model 1 to −13.6 in Model 2, while the corresponding reduction for single fatherhood due to divorce is 22 %, as described earlier. The more substantial role of economic conditions in explaining the effect of single motherhood due to divorce compared with the effect of single fatherhood due to divorce reflects the more insecure economic conditions of single-mother families than single-father families. In earlier discussion on Korean labor markets, I have highlighted the limited economic opportunities for married women. Importantly, this finding of different roles of family economic conditions for divorced single-mother and divorced single-father families is consistent with prior work by Park (2008) who found the same pattern in the analysis of educational aspiration.

Moving to Fig. 9.2 for Korean language scores, the overall pattern of differences by family structure is similar to the pattern for mathematics in Fig. 9.1. Single parenthood due to divorce is significantly associated with lower test scores, while students living with a single parent due to death of a parent do not show significant differences from their counterparts living with two parents. The effect of single motherhood due to divorce is still significant by at least 0.1 level after controlling for household income and home ownership. Taking into account family economic conditions reduces the effect of single motherhood due to divorce much more substantially than the effect of single fatherhood due to divorce.

Single Parenthood and Academic High School

Table 9.3 presents the results of the analysis of making the transition to academic high school among the middle school senior cohort and also the analysis of making the transition to university among the high school senior cohort. The first part of Table 9.3 shows how students from different types of families differ in their likelihood of enrolling in academic high school, 2 years after middle school. Model 1 includes parental education, gender, and number of siblings, and Model 2 adds household income and home ownership to Model 1. Again, the comparison between Model 1 and Model 2 indicates the extent to which the effects of single parenthood are attributable to the economic conditions of single-parent families. Although useful to discuss about effects of other control variables as well, I focus discussion on the effects of single parenthood similar to the analysis of academic achievement. Note that a very small number of respondents who lived with a widowed father (N = 7) were excluded from the analysis of transition to academic high schools.

In order to facilitate the discussion on the effects of single parenthood, Fig. 9.3 presents predicted probabilities of enrolling in academic high school by 2 years after middle school across different types of family structure. The predicted probabilities shown in the figure were calculated on the basis of coefficients of independent variables presented in Table 9.3, fixing those independent variables, except for single parenthood variables, at grand mean values (i.e., mean values for the entire sample). Hence, about 76 % of middle school seniors who lived with two parents in the baseline year are predicted to make transition to academic high school by 2 years after middle school when parental education, gender, and number of siblings are fixed at their mean values. Additional controls for household income and home ownership hardly change the predicted probability for students from two-parent families. Compared with students from two-parent families, students living with a divorced parent show a significantly lower likelihood of enrolling in academic high school by 2 years after middle school. Specifically, only 40 % of middle school seniors who lived with a divorced single father are expected to enroll in academic high school with other independent variables fixed at grand mean values. By additionally holding household income and home ownership constant, the predicted probability increases to 50 % but it is still significantly lower than the probability for students from two-parent families. Students who lived with a divorced single mother also show a significantly lower likelihood of enrolling in academic high school, which is to some extent attributable to their poorer economic conditions. Once household income and home ownership are taken into account, the difference between students from two-parent families and those from divorced single-mother families is not significant. Interestingly, single motherhood due to the death of a father is not associated with the lower likelihood of enrolling in academic high school.

Table 9.3 Effects of single parenthood on educational transitions

	Transition to academic high school		Transition to university	
	Model 1	Model 2	Model 1	Model 2
Family structure (ref: two parents)				
Divorced single father	−1.604 (0.377)***	−1.152 (0.382)**	−1.410 (0.376)***	−1.105 (0.352)**
Widowed single father	N.A.	N.A.	−0.209 (0.488)	0.134 (0.573)
Divorced single mother	−1.143 (0.363)**	−0.372 (0.414)	−0.718 (0.237)**	−0.267 (0.253)
Widowed single mother	−0.216 (0.408)	0.312 (0.407)	−0.383 (0.223)^	0.034 (0.235)
Female	0.237 (0.135)^	0.257 (0.136)^	−0.176 (0.144)	−0.168 (0.145)
Parental education (ref: LT HS)				
High school	0.412 (0.187)*	0.216 (0.198)	0.827 (0.120)***	0.722 (0.117)***
Tertiary	1.542 (0.222)***	1.123 (0.248)***	1.514 (0.139)***	1.293 (0.148)***
Number of siblings	0.016 (0.112)	0.036 (0.115)	−0.119 (0.065)†	−0.114 (0.064)^
Household income		0.653 (0.193)**		0.372 (0.102)***
Home ownership		0.490 (0.140)***		0.369 (0.102)***
Intercept	0.316 (0.236)	−3.451 (1.050)**	−0.238 (0.159)	−2.484 (0.575)***
Loglikelihood	−934.2	−904.9	−2136.9	−2104.3
N	1,766		3,357	

Sources: KEEP middle school senior cohort, baseline through second follow-up, 2004–06; KEEP high school senior cohort, baseline through second follow-up, 2004–06

***$p<.001$; **$p<.01$; *$p<.05$; †$p<.10$

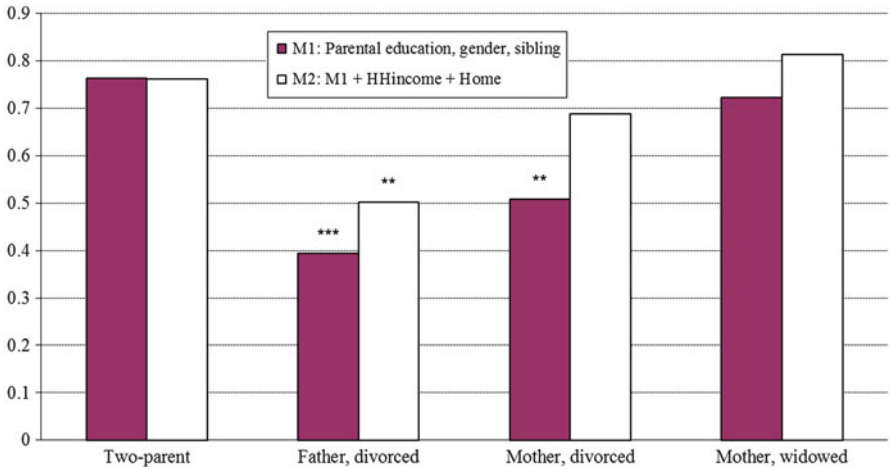

Fig. 9.3 Predicted probabilities of making transition to academic high school (*Note*: Statistical tests indicate differences between two-parent families and each corresponding type of single-parent family. Refer to Table 9.3)

Single Parenthood and University Enrollment

The second part of Table 9.3 presents the results for the analysis of making the transition to university by 2 years after high school. Again, two sequential models are estimated to assess the extent to which the economic conditions of the family are responsible for the effects of single parenthood. Similar to Fig. 9.3 for transition to academic high school, Fig. 9.4 presents predicted probabilities of enrolling in university by 2 years after high school for each type of family. A little more than half of high school seniors who lived with two parents are predicted to enroll in university by 2 years after high school. Consistent with the results for academic achievement (Figs. 9.1 and 9.2) and for transition to academic high school (Fig. 9.3), students living with a widowed parent (regardless of gender of single parent) do not show a significant difference in the likelihood of making the transition to university compared with their peers living with two parents. Another consistent pattern is the detrimental effect of single parenthood due to divorce. Less than 30 % of students who lived with a divorced single father are likely to make the transition to university. Similarly, only two-fifths of students who lived with a divorced single mother are expected to enroll in university. However, controlling for household income and home ownership increases the predicted probability to about 50 %, which is not statistically different from the 55 % for students who lived with two parents.

Conclusion

Over the last two decades, Korea has experienced a sharp increase in divorce, particularly among low educated people, raising social concerns for implications of the trend for children's education, which may be particularly significant in the

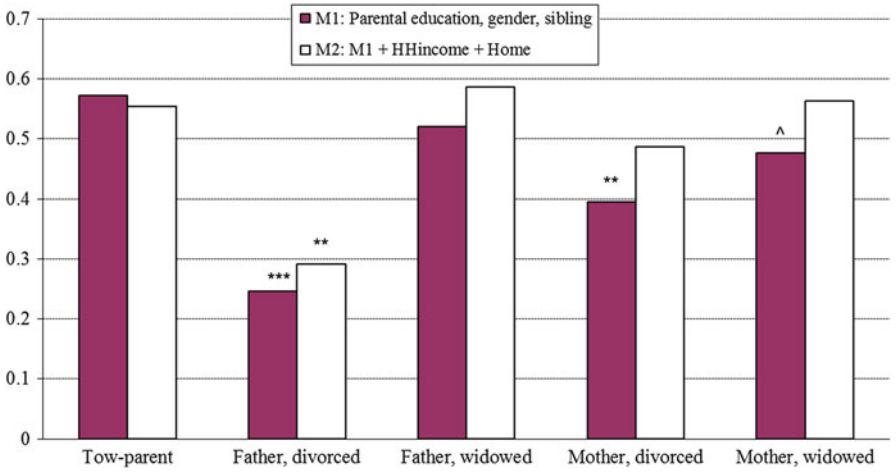

Fig. 9.4 Predicted probabilities of making transition to university (*Note*: Statistical tests indicate differences between two-parent families and each corresponding type of single-parent family. Refer to Table 9.3)

Korean context. Along with the meager welfare provision to single parents and limited economic opportunities for women, single-parent families (especially single-mother families) may suffer from serious economic insecurity. The still considerably negative attitudes toward divorce in Korean society can also be a significant barrier for single parents and their children to effectively deal with psychological consequences of divorce. Moreover, the rising number of students who grow up with a divorced single parent may impose serious challenges to Korean schools in which students from non-traditional families have long been fairly minor.

In order to better understand the potential impacts of the recent trend in divorce on educational differences among students from different types of families, it is a necessary step to comprehensively assess how children living with a divorced parent fare relative to their counterparts living with two parents. In light of this, the current study has documented differences in educational outcomes by family structure utilizing three different datasets that cover students in different educational stages. In assessing the effects of single parenthood, I have followed the approach of Park (2008) who distinguished single-parent families by gender of single parent and causes of single parenthood. Differing from Park's study which relied on cross-sectional data of educational aspiration and school disengagement, however, I have taken advantage of longitudinal data that have traced students for years. With information on educational careers over years, I have investigated how students from different types of families vary in their likelihood of making the transition to academic high school and of making the transition to university, which are both critical transitions in educational careers. In addition to these transitions, I have explored how students with a single parent fare on academic achievement. Another improvement of the current study over previous work is to have examined

the effects of single parenthood across three different cohorts (first year middle school cohort, middle school senior cohort, and high school senior cohort). By doing so, this study provides a systematic and comprehensive picture of the consequences of single parenthood in Korea.

Interestingly, the effects of single parenthood have been found to be very robust across educational outcomes and cohorts. Two major conclusions are drawn from the results presented in the current study. First, single parenthood due to divorce is significantly associated with poorer educational outcomes for all three student cohorts examined. Students with a divorced single father are particularly disadvantaged in both educational transitions and academic achievement compared with their peers with two parents. Students with a divorced single mother also show substantially poorer educational outcomes than those with two parents. However, the extent to which family economic conditions account for the negative association between single parenthood and children's education is more substantial among divorced single-mother families than divorced single-father families. Hence the effect of single motherhood due to divorce becomes negligible when the economic conditions of the family are taken into account in the analysis of the transition to academic high school and the analysis of the transition to university. Second, in contrast to the significant association between parental divorce and children's educational outcomes, single parenthood due to the death of a parent does not seem to impart a considerable disadvantage. In none of the three educational outcomes examined in the study did students living with a widowed parent show any significant differences from their counterparts from two-parent families. These two findings are consistent with Park's (2008) study that found parental divorce, rather than widowhood, to be associated with the lower likelihood of aspiring to university and the higher likelihood of disengaging from school.

It is interesting to find that widowhood is not significantly associated with poorer educational outcomes, even before household income and home ownership are held constant. Again, the finding is robust across the three cohorts and for both educational outcomes. Park (2008) also showed the same pattern for educational aspiration and student disengagement from school. It is difficult to explain the relative advantage associated with widowhood over parental divorce as reflecting better economic conditions of single-parent families due to widowhood than single-parent families due to divorce. As Park (2008) showed, in regard to parental education and household income, single-parent families due to widowhood are as poor as single-parent families due to divorce.

Then, what may explain the relatively better outcomes of students living with a widowed single parent than those living with a divorced parent? One notable difference between the two types of families is the percentage of families who owned their home. For instance, for the KEEP high school senior cohort, only 42 % of divorced single-father families owned their home, while 64 % of widowed single-father families did so. Similarly, the percentage of families owning their home was 28 % among divorced single-mother families and 45 % among widowed single-mother families. The relative advantage of widowed single parents relative to divorced single parents in regard to home ownership may indicate some financial

support from the extended family network that is not fully captured by household income. Widowed single parents may keep ties with their spouses' families even after the death of the spouse through which they receive financial and social support. Of course, students living with a widowed single parent are also less likely to suffer from cultural stigma and psychological stress associated with parental divorce.

An important policy implication of the current study is how to improve vulnerable situations of children living with a divorced parent. In particular, poorer outcomes of students living with a divorced father are notable. The disadvantage associated with single fatherhood due to divorce remains substantial even after taking into account household income and home ownership, while a considerable part of single motherhood due to divorce is explained by poorer economic conditions of divorced single-mother families. The relative disadvantage of children living with a divorced father compared with those living with a divorced mother may suggest that psychological consequences of divorce are somehow better dealt with among divorced single-mother families than among divorced single-father families. It should be also noted that in competitive Korean education, the role of mothers in managing children's education and in gathering information on schooling and private tutoring is critical (Lee 2008). Policy efforts should pay attention to the substantial disadvantages of students living with a divorced single father as well as students with a divorced single mother and develop programs to help them not only for economic reasons but also for psychological and other aspects of family life.

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Chapter 10
Multicultural Education in Republic of Korea: Social Change and School Education

Min-Kyung Lee

Introduction

Since the mid-1990s, children with diverse ethnic, racial and cultural backgrounds have increased rapidly in Korea. This diversification process is propelled by the increase of immigrant workers and international marriages, particularly marriages between Korean men and foreign women. According to the Korea National Statistical Office (2011), foreigners represent approximately 2.5 % of the population of Republic of Korea.

This new phenomenon has brought abrupt changes to Korean society, in which "one-blood nationalism" has traditionally been a mechanism for social cohesion. Considering that "blood-purity" has been a point of great pride and a component of national identity for Koreans, the emergence of multicultural discourse as a predominant issue in Korean society represents a revolutionary development (Kim 2007a, b; Lee 2010).

Obviously, ethnic diversity poses great challenges for education in Republic of Korea, as it demands not only the acceptance of immigrants, but also deep consideration of the definition of being Korean. Recent discussions regarding multicultural education and educational policy, including reflections on school curriculum, show a growing concern about the impact of this change on Korean society. We can understand multiple educational programs for immigrant children and multicultural education discourses as an effort to cope with this change (Cho et al. 2010; Lee 2010).

This paper explores two principal issues. One issue is the manner in which multicultural education has gained widespread importance in Republic of Korea, revealing the particularity of Korean society via demographic change. The other issue involves an exploration of multicultural education, with a focus on school

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education and a discussion of its significance and limitations from the perspective of the social and cultural characteristics of Korea.[1]

Historical Background: Demographic Change in Korea

As mentioned above, since the mid-1990s, foreign spouses and immigrant workers have become an increasingly visible population in Republic of Korea. This phenomenon has begun to challenge the long-held image of a homogeneous Korean society.

This growing immigrant population in Korea naturally has given rise to a record number of children from ethnically diverse backgrounds in public schools. On the one hand, this phenomenal increase is due to the growth of the number of children born to international marriage families. On the other hand, many immigrant workers bring their families to Republic of Korea, and thus the number of children who were born in a foreign country entering Korean public schools has increased. In this section, I will describe the historical background of demographic changes in Korea and the current situation of these families in Korean society.

International Marriages

In Republic of Korea, the percentage of total marriages involving a foreign spouse increased sharply between 1999 and 2011, as shown in Table 10.1. Another aspect of the changing face of international marriage is that such marriages previously were largely between Korean women and American or Japanese men. However, since 1990s, international marriages between Korean men and foreign women have recently increased (Korea National Statistical Office 2011). Meanwhile, many immigrant workers have come to Korea, and the prevalence of marriages between Korean women and foreign men is also increasing.

International marriage is particularly relevant to two groups of men—never-married men in rural areas and previously married men of low socioeconomic status in urban areas—although the most recent studies suggest that international marriage is also becoming more prevalent among urban, never- married men (Lee et al. 2006; Lee et al. 2008).

With the rapid pace of industrialization beginning in the 1960s, many rural young women began to migrate to urban areas to procure factory jobs; this migration continued throughout the 1980s while the service sector expanded. Therefore, the

[1] Prior to entering into a discussion of multicultural education in Korea, it should first be stipulated that North Korean settlers are not relevant to this discussion. Although North Korean settlers—the numbers of which increased sharply in the mid-1990s—have profoundly influenced Korean society, they represent a set of social issues distinct from the issues of international marriage and immigrant workers with regard to race, ethnicity, social recognition, etc.

Table 10.1 International marriages (1999–2010)

		1999	2001	2003	2004	2005	2006	2007	2010
Total marriages		362,673	320,063	304,932	310,944	316,375	332,752	345,592	
International marriages	Number	10,570	15,234	25,658	35,447	43,121	39,690	38,491	34,235
	%	2.9	4.8	8.4	11.4	13.6	11.9	11.1	
Foreign wives	Number	5,775	10,006	19,214	25,594	31,180	30,208	29,140	26,274
	%	1.6	3.1	6.3	8.2	9.9	9.1	8.4	
Foreign husbands	Number	4,795	5,228	6,444	9,853	11,941	9,482	9,351	7,961
	%	1.3	1.6	2.1	3.2	3.8	2.8	2.7	

Source: Korea National Statistical Office: http://www.kosis.kr

Table 10.2 Nationality of foreign wives in international marriages (2001–2010)

National origin	2001	2002	2003	2004	2005	2006	2007	2010
Total	10,006	11,017	19,214	25,594	31,180	30,208	29,140	26,274
China	7,001	7,041	13,373	18,527	20,635	14,608	14,526	9,623
Japan	976	959	1,242	1,224	1,255	1,484	1,665	1,193
USA	265	267	323	344	285	334	377	428
Philippines	510	850	944	964	997	1,157	1,531	1,906
Vietnam	134	476	1,403	2,462	5,822	10,131	6,611	9,623
Thailand	185	330	346	326	270	273	531	438
Mongolia	118	195	318	504	561	594	745	326
Other	660	658	968	925	1,119	1,421	2,998	2,737

Source: Ministry for Health, Welfare, and Family Affairs: http://www.mw.go.kr

sex imbalance in rural areas worsened over the past few decades in Republic of Korea (Lee et al. 2006).

However, the demand for foreign spouses created by recent demographic changes in Republic of Korea alone cannot explain the rapid increase in international marriage. Another important component of this phenomenon is the availability of foreign spouses willing to marry South Koreans in order to achieve better economic opportunity (Lee et al. 2006).[2] The majority of migrant women in Korea are driven by the motivation to improve their economic opportunities, the so-called "Korean Dream," regardless of whether this is through marriage or labor migration (Kim 2006a, 2007a; Lee 2010; Lee et al. 2008). In other words, this growing immigrant population might be categorized as a group that moves on a "lower circuit" of globalization (Sassen 1991). Therefore, a majority of international marriage families in Republic of Korea have limited incomes and live in low-income environments. More than 90.2 % of international marriage families earn incomes below the minimum cost of living (Ministry for Health, Welfare, and Family Affairs 2008). This is why the children of these families share similar hardships with other children from low-income families. Chinese women, including Korean-Chinese, comprise the largest group of foreign wives, followed by Vietnamese and Japanese women (see Table 10.2).[3]

The phenomenal increase in the number of international marriages over the past 10 years has given rise to a record number of children from families of international marriage who have entered public schools in Republic of Korea. According to the Ministry of Education, Science, and Technology (2010), the number of elementary and secondary school students from families of international marriage, the so-called "multicultural families" in Republic of Korea, has more than tripled from

[2] Foreign nationals married to Korean nationals are eligible to apply for Korean citizenship if they have lived in Korea for 2 years after the marriage or have been married for longer than 3 years and lived in Korea for at least 1 year. Foreign nationals may be required to take a citizenship exam, although in some cases they may be exempted (Lee et al. 2008).

[3] The phenomenon of Japanese wives cannot be explained by the same rationale as wives from other countries. The majority of Japanese wives in Korea are married to Koreans due to their adherence to Unificationism, a Korean religion led by Moon Sun-Myung. Therefore, the social conditions of these wives are clearly distinct from those of other foreign wives.

Table 10.3 Number of school-age children from international marriages (2005–2010)

	Primary school		Middle school		High school		Total	
	Number	Change from previous year (%)	Number	Change from previous year (%)	Number	Change from previous year (%)	Number	Change from previous year (%)
2005	5,332		583		206		6,121	
2006	6,795	27.4	924	58.5	279	35.4	7,998	30.6
2007	11,444	68.4	1,588	71.9	413	48.0	13,445	68.1
2008	15,804	38.1	2,205	38.9	760	84.0	18,769	39.6
2009	20,632	30.5	2,987	35.0	1,126	48.0	24,745	31.8
2010	23,602	14.4	4,814	61.2	1,624	44.2	30,040	21.4

Source: Ministry of Education, Science, and Technology: http://www.mest.go.kr

6,121 in 2005 to 30,040 in 2010 (see Table 10.3). Currently, most of these students are elementary school students, and they will constitute an important population of the younger generation in Republic of Korea.[4]

In the meantime, it is reported that children from international marriage sometimes lack sufficient Korean language skill, which puts them at a profound disadvantage with their peers. Researches show that the academic performance of children from these families tends to be low and their dropout rates are higher than those of children from native South Korean families (Jo et al. 2008; Lee et al. 2008).

Moreover, there are reports that they suffer from Koreans' negative attitudes toward them (Jo et al. 2008; Kim 2006a, b; Lee and Kim 2009). The long-standing negative view toward mixed-race people can be understood in the context of the "blood purity" that operates in service of an imagined Korean homogeneity.

Immigrant Workers' Families

The rapid mobility of labor a across national boundaries is a central feature of the contemporary global economy. Republic of Korea is no exception to this trend, and the influx of immigrant workers became one of the most frequently discussed social issues since 1990s. Republic of Korea's demand for immigrant workers has been rapidly increasing due to the prevalence of South Koreans' avoidance of "dirty, difficult and dangerous" jobs, often referred to as "3D" jobs, in the face of the sharp rise in their income.

The Korea Immigration Service (2010) estimated the number of immigrant workers at approximately 600,000, the majority of them being from China and Southeast Asia (Table 10.4). Unregistered immigrant workers comprised approximately 10 % of the entire population.

[4] Among those students, the number with foreign mothers accounts for 88 % (Lee et al. 2008).

Table 10.4 Number of immigrant workers by nationality

National origin	All immigrant workers	Registered workers	Unregistered workers
Total	**556,746**	**496,580**	**60,166**
China (ethnic Koreans)	308,598	300,065	8,533
Vietnam	47,055	37,846	9,209
Philippines	33,149	25,914	7,235
Thailand	29,317	24,546	4,771
China	25,413	16,203	9,210
Indonesia	24,104	20,326	3,778
Mongolia	14,645	10,566	4,079
Others	74,465	61,114	13,351

Source: Korea Immigration Service: http://www.immigration.go.kr

Immigrant workers are mostly brought into Korea as short-term laborers. Such a repressive system causes an increase in the number of "undocumented" immigrant workers. Many immigrant workers also bring their families to Korea, even though they are not legally allowed to, and thus the number of immigrant children in Korea is growing. Statistics have shown that more than 17,000 undocumented immigrant children 16 years old or younger are currently living in Republic of Korea (Korea Immigration Service 2010).

Meanwhile, studies have revealed that undocumented immigrant children frequently must navigate the difficult process of integration from a position of social disadvantage, with limited language skills and social support (Jo et al. 2008; Kim 2006a, b; Lee and Kim 2009). This experience of discrimination because of appearance and language skills is shared with children of international marriage families.

Further, the children of undocumented immigrant workers face the most profound challenges, especially with regard to obtaining an educational opportunity. In 2008, the Ministry of Education, Science, and Technology revised its regulations so that the children of undocumented immigrant workers could attend school. However, the institutional arrangements remain ineffective for most children of immigrant workers, as the regulations have either not been implemented or are not being enforced. Although the Ministry of Education, Science, and Technology allows the children of undocumented immigrants to attend school, some schools will not accept such children, partly because of serious opposition from parents of non-immigrant students (Lee et al. 2008; Kim 2006a, b).

On the other hand, some undocumented parents are reluctant to send their children to school because they fear that their undocumented status will be discovered and reported to government authorities (Lee et al. 2008; Lee 2010). Even if these children are accepted into and attend schools, they generally experience difficulties because Korean-language proficiency is often problematic for many of them, thus affecting school adaptation and achievement. Statistically, immigrant students are more likely than non-immigrant students to exhibit low academic achievement and drop out of school (Lee et al. 2008; Lee and Kim 2009).

Table 10.5 Number of school-age children of immigrant workers (2005–2010)

	Primary school		Middle school		High school		Total	
	Number	Change from previous year (%)	Number	Change from previous year (%)	Number	Change from previous year (%)	Number	Change from previous year (%)
2005	996		352		227		1,574	
2006	1,115	12.0	215	−39.0	61	−73.1	1,391	−11.6
2007	755	−32.3	391	81.9	63	3.3	1,209	−13.0
2008	981	29.9	314	−19.7	107	69.8	1,402	15.9
2009	834	−15.0	307	−2.2	129	20.6	1,270	−9.4
2010	1,099	31.8	446	45.3	203	57.4	1,748	37.6

Source: Ministry of Education, Science, and Technology: http://www.mest.go.kr

As shown in Table 10.5, in 2010 there were 1,748 children of immigrant workers attending elementary, junior high, and high school nationwide. Thus, of the over 17,000 children of undocumented immigrant laborers in Korea, most are not currently in the regular educational system. In brief, less than 20 % of undocumented immigrant children of school age are currently enrolled in school (Lee and Lee 2011). Some children attend schools that are operated by the immigrant workers' aid associations, but more typically they attend after-school classes, as opposed to public school. Meanwhile, those children who do not attend school often work in factories, restaurants, and construction sites (Lee et al. 2008; Lee and Kim 2009).

As indicated above, the condition of immigrant children is likely to be marginalized in Korean society; they suffer from economic difficulties, cultural differences, and discrimination. These multiple problems of immigrant families have generated various levels of discourse about multicultural education. That is the topic of the next section.

Multicultural Education in Republic of Korea

The discourse and practice of multicultural education can vary, especially in terms of who is using the term and at whom the education is targeted. Since 2000, there have been active discussions about the multicultural society in Republic of Korea, and a great deal of effort has been expended to introduce appropriate frameworks of multicultural education to Korea. Various perspectives have been suggested with regard to multicultural education, and a variety of activities have been conducted in the public school educational system.

In this section, I will address different perspectives on multicultural discourse in Republic of Korea, and which perspectives are reflected with regard to school education.

Multicultural Discourse in Republic of Korea

Multicultural discourse in Republic of Korea reveals various levels of perspective and different understandings about multicultural society. Five categories of multicultural discourse can be identified in Republic of Korea, although they are often mixed together and sometimes one perspective dominates the others (Lee 2010).[5]

Cultural Contact-Based Discourse

The overwhelming multicultural discourse in Republic of Korea is "cultural contact-based" discourse, in which multicultural education is characterized as involving the experience of various cultures. This perspective is based on the supposition that cultural contacts between different groups reduce social prejudice (Bennett 1986; Ward 2004).

Studies on the curriculum of multicultural education in Korean schools confirm the predominance of cultural contact-based education in Republic of Korea (Lee 2008; Jo et al. 2008).

From this perspective, experiencing and understanding other cultures are predominant goals in multicultural education. The principal objective for immigrant students is to learn about Korean culture, while the principal objective for non-immigrant students is to understand other countries' cultures. In this type of education, there is no consideration that a power difference exists among subcultures, and critical issues such as discrimination and conflict are rarely addressed (Lee 2008, 2010). For instance, the Cross-Culture Awareness Program (CCAP), in which foreign residents are invited to share their "traditional cultures" in the classroom, is a common program that is predicated on this perspective in Republic of Korea.

Paternalistic Sympathy-Based Discourse

"Paternalistic sympathy-based" discourse has gained broad support in Republic of Korea because the recent growing immigrant population in Republic of Korea belongs to the group that moves within the lower socioeconomic levels of globalization and the majority experience economic hardship. In this discourse, multicultural education involves supporting and assisting minority groups who suffer from economic difficulties and discrimination. Thus, in this education, rather than focusing on a social justice viewpoint, paternalistic sympathy is relatively heavily emphasized. For migrant children, multicultural education orients them to catch up to mainstream students academically in school by implementing mainstream culture, including the Korean language. For example, the educational programs based on this discourse largely focus on South Korean language and adaptation to

[5] Some parts of this chapter was published in considerably revised version in Korean Journal (Lee 2010).

the South Korean school system. On the other hand, for mainstream students, emphasis is placed on assisting minority students. For example, many programs and activities are designed to help minority students who experience difficulty in adjusting to school (Kim 2006a; Lee 2008).

However, we should also mention that this culture-based and paternalistic sympathy-based education approach does not elicit resistance from the major group. This is why, as compared with groups that are socially excluded in Republic of Korea, such as women, the lower classes and the disabled, racial minorities can more acceptably be a focus of concern in Korean society.

Global Human Capital-Based Discourse (Neo-Liberal Discourse)

The "global human capital-based" discourse is related to the neo-liberal perspective based on globalization. Since the mid-1990s, the economic imperatives of global competition have fueled social demands for education that fosters international understanding in Republic of Korea (Lee 2010). In this regard, acquiring a broad range of knowledge and information regarding various countries and cultures is crucial and understanding of and communication with people of different backgrounds is placed at the center of the instructional objectives. Educational programs designed to promote international understanding can be explained from this perspective. This approach is generally targeted toward the raising of students' cultural sensitivity toward globalization, which includes training in cross-cultural competency as a global citizen (Lee 2007, 2010).

Meanwhile, from this perspective, members of immigrants are seen primarily or solely as potential contributors to the economy as human capital. That is why minority students are considered, from this perspective, to be resources to provide Korea with global competence in the context of globalization. For instance, government posters with the slogans "Bilingual multicultural children as potential future global leaders" (Ministry of Education, Science, and Technology 2009) and "Multicultural children are potential civil diplomats who connect Korea and their parent's motherland" (Ministry for Health, Welfare, and Family Affairs 2009) are excellent examples of this perspective.

Human Relation-Based Discourse

The "human relation-based" discourse is targeted toward reducing prejudice and discrimination via personal or group interactions focusing on individual and social attitudes, such as tolerance, in order to enable people to live together in a multicultural society. This perspective is premised on the forging of social cohesion, which is invoked as a corrective measure that can help increase social solidarity. This differs from the culture-based education because human relation-based education does not emphasize only cultural aspects.

This discourse is sometimes associated with identity education (Lee 2010), which encourages minority students to maintain their identity and value diversity and difference, while teaching all students to respect these diverse identities.

Human Rights-Based Discourse

The "human rights-based" discourse is closely linked to notions of human rights and sees social, cultural, and economic justice as the rationale for supporting ethnic diversity caused by growing numbers of immigrants in Republic of Korea. It also promotes the view that respect for human dignity and social equality is crucial for the multicultural society. This discourse is promoted by civic groups, especially dealing with the issue of migrant workers' families that have no social civic rights in Republic of Korea. However, this perspective is rarely seen in school education.

Practice of Multicultural Education in Korean Public Schools

Multicultural policy and programs in the Korean educational system involve various understandings of the meanings and possibilities of multicultural education—sometimes these understandings are contradictory. This variety of understandings about multicultural education has been conducted through various kinds of activities in school education. In this section, I will address which understandings are reflected with regard to school education.

Educational Policy for a Multicultural Society

As children with ethnically diverse backgrounds have grown up in Korea, legislation to promote multicultural education in school has been actively supported since 2006. The National Assembly ratified a bill making multicultural education mandatory in 2006–2007. In the 2007 revised curriculum, multicultural education was introduced as a discrete subject (Ministry of Education, Science, and Technology 2008). With this reform of the curriculum, content that emphasizes "ethnocentrism" has been removed and replaced with content emphasizing greater understanding of other cultures (Lee 2008, 2010).

In 2009, the Ministry of Education, Science, and Technology announced these measures as a component of a plan to provide educational support to students from multicultural families and children of immigrant workers. The ministry estimated these measures to cost approximately 70 billion won (US$63 million) between 2009 and 2012.

However, we should mention that multicultural educational policy in Republic of Korea predominantly aims at the children of international marriage families, the so-called "multicultural family," even though children of immigrant worker families

are not officially excluded. The Support for Multicultural Families Act was enacted in 2007, expressly designating families of mixed marriages between Koreans and foreigners as "multicultural families." According to this law, the term "multicultural family" applies to families comprised of Korean nationals and immigrant spouses. In the meantime, South Korean terms related to "multicultural phenomena" have great practical and potential impacts on the Korean society because they determine present tasks of "multicultural Korea" and imply future directions of the society. In particular, policy terms are important because they not only name certain target populations but also serve as an important basis for carrying out practical policies (Lee and Lee 2011).

In such a context, a great deal of support for immigrants has been geared toward children of multicultural families. This is why, in comparison to the efforts thus far targeted at children of international marriages, the children of immigrant worker families have generally been ignored (Lee et al. 2008). This discrepancy may be attributed to the society's notion of "Korean blood." Thus, children born of immigrant workers differ from children of international marriage in that the latter are considered, in patriarchal Korean culture, to be ethnically Korean.

According to the support policy for multicultural education, elementary school children from "multicultural families" are provided with extracurricular classes at school to help with their Korean-language proficiency, and foreign-born parents are provided access to interpreting services so they may consult with their children's teachers. As part of a long-term campaign to support multicultural families, the government supports the use of two languages in such homes.[6] This educational policy is based on the "global human capital-based" discourse in which members of immigrants are seen as potential contributors to provide Korea with global competence such as bilingual ability. Besides, foreign-born mothers are provided with guidebooks in Chinese, Japanese, Vietnamese, or Mongolian about their children's school life at the beginning of each semester. This aspect of the support program, in contrast to its stated objective, actually expedites assimilation and supports the imposition of Korean patriarchal traditions.

In addition, the Ministry of Education, Science, and Technology (2009) has designated 13 schools as research schools for multicultural education. Only schools having more than 10 students from immigrant families are candidates for this designation; schools selected receive financial support of 10 million won (US$7,800) for 1 year. The objectives of establishment of the research schools are: (1) reinforcement of support for students with immigration background to integrate them into mainstream society; (2) social unity through cultural understanding of the multicultural family; and (3) development of global human resources through bilingual education in school.

[6] Children of international marriage families often do not have the opportunity to learn their maternal language because it usually isn't acceptable to use their maternal language in the family. Under these circumstances, the lack of communication between children and their foreign-born mothers who often have poor Korean language skills causes a problem of language development.

Table 10.6 Example of multicultural education in a primary school

Objective type	Activity type	Audience type
Construction of educational support	Multicultural understanding: We are one	All students
Support for school adjustment of immigrants	Korean language and culture for immigrant parents	Immigrant parents
	Mentoring with peer group	All students
	Experiencing Korean culture	Students with immigration background
	Bilingual education: Japanese language	Students with immigration background
Growing global citizenship	CCAP	All students
	Multicultural festival	All students
	Experiencing other language and culture	All students

Programs of Multicultural Education in Public Schools

With the active support of governmental policy, various types of multicultural education programs have been introduced in Korean public schools. In general, multicultural educational programs in Republic of Korea can be divided into two categories: multicultural education for minority students and multicultural education for all students. The focus of multicultural education for mainstream students is on attitudes toward minorities, whereas the focus of multicultural education for minority students is placed on adaptation, including Korean language and Korean culture instruction. The former is occasionally referred to as "multicultural understanding education" of which the purpose is the eradication of social bias toward ethnic minorities. The latter is referred to as "multicultural education," and refers to programs or services focused on ethnic minority groups. However, multicultural education is the catch-all term for these educational programs. This is displayed in the examples given in Tables 10.6 and 10.7.

In order to understand multicultural education in Korean public schools, I examined the multicultural educational activities and curricula available in research schools for multicultural education. The selected following example of multicultural education comes from a program of two research schools based on a 2008 report (Cho et al. 2008).

The multicultural educational programs offered in research schools are diversified according to their region and core direction. However, the relevant learning activity patterns do not vary substantially. These patterns can be divided into three categories of activity:

1. Learning about various cultures, specifically Korean culture including field trips to Korean historical sites for immigrant students. Learning other cultures and histories for non-immigrant students a including attendance multicultural festivals.

Table 10.7 Example of multicultural education in a middle school

Objective type	Activity type	Audience type
Construction of educational circumstance	Experiencing of other cultures for parents	All parents
	Construction of cyber network of immigrant families	Families with immigration background
	Korean language and culture for immigrant parents	Immigrant parents
Support for school adjustment	After-school learning program for school achievement	Students with immigration background
	Experiencing Korean culture	Students with immigration background
	Mentoring with peer group	Students with immigration background
	Bilingual education	Students with immigration background
Growing global citizenship	CCAP	All students
	Multicultural festival	All students
	Experiencing other culture	All students

2. Learning about globalization occurs mostly in the classroom and is targeted toward the growth of global citizenship by teaching appropriate attitudes.
3. Mentoring among peer groups is largely accepted on the basis of paternal sympathy.

As we can see in Tables 10.6 and 10.7, the education programs developed for immigrant students focus principally on Korean Language, cultural understanding, and adaptation to Korean schools. Multicultural educational programs such as learning and experiencing about Korean culture for immigrant students are categorized into cultural contact-based educational programs. Meanwhile, activity objectives for non-immigrant students and their families consist of the cultivation of appropriate attitudes toward globalization by understanding other cultures.

In brief, the characteristics of multicultural education in Korean public school can be summarized as follows. First, the multicultural education at the schools basically has aimed to facilitate the recognition of cultural difference for the development of cultural identity and a better understanding of other cultures. Second, multicultural education programs have been organized and conducted by drawing upon the anthropological concept of culture. Third, such multicultural curriculum has been implemented through the "contribution approach" and the "additive approach" according to the concept of Banks (2008). The contribution approach is to learn about advantage of existing various culture in a society. The additive approach calls for bringing multicultural elements into each of the school subjects.

As we mentioned above, multicultural discourse in Republic of Korea is predominantly the paternalistic sympathy-based discourse emphasizing cultural difference. This reveals the fact that multicultural education in Republic of Korea is accepted without violating collectivity based on nationalism and changing the

existing social structure. That is why there has been the predominant discourse on the cultural diversity and paternalistic sympathy without a critical viewpoint, which fundamentally aims at social reconstruction. The policy and practice of multicultural education in school can be understood in this perspective.

Dilemma of Multicultural Education in Republic of Korea: "Difference" in a Collectivist Society

For many individuals from diverse backgrounds, questions arise as to how they develop an integrated sense of self inclusive of both their cultural background and mainstream culture.[7] Frequently, policies that seek to integrate minorities have been criticized under the rationale that integration is assimilation and effaces diversity. Some have raised objection to this rationale, calling it contradictory and asserting that assimilation and diversity are opposite concerns. However, these concerns may not be irreconcilable, because multicultural education pursues a diverse society that allows all people to live without oppression and simultaneously encourages members of minorities to integrate into the mainstream.

Undoubtedly, any attempt to increase sensitivity to individual differences and to combat prejudicial attitudes and behaviors is a positive step forward in Korea's struggle to move from traditional ethnocentrism to a more culturally sensitive and diverse society. However, emphasizing "difference" is likely to limit the identity of immigrant students and exclude them from mainstream society and culture (Ouellet 2002; Lee 2007). The above assertion has implications for Korean society, where consciousness of homogeneity has become deeply rooted. In particular, collectivism in Korean society reinforces this mentality. In societies in which collectivist culture dominates, such as Korea and Japan, difference is narrowly associated with exclusion from the group.

Here, it is necessary to mention the singularity of Korean society regarding the relation between collective identity and personal identity.[8] In Republic of Korea, personal identity does not have a privileged place as compared with collective identity (Lee 2006).

Meanwhile, the discussion of Gelfand and Holcombe (1998) provides us with the possibility of understanding the cultural codes inherent in Korean society. They argued that one important attribute or distinction that should be considered when assessing the effects of individualism and collectivism is whether the culture is

[7] Immigrant students who succeed in adjusting to Korean schools have a strong tendency to embrace a Korean identity and deny their ethnic identity (Kim 2006a, b; Lee and Kim 2009). This demonstrates how ethnic identity and integration into mainstream society can be harmonized.

[8] The collective identity is defined as the common characteristics among a group of individuals, and personal identity makes it possible for the individual to be identified by his own definition while also being part of the group. The collective identity emphasizes "resemblance to the others," while the personal identity clarifies "difference compared to the others" (Sciolla 2005, p. 336).

horizontal (emphasizing equality) or vertical (emphasizing hierarchy). The combination of these relative emphases with individualism and collectivism generates four distinct patterns: horizontal individualism (HI), vertical individualism (VI), horizontal collectivism (HC), and vertical collectivism (VC). According to these categories of cultural patterns, Korean society may be characterized as VC. As mentioned previously, in VC cultures people emphasize the integrity of the in-group, are willing to sacrifice their personal goals in favor of in-group goals, and support competition between the in-group and out-groups (Gelfand and Holcombe 1998). This is why emphasizing differences is likely to result in the exclusion of immigrants from mainstream Korean society, making people with ethnically diverse backgrounds invisible.

As we mentioned above, multicultural discourse in Korea began as the consequence of a continuous rise in the number of immigrant workers in the country (Kim 2007a, b; Lee 2008, 2010). In the latter half of the 1980s, immigrant workers began to enter South Korean society via the industrial internship program introduced in emulation of similar systems in Japan (Kim 2007a, b; Lee 2008, 2010). However, multicultural discourse was sparked by the rising number of international marriages between South Korean men and foreign women. This phenomenon ultimately caused the emergence of new concepts in Korean society, resulting in the coining of new terms, such as "multicultural family," "multicultural children," and "multicultural youth."

Even if these terms indicate new social phenomena, they provoke a negative image of cultural minorities with immigrant backgrounds. This is why, in Republic of Korea, terms related to "multiculture" such as "multicultural family," "multicultural children," and "multicultural youth" to designate cultural minorities with immigrant backgrounds have been criticized because they "otherize" these children/youth and limit the issues of multicultural society to the problems of these minorities (Lee and Lee 2011).

As mentioned by Rosaldo (1994) and Banks (2008), cultural citizenship is the right to be different but still to belong in a participatory democratic sense. Therefore, multicultural education should simultaneously emphasize diversity and inclusion. In this regard, the ideal objective of multicultural education would be an educational process that searches for a way for people to live together respecting diversity, without discrimination or social exclusion.

However, multicultural education in Republic of Korea can more accurately be characterized as paternalistic sympathy for minorities, which emphasizes "differences" such as different conditions, identities, and cultures. There is little emphasis placed on the capacity for critical thinking and reflection or reconstructing the relationship between "I" and the "other" via critical reflection. In brief, multicultural education in Republic of Korea may be considered limited in terms of cultural education and human relations, rather than connecting these issues with social justice and democracy. However, despite the limitations mentioned above, considering Korean society's pride for its history as a homogeneous nation, there are signs of a great change in Korean society in the current dynamic multicultural discourse.

"Multicultural society" is not a label that a country can arbitrarily confer upon itself. It requires years of education that includes institutional policies and practices. Indeed, the change toward a multicultural society cannot be limited merely to "cultural" aspects, but must also address the problem of conflicts and reconciliation among culturally diverse groups. Therefore, this multicultural challenge, which involves the social issues of class, ethnicity, and poverty, demands an educational undertaking of teaching diversity in order to transform Korean society. This path is replete with conflict, but, in the final analysis, conflict and its resolution must be understood as a central issue for the multicultural, democratic society.

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Ministry of Education, Science, and Technology: http://www.mest.go.kr

Chapter 11
Educational Challenges of and Support for Young North Korean Immigrants

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Introduction

Republic of Korea began to be concerned about the adaptation and education of North Korean immigrants only about 10 years ago. Since the end of the 1990s, the number of North Korean refugees entering Republic of Korea has increased rapidly, and over 1,000 North Korean refugees now immigrate to Republic of Korea annually. As of December 2011, the total number of North Korean immigrants had risen to over 23,000. The rapid increase in the number of North Korean refugees has generated dynamic change in the South Korean social system. In response, new educational systems and programs have been developed and put into place in order to help form these new arrivals into South Korean citizens. Nonetheless, young North Korean immigrants experience a number of difficulties in adapting to their new lives in capitalist Republic of Korea. This paper examines the nature of the educational challenges that young North Korean immigrants face and the support systems that exist for them.

Korea traditionally was an almost completely homogeneous country. This situation changed dramatically, however, with the division of Korea at the end of the Korean War in 1953 into two different political regimes: a communist society in the North and a capitalistic democracy in the South. Until recently, there had been very little real contact between the citizens of the two countries since the division. This began to change in the 1990s with the arrival in Republic of Korea of North Korean refugees. Germany's unification and the subsequent collapse of communism in the late 1980s deprived communist North Korea of important allies, and this contributed to a situation of socioeconomic decline in North Korea. Natural disasters from 1995

This is an updated version of my doctoral dissertation (Kim 2009).

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through 1997 resulted in agricultural failures that precipitated famine. North Koreans began crossing into China in order to escape starvation. Since 1997, North Korean refugees have been migrating from China to Republic of Korea via a number of routes through South East Asia, assisted by various international and religious organizations and the South Korean government (Chung 2003; Kim 2009).

The number of North Korean border-crossers in China is estimated to be between 30,000 and 50,000 at any given time (Park et al. 2011). Most North Korean border-crossers enter China illegally by crossing the Tumen river into the Yanbian Korean Autonomous Prefecture, where roughly 210,000 ethnic Koreans live, in a total population of 350,000 (Charny 2005). Some North Korean refugees in China receive temporary employment or are given access to lodgings either by Korean Chinese or missionaries connected to international churches. However, despite this assistance, most North Korean refugees have harsh living conditions in China, and they live under the constant fear of deportation. This is because the Chinese government considers them illegal immigrants rather than refugees. North Korean returnees caught by the Chinese authorities are sent to prison, interrogated, beaten, forced to do hard labor, or executed (Charny 2005). Therefore, their lives in China or other countries before resettlement in Republic of Korea are filled with anxiety and the fear of arrest and deportation (Charny 2004; Chung 2003; Jang 2003).

In particular, the most vulnerable asylum seekers in China are women and children. Most North Korean women end up working as prostitutes or otherwise in the sex industries. Brokers sell women into marriage to older or disabled Chinese men in rural areas, regardless of whether they were already married in North Korea.[1] Often their Chinese husbands abuse them or force them into hard manual labor. Even when married to Chinese men, however, North Korean women are seldom able to become legal Chinese residents, and neither are their children, even when the children's fathers are Chinese. Their children cannot register for school because they have no legal protection; women also hesitate to register themselves because they fear revealing their identities as North Korean refugees (International Crisis Group 2006).

Unaccompanied child refugees, called *kkotjebi* (fluttering swallows), often survive in China by begging for food or money from South Korean tourists and Korean Chinese citizens (Chung 2003; Paterniti 2003). Some children even send food back to their families in North Korea, crossing the border repeatedly to do so. Others live in secret shelters run by Christian missionaries or Korean Chinese groups, where, while they do not have to worry about having enough food to eat and a place to stay, they are confined to small rooms to avoid detection by the Chinese authorities.

In Republic of Korea, the arrival of North Korean newcomers has led to somewhat of a transformation of the educational system since the year 2000. From the 1960s to the 1980s was a period of political instability. Following the division of Korea into two nations, the South Korean government focused on building a strong nation to stand against the communist country of North Korea. Based on the pursuit

[1] According to a report of the International Crisis Group (2006), at the time of the report women were sold for US$380 to US$1,260 each. Brokers' fees were US$120 to US$1,200 per woman and bribes ranged from US$380 to US$630. Bribes since 2004 have increased, ranging from US$880 toUS$1,890.

of strong anti-communism, the government used the educational system to sustain the national ideology and control images and narratives about North Korea and its people. Thus, the function of schools was to prepare the younger generation for mobilization to confront North Korea both politically and ideologically (Moon 2005; Seth 2002). However, following the period of rapid national economic growth in the mid-1990s, the South Korean government began to encounter an unexpected influx of North Korean immigrants. North Koreans as the subjects of the enemy to confront had to be transformed into neighbors to live with and take care of. This also impacted the school system. South Korean schools were suddenly made responsible for the assimilation and education of these newcomers. This paper attempts to describe the resultant changes in the education system generally and the educational support mechanisms serving North Korean immigrant students in particular.

The paper analyzes data I gathered during my dissertation research in 2007, as well as data from research conducted from 2010 to 2011 by the premier national educational policy and research institute, the Korean Educational Development Institute (hereafter KEDI). As a researcher at KEDI, I was involved in this longitudinal study on the education and adaptation of young North Korean immigrants, utilizing both quantitative and qualitative methodologies, in 2010 and 2011.

The research subjects are North Korean immigrants. Most of them were born in North Korea and then crossed the border and lived in China or other Asian countries as refugees for some period of time. Thus, this group can be distinguished from North Korean people who entered Republic of Korea without first undergoing a refugee experience in China or elsewhere (Kim 2009). According to 1997 legislation of the South Korean government, "Pukhan it'al chumin ŭi poho mit chŏngch'ak chiwŏn-e kwanhan pŏmnyul" (Law on the protection and settlement support of those people who have left North Korea), the South Korean government legally defines this group as "those who have an address, family, husbands or wives and employment in North Korea and who also did not acquire any other foreign nationality after crossing the border of North Korea" (Han et al. 2010, p. 28). Following this definition, young North Korean immigrants can be identified as only those who were born in North Korea. However, recently, the number of young North Korean immigrants born in China or other third countries is increasing. According to the longitudinal research, half of the infants, toddlers, and elementary students who have settled in Republic of Korea up to 2011 were born in China or other countries (Lee et al. 2011). Therefore, the research subjects, "young North Korean immigrants," include both those who were born in North Korea and those who were born in China or other countries and whose parents (either one or both) are from North Korea.

The Current Situation of North Korean Immigrants in Republic of Korea

As mentioned earlier, by November 2011, over 23,000 North Korean immigrants were living in Republic of Korea; 95 % of these had immigrated in the last 10 years. Table 11.1 shows the rapid increase of North Korean refugees after 1998, due

Table 11.1 Newly arrived North Korean refugees in Republic of Korea (numbers)

Year	~1998	~2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	Total
Male	829	563	506	469	626	423	509	570	612	666	578	819	7,171
Female	118	480	632	812	1,268	960	1,509	1,974	2,197	2,261	1,798	1,918	15,929
Total	947	1,043	1,138	1,281	1,894	1,383	2,018	2,544	2,809	2,927	2,376	2,737	23,100
Share of females	13 %	46 %	56 %	63 %	67 %	69 %	75 %	78 %	78 %	77 %	76 %	71 %	69 %

Source: Ministry of Unification (2012)

mainly to the famine in North Korea. Between 2001 and 2005, over 1,000 North Korean refugees arrived annually in Republic of Korea; since 2006, over 2,000 have arrived annually.

Note also that the gender and ages of immigrants have changed over the past decade. In previous decades, after North and Republic of Korea were divided, very few North Koreans immigrated to Republic of Korea. The few that did were usually members of the elite and the military, and the vast majority of these were men (Lankov 2006). After 2000, more families emigrated as a unit, resulting in an increasing number of women and young people in the refugee population (Ministry of Unification 2000). Specifically, the share of females in the total number of immigrants was less than 50 % until 2001, but reached 78 % in 2007 and 2008 (Ministry of Unification 2012) (see Table 11.1).

As Table 11.2 shows, in 2011 there were 2,020 North Korean youths aged 6–20 residing in Republic of Korea. This represents about 12 % of the total number of North Korean immigrants. Among these 2,020 North Korean youths, 1,681 were enrolled in full-time public education: 1,020 in primary school, 288 in middle school, and 373 in high school. This indicates that 83.2 % of young North Koreans attend public schools. Of the total, 339 North Korean youths (about 17 %) are not enrolled in public education (see Table 11.3).

Table 11.4 shows the diversity of young North Korean immigrants in terms of their birth places, North Korea and China or other countries. As shown in Table 11.4, 608 students were born in China or other countries, and over 95 % of these students were in primary school.

At the beginning of the 2000s, it seems that no one involved in the process of making policies and developing a social welfare system for North Korean immigrants was considering the emergence of a second generation born outside of North Korea. The recent emergence of this group has led to new discussions on how to categorize young North Korean immigrants who were born in third countries. This problem is significant because such categorization is connected to how the government provides welfare support. Strictly speaking, members of this group are excluded from the benefits of special welfare programs ordinarily provided to immigrants who were born in North Korea, because they are not classified as young North Korean immigrants. However, the South Korean government has included them in the category of North Korean immigrant students and provides supporting welfare programs for their adaptation, albeit only in terms of their education (Han et al. 2010).

Support and Welfare for Young North Korean Immigrants

The South Korean government extends citizenship to all North Korean refugees upon their arrival. It has also mandated settlement support for North Korean refugees. In 1997, the South Korean government developed its policies and welfare system for the North Korean immigrants in the “Pukhan it’al chumin ŭi poho mit

Table 11.2 North Korean young people and North Korean students from 2006 to 2011 (numbers)

Year	2006	2007	2008	2009	2010	2011
Ages 6–20 NK young people	841	1,050	1,319	1,478	1,711	2,020
Ages 6–20 NK students	474	602	966	1,143	1,417	1,681

Source: Ministry of Education, Science and Technology (2011)

Table 11.3 Current school enrollment status of North Korean youth (numbers)

Students in public education			Students not in public education		
Primary school	Middle school	High school	Alternative school	Others	Total
1,020 (50.4 %)	288 (14.2 %)	373 (18.4 %)	186 (9.2 %)	153 (7.5 %)	2,020 (100 %)
1,681 (83.2 %)					

Source: Ministry of Education, Science and Technology (2011)

Table 11.4 Current status of North Korean students according to place of birth (numbers)

	Primary school		Middle school		High school		Total	
Birthplace	North Korea	China or other countries	North Korea	China or other countries	North Korea	China or other countries	North Korea	China or other countries
Numbers	435	585	275	13	363	10	1,073	608
Total	1,020		288		373		1,681	

Source: Ministry of Education, Science and Technology (2011)

chŏngch'ak chiwŏn-e kwanhan pŏmnyul" (Law on the protection and settlement support of those people who have left North Korea). Through this special welfare system for North Korean refugees, the South Korean government provides resettlement funds, employment, education, and medical support, among other forms of assistance. However, a series of revised laws since 1998 gradually has reduced the direct payment of resettlement funds to immigrants and increasingly provided incentives and sanctions to encourage behaviors such as accepting work when offered, performing community service, attending training and education, and so on. Ultimately the aim of the support and welfare program is to enable immigrants to adjust and live independently in the new society (see Kim 2009).

Currently, the total resettlement funds per person are about US$19,000 (including housing funds). Instead of paying this in a lump sum, the government divides and pays it quarterly for 1 year. The government also gives additional support, such as monthly scholarship funds intended to encourage vocational training and employment. North Korean immigrants have received employment subsidies, and the South Korean government has offered vocational training courses and provided monthly scholarships to those who take these courses and acquire a vocational certificate. The maximum total amount of vocational training and employment subsidies per person is US$24,400. Aside from resettlement funds and vocational

and employment subsidies, the government provides North Korean immigrants with US$7,200 annually for people aged 60 and over, $3,600–$15,400 annually for the disabled, $800 per month for long-term patients, and $3,600 annually to single parents (Ministry of Unification 2012). Any immigrants who are unable to earn the minimum necessary to meet their cost of living are also given a basic monthly stipend and free medical treatment and insurance.

In particular, the government considers education to be one of the most important elements in the resettlement process and supports the education of young North Korean immigrants. The South Korean government acknowledges immigrants' academic background from North Korea or other countries below the high school level. Each university and college has a special admission quota for North Korean immigrants. Most universities and colleges accept North Korean immigrant students with only an interview and in the absence of an entrance exam. In terms of funding and educational support, North Korean students can receive a tuition waiver for attending primary, middle, and high school as well as public university. If they want to attend a private university, half of the tuition is paid by the government and half by the university. Adults under 35 years old can also receive tuition waivers at national universities, but the law limits tuition waivers to a fixed period of 5 years after graduating from high school (Ministry of Unification 2012).

Immediately after arriving in Republic of Korea, immigrants' identification papers are inspected by the National Intelligence Service and the Ministry of Unification. This is for a screening process to determine whether or not they are real North Korean refugees. During this period, they are kept in isolation from the outside world. After security vetting, all North Korean immigrants, without exception, are required to stay for 3 months at a resettlement support facility known as Hanawŏn.

Hanawŏn

Hanawŏn is a refugee resettlement support facility established in 1998 by the South Korean Ministry of Unification in response to the sudden influx of North Korean refugees. This resettlement facility can accommodate over 700 North Korean refugees at a time since its extension in 2008. This facility also carries out the crucial tasks of preparing citizenship documents and issuing resident registration cards to North Korean immigrants.

Hanawŏn is especially intended, however, to provide educational programs to help the newcomers adapt to life in Republic of Korea. The 420-h educational program for North Korean immigrant adults at Hanawŏn is broken into four parts: 49 h of psychological counseling and physical health examination; 124 h spent learning about capitalist democratic societies; 196 h of job counseling and vocational education; and 51 h learning about the welfare system and other immigrant support programs (Ministry of Unification 2012). Besides basic vocational training, the immigrants are offered such diverse activities as computer classes and field trips to marketplaces, South Korean households, and historic sites.

Hanawŏn also provides educational programs specifically aimed at young North Korean immigrants. What follows is a description of the educational programs that young North Korean immigrants take part in upon arriving in Republic of Korea.

Hanatul Program

The first encounter with education in Republic of Korea for young North Korean immigrants comes when they stay at Hanawŏn for 3 months just after arriving. The Hanatul program is envisioned as a way of connecting the two worlds of North and Republic of Korea at the *threshold* or as a transitional stepping-stone program.

Hanatul specializes in educating young North Koreans. The 420-h educational program is broken into four parts: 200 h of remedial education studying basic subjects; 75 h of learning about capitalist society and school life in Republic of Korea; 75 h of psychological counseling and physical health training; and 50 h learning about possible future careers.

On average, about 50 North Korean immigrants between 6 and 18 years of age enter into the Hanatul program every month, and they study there for 3 months. However, the number of students is very flexible because it depends on how many North Korean refugees are accepted by the government each month. Ten teachers take care of all of the students. The Hanatul program divides the students into three age groups: kindergarten classes for students under 7 years old; elementary classes for students 7–15; and middle or high school classes for students 16–18. Students in kindergarten and the elementary classes also attend the nearby Samjuk, a formal primary school located near Hanawŏn, where they take classes with South Korean students. The elementary class of the Hanatul program is therefore an after-school program intended to assist students with their assignments from Samjuk. Most of the students attending the Hanatul program during the daytime are at the high school level.

Samjuk Elementary School

As mentioned, students in the elementary class in the Hanatul program, from the ages of 7–15, enter Samjuk elementary school and study alongside South Korean students. This school is a regular school located very close to Hanawŏn. It takes about 15–20 min to walk from Hanawŏn. In 2011, Samjuk elementary school had 32 teachers. There were 116 students in ten classes: six classes from the first to the sixth grade (one class per grade) and four special afternoon classes (for low achievers and North Korean immigrant students). Over 70 North Korean immigrants per year enter this school, leaving after studying there for 3 months.

After 3 months, the immigrants disperse to different areas and settle down. Young North Korean immigrants attend regular schools near their home. Welfare centers have been established in each area of the country; as of 2010, there were 30 of them. These welfare centers help North Korean immigrants settle down in the

local community. They help students enter the local school and they monitor their school life. There is also one school for North Korean immigrant students only, Han'gyŏre, which has accommodation, so all of the students live at the school. At present, over 200 North Korean immigrant students are studying at this school.

The Education Support Center for North Korean Immigrants in KEDI

In order to implement educational support effectively and efficiently for young North Korean immigrants, the government established the Education Support Center for North Korean Immigrants in KEDI in August 2009. This center is a main hub of educational support for young North Korean immigrants, where the government, relevant authorities, local offices, regular schools, welfare centers, alternative schools, and diverse other educational institutions all collaborate with the aim of serving North Korean immigrants. The primary work of this center is as follows.

First of all, this center develops all educational materials, such as guidebooks for North Korean parents, manuals for teachers, and textbooks for the newcomers. In particular, the center examines and provides textbooks on basic subjects such as Korean, math, English, social sciences, and so on for North Korean immigrant students in the initial education program, Hanatul at Hanawŏn.

Secondly, this center organizes a training program for school teachers nationwide at least eight times a year. The number of participating teachers is about a hundred for each program. The program helps teachers to understand young North Korean immigrants, by sharing all relevant information, knowledge, and experience about North Korean immigrant students among the teachers. In addition, the center re-educates immigrants who used to be teachers in North Korea and retrains them as good educators and mentors for North Korean immigrant young people.

Thirdly, this center trains professional coordinators and places them in schools to help North Korean immigrant students adapt to school life. They continue monitoring North Korean immigrant students' school lives on a case-by-case basis to improve their chances at successful adaptation and education at school. They sometimes help students with their academic work and counsel students or their parents in order to solve problems.

Fourthly, this center supports a variety of alternative schools or educational institutes that help school dropouts both directly and indirectly. As the number of dropouts among North Korean youth has increased in the last decade, the government has begun to support financial aid to alternative schools or other educational institutes outside of the public education system. Some of these schools and educational institutes are fully or partly funded by the government, and the center audits, examines, supervises, and consults with them on how to best use the financial aid.

Lastly, this center conducts fundamental research and accumulates and analyzes data on the education and adaptation of young North Korean immigrants. In particular, this center has implemented an important longitudinal study of North Korean

immigrant students, from 2010 to 2015, in order to examine the pathways of their adaptation in Republic of Korea. In 2011, the study had 430 North Korean immigrant students as subjects; this group will continue to participate for the full 5 years of the longitudinal study.

To sum up, the educational support systems for young North Korean immigrants are organized in the form of networks among the relevant authorities, civil and provincial education offices, local institutes, and welfare centers. The government sponsors an implementation system of educational support for young North Korean immigrants. The Ministry of Education, Science, and Technology (MEST) supports the whole education of North Korean immigrant students in multiple ways, and this authority collaborates with the Education Support Center for North Korean Immigrants in order to implement support effectively and efficiently. Therefore, the Education Support Center of North Korean Immigrants functions as the hub of these other institutes and facilities.

This legally enacted support system is officially intended to help North Korean immigrants adapt as South Korean citizens in their new society. However, it is also a social device that stipulates who is able to become a citizen and determines who deserves to receive social benefits. Such welfare programs give rise to complaints of unfairness from native-born South Koreans and further stigmatize North Korean immigrants as poor and helpless recipients of handouts (Kim 2009). These unintended side-effects of their new legal status, and how they affect the identity formation of North Korean immigrants, are increasingly becoming an issue of concern (Lee et al. 2011).

The Characteristics of and Educational Challenges Facing Young North Korean Immigrants

Although the national support and welfare program for young North Korean immigrants has been systemized relatively well, young North Korean immigrants still have difficulty in adjusting to school. According to statistics from the Ministry of Education, Science, and Technology (MEST), the dropout rate of North Korean immigrant students in school was 10.8 % in 2007, and this decreased gradually to 4.7 % in 2010 (see Table 11.5).

However, even this lower dropout rate is much higher than the dropout rate of South Korean students, which was only 0.6 % in elementary school, 1.0 % in middle

Table 11.5 The change in dropout rates (April 2011)

	April 2007	April 2008	April 2009	April 2010
North Korean immigrant students in school (number)	687	966	1,143	1,417
Dropout NK immigrant students (number)	74	59	56	67
Dropout rate (%)	10.8	6.1	4.9	4.7

Source: Ministry of Education, Science and Technology (2011)

school, and 2.0 % in high school in 2010. In order to understand the relatively high dropout rate among North Korean immigrant youth, we need to examine the characteristics of young North Korean immigrants and what educational challenges they face as well as the reasons behind their decisions to drop out of school.

First of all, North Korean students differ from South Korean students on the basis of their appearance. North Koreans are physically shorter and skinnier than South Korean students of the same age. Their stunted growth is due to malnutrition and starvation, but it has served to stigmatize and ostracize them at South Korean schools. According to Pak (2003), the North Korean food crisis had several negative effects on children's health, aside from retardation, including: (1) decreased immune function and susceptibility to infectious disease; (2) reduced work capacity, lower cognitive ability, impaired emotional development, and a lower ability to learn; and (3) reduced likelihood of upward social mobility and social competence due to being stigmatized because of their physical appearance. In particular, stigmatization due to physical differences leads to isolation and an inability to interact with peers. The slight physical stature of North Koreans reinforces prejudicial views of South Koreans as inherently superior.

Secondly, most North Korean newcomer students exhibit serious academic underachievement in school. They have difficulty in catching up with their classes. The severe famine caused by the economic crisis in North Korea had the effect of driving both students and teachers out of school in order to secure food for their basic day-to-day survival. Moreover, while immigrating to Republic of Korea, the students were unable to participate in education. Their experiences prior to their arrival in Republic of Korea may be the most significant factor influencing their academic adaptation and attainment levels in Republic of Korea.

Not only have many of the immigrants suffered from a long absence from education, but there are gaps between the two countries' educational processes in terms of duration, content, and curricula, which makes it even more difficult for them to perform well academically in the new society. North Korea's basic schooling lasts 10 years, with 4 years of elementary coursework and 6 years of middle school. Republic of Korea provides 12 years of schooling: 6 years of elementary school and 6 years of middle through high school. Therefore, aside from the different curricula, there is a 2-year educational gap between North and Republic of Korea. Most North Korean immigrant students realize how poorly educated they are compared with South Korean students the same age. Because of their low academic attainment as well as their different educational systems, there is often an age gap between the North Korean students and South Korean students in the same grade. The age gap and their different educational backgrounds present an obstacle to interacting with their classmates and adapting to school in Republic of Korea.

Thirdly, the immigrant students have difficulty in communicating with others in school because of significant cultural gaps. In the past, their usage of the same language was considered evidence that the people of both Koreas constituted a homogeneous ethnic group. However, the newcomer North Korean students in class soon discover that the language used in Republic of Korea is not the same as the

language they are accustomed to speak. Korean has been transformed during the separation, and the language of the two countries no longer completely converges in usage or meaning. They cannot always understand the meaning of some words, particularly loanwords that South Korean youths often use. Moreover, they also feel that the distinction between the two dialects in class discriminates in favor of the southern variety, giving rise to feelings of cultural superiority and inferiority (Bourdieu 1984; Swartz 1997). By comparing the two dialects in class, North Korean immigrants begin to objectify themselves as excluded, uncivilized, unfashionable, and culturally inferior in their new society. Additionally, as mentioned earlier, there has recently been an increase in the number of immigrants who were born in China. These students face serious language barriers at school because they can only speak Chinese fluently. Some schools hire teachers who can speak Chinese and provide some help to such students. However, this response is quite rare.

Fourthly, such students suffer from an identity crisis. Most North Korean immigrant students try to conceal their country of origin. They sometimes manipulate their life stories to conceal their backgrounds while interacting with their classmates. Some of them do not allow their parents to visit the school and do not invite their friends to their home because they always worry that their identities will be exposed. Nevertheless, however much they try, it is impossible for them to hide themselves completely at school. After their identities are revealed, their friends and classmates begin to exclude or ostracize them. They feel a profound sense of alienation and isolation in the school environment, and being without friends, they often finally decide to quit school, leading to the high dropout rates (Han et al. 2010; Kim 2009; Lee et al. 2011).

In an unfortunate irony, the North Korean identity that causes these students difficulty can also be their most significant asset because as North Korean immigrants they can be the beneficiaries of a great many welfare programs. Therefore, North Korean immigrants sometimes have to reveal the fact that they are from North Korea in order to obtain these benefits in the new society. Their identities as a form of symbolic capital can be utilized efficiently and significantly for their settlement and adaptation in Republic of Korea. Acts of revealing or concealing can be implemented in diverse contexts in order to maximize the benefits or advantages for their settlement and adaptation (Kim 2009).

The issue of identity has become an even more complicated and intractable problem among North Korean immigrants with the emergence of the second generation group born in China. These immigrants often seek to distinguish themselves from other young North Korean immigrants. They emphasize the fact that they know nothing of North Korea, a country that has been perceived negatively by the rest of the world. They do not have any memories of or experiences relating to North Korea. Therefore, sometimes this identity issue gives birth to conflicts between the two newcomer student groups—those who were born in North Korea and those who were not born in North Korea (Han et al. 2010).

Fifthly, most students have not experienced growing up in stable families. What they have often experienced are family break-ups in the journey of immigration. Upon arriving in Republic of Korea, they may be reunited with a mother or father

from whom they had been separated. After being reunited, both parents and children sometimes experience minor conflicts in the process of seeking mutual understanding. They also experience changes in family membership caused by divorce, remarriage, and common law marriage. These changes in their families can sometimes overwhelm them with pain and hurt.

In addition, an increasing generation gap is the source of many daily conflicts and struggles in immigrant families. According to research on Vietnamese immigrant adaptation to life in the United States (Zhou and Bankston III 1998), "downward mobility" in social status or class occurs among immigrant groups, which means that the power relationships between parents and children and husbands and wives among immigrants are subverted. North Korean immigrant parents do not possess the capacity to advise or provide support to their children, who adjust more quickly to the new society. This leads to rapid loss of their authority in the family. The advice they used to offer as a mother or a father is seen as being useless in their sons' or daughters' changed social circumstances. The newcomer students complain about the incompetence of their own parents. On the other hand, North Korean immigrant parents are under a great deal of pressure to understand the nature of the capitalist society and to get a job and support their children as soon as possible, and they feel frustrated if they are unable to do so. Therefore, both parents and children sometimes face challenges in forging good and healthy relationships in the process of adapting to their new circumstances (Han et al. 2010; Kim 2009; Lee et al. 2011).

These characteristics of young North Korean immigrants and the challenges they face sometimes cause psychological problems such as mental instability, a lack of affection, and a lower ability to control emotions, amongst other problems. However, some of them strive to overcome these difficulties and adapt to the new society successfully. Additionally, local welfare centers and educational institutions in the local community provide them with psychological counseling and educational support. The networks of parents, school teachers, and professionals in local welfare centers or educational institutions in the community all share information about their students and work hard to satisfy the needs of these students (Han et al. 2010).

Conclusion

The welfare and educational support programs put in place for young North Korean immigrants in Republic of Korea have undergone rapid development and systemization. These programs were put in place upon their first arrival in the 1990s, and increasing systemization has occurred with the increase in their numbers. However, such special welfare programs give rise to arguments concerning equity in society. Native-born South Koreans sometimes allude to reverse discrimination and also doubt the effects of perceived special treatment, generous welfare assistance, and excessive consideration (Kim 2009). Multidimensional efforts can render the recipients dependent and incapable of fending for themselves, despite the equally strongly held view that such measures are needed for the educational and social adaptation

of North Korean immigrants. What needs to be kept in mind is that the fundamental purpose of such support and welfare programs is providing the North Korean recipients of such aid with the means of realizing their own independence and successful adaptation into the South Korean society. Meanwhile, young North Korean immigrants still experience many difficulties and challenges when it comes to their adaptation to the South Korean educational system. Recent research suggests that a significant factor for their successful adaptation is whether North Korean students have access to a person who can serve as their main means of social support, who they can talk with, share time with, trust, and get sincere advice from (Han et al. 2010; Suarez-Orozco et al. 2008). Therefore, social relationships appear to be more significant than any other factors for their successful adaptation, and this needs to be considered when planning, developing, and implementing educational support programs (Lee et al. 2011).

Here I want to suggest some welfare and educational programs that could serve North Korean youths. First of all, until now most welfare and educational support programs have placed more importance on educating North Korean immigrants than on educating their South Korean hosts. However, it is necessary to develop educational programs for South Koreans, as well. Such programs could significantly improve mutual understanding between the two groups. Secondly, welfare and educational support programs should be reorganized so that support is based on need rather than on the categorization of the beneficiaries. As I mentioned earlier, with the emergence of the second generation among North Korean immigrants, who can be identified as a North Korean immigrant has become a significant problem to them in terms of eligibility to obtain benefits. Therefore, all welfare programs that are based on the beneficiaries' identity should be reorganized so that they benefit the marginalized in the society. Lastly, follow-up research is needed to unearth cases of successful adaptation among immigrants, rather than only focusing on the analysis of their challenges or the difficulties faced in the adaptation. In addition, future research must look into not only the settlement and adaptation of North Koreans in the south, but also into other factors of North Korean identity, such as aspects of cultures, norms, and values of North Koreans, from multidimensional and interdisciplinary perspectives. Such research would give birth to great advantages in South Koreans' understanding of North Korean people, as well as being essential for educating young North and South Koreans.

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