A COMPARISON OF EDUCATIONAL OUTCOMES BETWEEN MULTICULTURAL STUDENTS AND NON-MULTICULTURAL STUDENTS IN SOUTH KOREA: SCHOOL-LEVEL ANALYSES OF 6TH GRADE STUDENTS

A Dissertation

by

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ABSTRACT

I laid out the results of the multilevel ordered logit regression analyses of the school survey data that I collected in 2015 to compare the educational outcomes between the multicultural students (born to a foreign-born parent and a Korean-born parent) and the non-multicultural students (born to two Korean-born parents) in the same school settings. In detail, I examined the effect of being multicultural on the English language achievements of the 793 6th grade students in the 20 different elementary schools in Gyeongbuk Province of South Korea. The main hypothesis is that being multicultural leads to poorer English achievements. Most of the earlier Korean research based on small samples or interviews of multicultural students only suggested that the academic achievements of multicultural students on average were inferior to those of non-multicultural students. To test this, I predicted the log odds of English achievements of the students in the same classrooms using multilevel models with the dummy variable indicating whether the student is multicultural (yes=1; no=0), controlling for the other level-1 and level-2 variables. Next, I examined the interaction effects, i.e., the effect of a school-level variable on the slope of being multicultural at a time. The results are as follows: The "Multicultural" variable alone has a significant negative effect on the log odds of English achievements even after controlling for another independent variable at a time except the mother's educational attainment level. However, the negative effect of being multicultural becomes insignificant once the mother's education-attainment level and mother's information-sharing intensity and a school-level variable are additionally

controlled. The three interactions that were hypothesized to have effects on the slope of the "Multicultural" variable turned out to be insignificant. The control variables, especially the mother's education level, mother's information-sharing intensity, school mean SES, and whether the school is multicultural-education-focused had significant effects in the full models. The results led me to conclude that being multicultural is not an automatic disadvantage as discussed in the previous literature.

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Contributors

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All other work conducted for this dissertation was completed by Nayoung Heo independently.

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CHAPTER I

INTRODUCTION

The number of multicultural children, *damunhwa janyeo*, the offspring of a Korean-born parent and a foreign-born parent, has been growing in South Korea since the early 2000s. It is unlikely that the number will decrease anytime soon; this is due mainly to the structural circumstances under which international marriages occur these days in Korea. The children of international marriages have emerged as a solution to the difficulty that rural, older, and less-educated Korean men have had in finding wives. As of 2015, almost 70 percent of the international marriages that occurred in South Korea were between Korean-born men and foreign-born women (KOSIS 2017). Many of the foreign-born women hail from less-developed countries and regions, such as, China, especially the Northeastern region of China where most Korean Chinese people, *chosunjok*, reside; they also hail from Vietnam, the Philippines, Thailand, Cambodia, and Indonesia (KOSIS 2017). Unbalanced sex ratios at birth due to son preference, urbanization, and increasing employment rates of women are among the demographic and sociological reasons driving the increases in the number of international marriages. Unbalanced sex ratios, particularly, will likely continue to be a major reason for the increases in the near and not so near future once the extra males reach the ages of marriage and fail to find Korean-born women to marry.

For a better understanding of this important topic of the increasing number of multicultural children, I now introduce the term "multicultural family," a term that was

officially adopted by the Ministry of Education of Korea in 2006 after a civil association first suggested using the word owing to the sudden increase in international marriages in the early 2000s (United International Inmigration 2010). The term "multicultural family" is ambiguous, because the term has multiple meanings. A "multicultural family" is defined as a union composed of a marriage migrant and a Korean-born person (and their children); a naturalized Korean and a marriage migrant (and their children); two naturalized Koreans (Korean Women's Development Insitute 2016). In this dissertation, I will only look at the children in the families of the first definition, that is, a marital union of a marriage migrant and a Korean-born person and their children.

The current topic of multicultural students is important because of its demographic and sociological characteristics and consequences. As of 2015, there were over 82,000 multicultural students in South Korea, who were in elementary, middle, or high school (Korea Educational Development Institute 2016). Back in 2009 when official data on multicultural students first started to be collected, the percentage of multicultural students was only about 0.3% (Ministry of Education 2014, 유의정, 조규범, 조주은 2009), compared to 1.3% of all students in 2015. Even though this percentage of multicultural students still might seem small, it is notable that the total number and percentage of multicultural students have been steadily increasing while the total number students in South Korea has been declining. The total number of students has been decreasing owing to Korea's declining fertility rates that are now reaching the level of the total fertility rate that demographers refer to as the "lowest-low," namely 1.3 children per woman or lower (Kohler, Billari and Ortega 2002). South Korea's TFR in

past years has been hovering around 1.2 (KOSIS 2017), which is the lowest of all the OECD members (OECD 2017). The increasing number of international marriages between Korean-born and foreign-born individuals now account for about seven percent of all marriages (KOSIS 2017).

Many studies have found that multicultural students have adjustment-related difficulties in school, and these could well be related to the birth origins of their foreign-born parents (JeonKi-Taek , 외. 2013, 오성배, 다문화사회의 교육의 현황과 문제점 2010, 이재분 2008). Related to these adjustment issues, there is an extensive Korean literature discussing the disparity of educational outcomes between multicultural students and non-multicultural students. Specifically, there is a common finding that the educational outcomes of multicultural students on average are likely to be inferior to those of non-multicultural students (JeonKi-Taek , 외. 2013, 오성배, 다문화사회의 교육의 현황과 문제점 2010, 이재분 2008). A large body of literature considers familial factors (i.e. parental involvement and socioeconomic status) as major factors influencing the educational outcomes (Kao and Thompson 2003, Kim, Hwang and Kim 2010, Park, Byun and Kim 2011). Other factors include private tutoring experiences, and parental information-sharing behavior with other parents. Furthermore, although some of the previous literature and governmental reports have concluded that multicultural students were not doing well in school because of their lack of language skills and their different “non-Korean” appearance and phenotype, the sample sizes of most of these surveys were oftentimes very small or the sample only included multicultural students.

Another problem with the extant literature is that none of it compares the educational outcomes of multicultural students and non-multicultural students in the same school settings. Furthermore, there have been no analyses to date that are multilevel. Little attention has thus been paid to contextual factors, such as school-level and community-level factors. Yet in studies conducted elsewhere these contextual factors have been gaining increased attention as important and influential factors for explaining educational outcomes because individuals interact with their surroundings. Students' aspirations and efforts and parental characteristics and involvement alone do not explain the variation of educational outcomes.

More importantly, the literature published in the early 2000s included the adolescent children who were born elsewhere[1], the children who were born to foreign-worker couples, and the children of a North Korean escapee parent. In the previous literature, these children are discussed together with other multicultural children (오성배, 다문화사회의 교육의 현황과 문제점 2010, Nam and Kim 2011), possibly further lowering the educational outcomes of the entire group of "multicultural students." Even though a few scholars recognized the need for distinguishing among the different types of multicultural students in South Korea (Lee, Kim, et al. 2009, 김영식

[1] These children are called *Joong-do-ip-gook-ja-nyeo*, who were born to a person in a foreign country and later immigrated to South Korea following their mother or father who ended up remarrying in South Korea. This term also refers to the children of an internationally-married couple. The difference is that the children of this type were born in South Korea, grew up in the country of the foreign-born parent, and came back to Korea as an adolescent (전경숙 and 이의정 2012).

2013), few have done so. Furthermore, in the early 2000s, there were only a few multicultural students to begin with, regardless of the type.

In this dissertation, therefore, I will only include the children who were born to a foreign-born parent and a Korean-born parent and have resided in Korea for most of their lives. I believe that the other categories of multicultural children have different dynamics from those of the children discussed in my research. For example, their access to learning the Korean language and information on the Korean education system might differ because they might have not been exposed to the Korean context as a child.

In this dissertation, I hope to contribute to the literature on educational outcomes of "multicultural (multiethnic)" students in South Korea in two ways. First, I will conduct multilevel analyses using school survey data that I collected in 2015 to compare the educational outcomes between multicultural students (born to a foreign-born parent and a Korean-born parent) and non-multicultural students (born to two Korean-born parents) in the same school settings. In detail, I will examine both individual-level and school-level factors affecting educational outcomes of 797 6th grade students in 20 different elementary schools in the Daegu/Gyeongbuk area of South Korea. My main hypothesis is that being multicultural leads to poorer educational outcomes. Most of the previous research has suggested that the educational outcomes of multicultural students, in whom, in this case, all of the categories of multicultural students are included, on average might be inferior to those of non-multicultural students. In this context, I will also test three other hypotheses regarding the effects of the school-level variables, i.e.

school-level socioeconomic status, school type, and school size, on being multicultural, the main student-level variable.

Second, I will use retrospective interview data I collected in 2014 to provide some sociological context for the quantitative data in my multilevel analyses. The interview will allow me to provide some sociological meaning to my quantitative analyses. In 2014, I interviewed 23 multicultural individuals who were 19 years old or older and who are the very first second generation children who were born to couples of international marriages in South Korea before 2000. It is obvious that the samples for qualitative and quantitative are different, i.e. adults versus elementary school children. However, the young multicultural adults shared with me their school experiences so that I could have some background in mind when I went out to the field to conduct surveys in local elementary schools. I believe these qualitative data will permit me to better understand the results of my quantitative multilevel analyses.

CHAPTER II

LITERATURE REVIEW

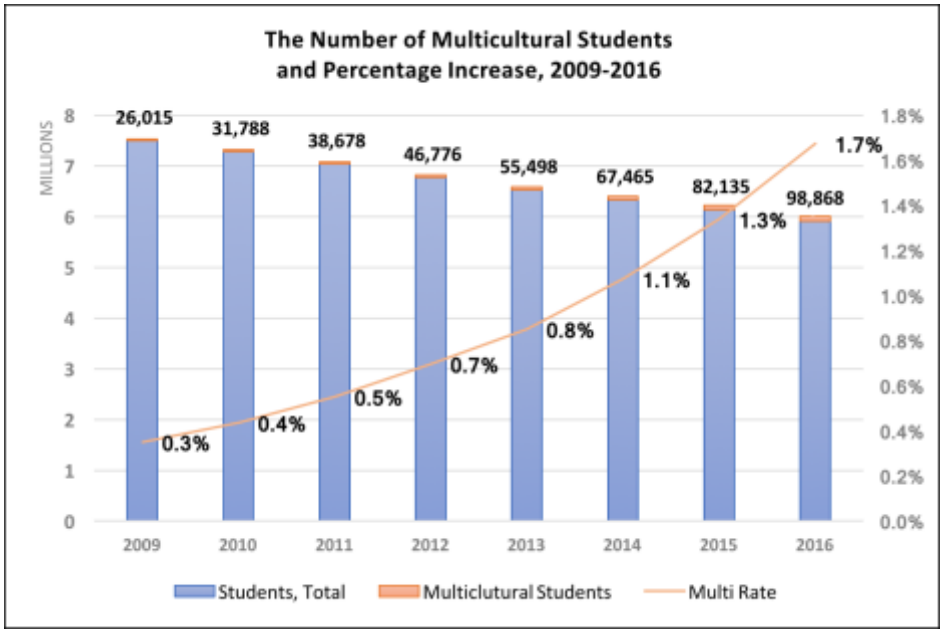
It is important to note that the previous literature on the multicultural population in South Korea often included not only the children who were born into an internationally-married couple, a union of a Korean-born person and a foreign-born person, but the children of a couple who are both foreign-born workers. Strictly speaking, some of these foreign-worker couples are not "multicultural" (a foreign worker couple is likely from the same country; they are not "multicultural" in this sense). This confusion results from the fact that the various Korean government bodies have not properly distinguished individuals of various origins, but have simply aggregated them into one "multicultural" category for convenience. Moreover, even some private organizations, which support multicultural families, have different definitions for the term. Therefore, even though the vast majority of multicultural students are the products of married unions between Korean-born and foreign-born people, the previous literature also sometimes includes people of various categories. Also, this literature review looks at the data and statistics related to the student population only, due to the difficulty of taking into account the number of the multicultural children who are not enrolled in school or who do not have a legal status.

The Increasing Number of Multicultural Students

With the drastic increase in number since 2009, when the official data of multicultural students started to be collected, there were 98,868 multicultural students

enrolled in elementary schools as of 2016 (Korea Educational Development Institute 2016). See Figure 1. Back in 2009, the percentage of multicultural students was only about 0.3%, compared to 1.7% in 2016.

Figure 1.
The Numbers and Percentages of Multicultural Students among the Total Number of Students, 2009-2016
(Korean Educational Statistical Service 2016)



As of 2010, most of these children were the offspring of internationally married couples, while around 2,200 students were from foreign worker couples (유의정, 조규범 and 조주은 2009). Even though the percentage of multicultural students might seem small

compared to the entire student population of around 6.6 million in South Korea, it is notable that the total number and percentage of the multicultural students have been steadily increasing while the total number of students in South Korea has been declining. The total number of students has been decreasing due to Korea's fertility rates now reaching the "lowest-low" level (Kohler, Billari and Ortega 2002), hovering around 1.2, which is the fifth lowest of all the OECD members. Another aspect that needs attention is that among the multicultural students about 90% were still in elementary schools and middle schools (Korea Educational Development Institute 2016), showing that the increased number is a fairly recent phenomenon.

However, the previous literature did not clearly distinguish whether the multicultural children surveyed or interviewed in their study were born in South Korea or in another country or whether their parents were both foreign-born. Furthermore, as many authors have discussed, it is difficult to provide the exact number of multicultural students in all of these categories. The statistics do not include the multicultural children who are not registered in school (오성배, 다문화사회의 교육의 현황과 문제점 2010). The governmental statistics permitted me only to develop an estimate of the size of the actual multicultural student population. Currently, there is a triennial sample national survey of multicultural households in South Korea, which includes marriage-migrants and naturalized citizens and their spouses and children. Again, the sampled respondents in this survey include both marriage-migrants and naturalized citizens regardless of their marital status and their children if any (Korean Women's Development Insitute 2016).

International Marriages in South Korea

Prior to the discussion of multicultural students, however, the first question to be addressed concerns its growth dynamics. In this part, I review the patterns of recent international marriages in South Korea since the Korean War period. This review will help us see how these marriages contributed to the recent increase in the number of multicultural students.

There are some basic characteristics of current international marriages. First of all, they are heavily between people of the same race category (i.e. Asian) based on the U.S. race categories. Second, international marriages have grown in number often mainly for economic reasons. Many of the female marriage migrants are migrating from developing countries to South Korea to marry a Korean man. Third, while harsh discrimination was often directed to the offspring of such interracial relationships during and after the Korean War – indeed many were shunned altogether by the community, marriage migrants nowadays have a much more favorable environment ready for them. Indeed, international marriages since the 2000s have been welcomed by the Korean government as a solution to the difficulties of rural, older men in finding wives. Laws for marriage migrant women and children have been established, and local multicultural centers and churches now provide community support programs for marriage migrant women and their children.

In this review, however, I will also provide a brief review of the notion or myth of the "pure-blood" nation or monoethnic nation to give readers some context of the Korean society receiving immigrants.

Nation of "Pure-Blood" Myth?

It would not be surprising for many Koreans to hear a Korean person say that he or she is proud to be a citizen of the nation of "pure-blood (*soonhyul*) or monoethnicity." This is a common belief of many Koreans that they believe has deep historical roots and justification. However, few realize that this belief in pure-bloodedness was established only a little over a hundred years ago. The last kingdom in Korea of *Joseon* rarely had this notion of pure-blood until the Japanese imperialism intruded Joseon in the late 20th century through the mid-21st century. Some scholars have argued that Korean nationalists under Japanese imperialism first adopted the concept of *danilminjok* or monoethnic nation, to unite the people in the country to fight against foreign powers (Kim 2007, Park 2009 & Jeong 2001 as cited in Kang 2010). Many scholars are skeptical of the *danilminjok* ideology. For instance, Seol (2007) pointed out that the birth myth of Korea might be related to this notion of pure-blood proud Koreans. It is believed that since *Dangun*, the legendary grandson of heaven, founded *Gojoseon*, the first Korean kingdom in 2333BC, the monoethncity of Koreans has been maintained until the present day. However, there is no clear evidence for the validity of the monoethnicity of Koreans. Indeed more than 17 million people from various Chinese and other foreign states migrated and settled in *Goryeo,* an ancient Korean kingdom founded in the 10th century (Jeong 2005 as cited in Seol 2014). This indicates that a large number of foreign persons permanently migrated to Korea throughout the centuries prior to the 20th century. It seems that the belief in the pure-blood, monoethnic nation is far from the truth.

Unfortunately, the myth of monoethnicity is still firmly entrenched in the minds of politicians and the public in South Korea. Some commonly-said stereotypical statements like "the bad breeds are going to ruin Korean pure-bloodedness," or "southeast Asians are dirty" are not going to go away anytime soon (이지수 2015). Meanwhile, it seems rather naïve for politicians to say that the pure blood of Koreans od will not easily disappear despite the increasing number of international marriages occurring between Korean-borns and foreign-borns. In the minds of many Koreans, after all, foreigners are like just one drop of ink in the *Han River* (Seol 2007). However, the influx of people with foreign backgrounds will not just end with one drop of ink as the government has been passionately marrying off rural Korean men to young foreign-born women.

Contemporary International Marriages in South Korea

International marriages in Korea since the late 20th century through the present day have mainly been between Korean-born people and foreign-born people from other Asian countries. However, this category of Asian seems to be applicable only to the U.S. In Korea, there is a term, "Kosian," which was first used in 1996 by the Ansan Migrant Center to refer to the children of internationally married couples (Doopedia N.A.). A "Kosian" is a child of a Korean-born person and a foreign-born migrant worker from another Asian country. Even though the term has been adopted to protect the rights of the children born to these couples, the apparent distinction between Koreans and other Asian people are visible. Further discrimination can be triggered against the children born to such couples by calling them Kosians (Doopedia N.A.).

The number of newly-wed couples comprised of a Korean-born and a foreign-born person has increased from 4,710 in 1990 to 35,098 in 2010, with the highest number of 42,356 occurring in 2005 (Statistical Research Institute et al. 2009; Statistics Korea 2011. See Figure 2). Among the internationally-married 23,316 couples in 2014, the percentage of the couples of a Korean man and a foreign woman was almost 70%, which was the same level as in 2013 (See Figure 3). In other words, most international marriages were between a Korean-born male and a foreign-born female (Statistics Korea 2015). However, recently since 2009, the percentage of international marriages has been declining; it seemed to stabilize at around 7% in 2003. However, it is notable that 21,174 babies were born to intermarried couples in 2015, making up nearly 5% of the total births in that year (Statistics Korea 2015). The number of newborns of internationally married couples has been steadily increasing since 2008, when the Korean government began collecting data on multicultural births, except for a very slight decrease of 0.02% in 2014. This is worthwhile to pay attention to, considering the decreasing number of total births in South Korea. The year of 2014 was recorded to have the lowest number of total births in 10 years (Statistics Korea 2015).

Figure 2.
Marriages Between a Korean-Born Person and a Foreign-Born Person among Total Marriages, 2003-2015 (KOSIS 2017)

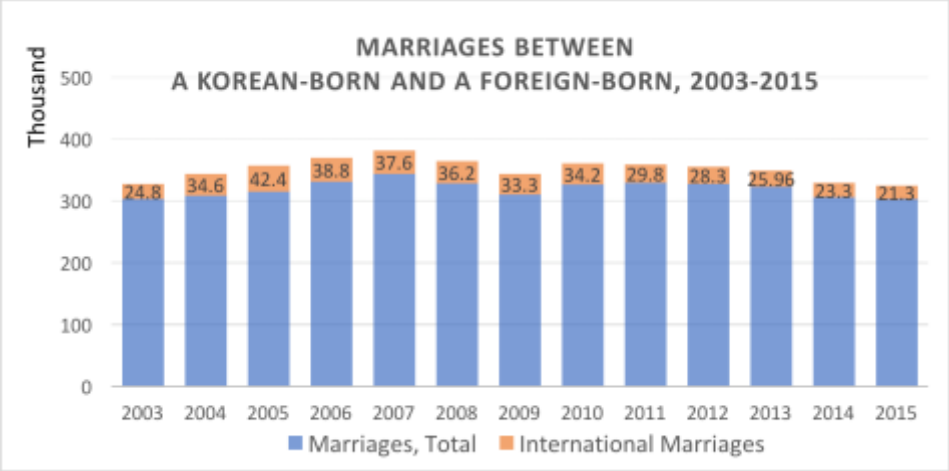
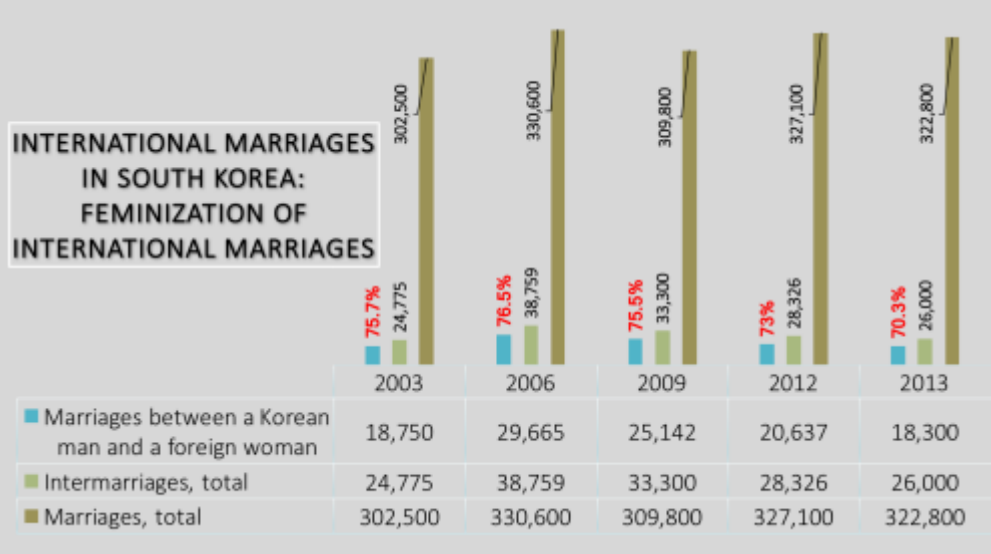
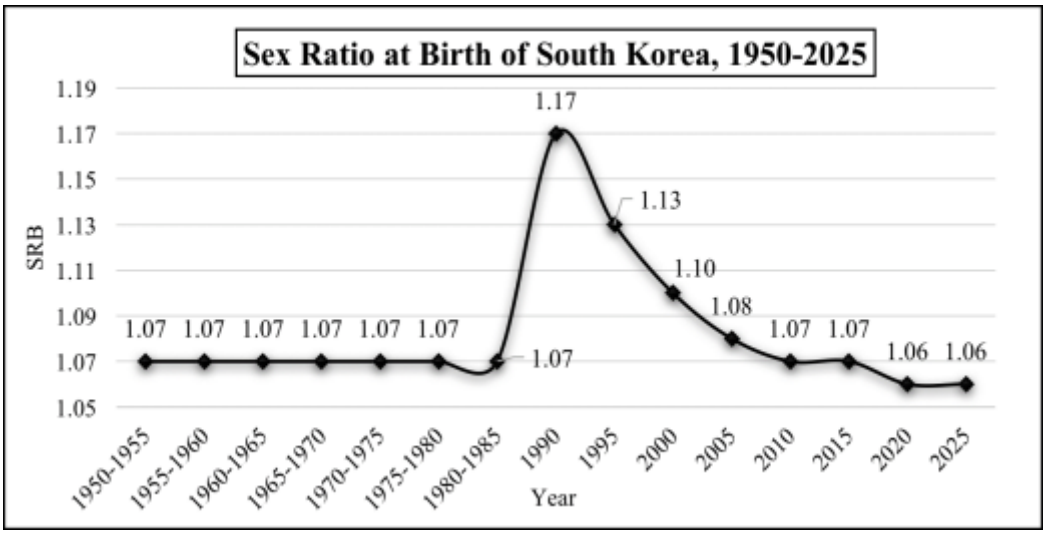


Figure 3.
Marriages Between a Korean Man and a Foreign Woman, Total International Marriages, and Total Marriages, 2003-2013 (Korean Institute for Healthy Family 2014)



	2003	2006	2009	2012	2013
Marriages between a Korean man and a foreign woman	18,750	29,665	25,142	20,637	18,300
Intermarriages, total	24,775	38,759	33,300	28,326	26,000
Marriages, total	302,500	330,600	309,800	327,100	322,800

Figure 4.
Sex Ratios at Birth of South Korea, 1950-2025
(United States Census Bureau 2015, United Nations 2015)



Why Have There Been Increases in the Number of International Marriages?

Imbalanced sex ratio

One reason for the increasing number of international marriages in a society is having higher than average sex ratios at birth (SRB: the number of baby boys born per 100 baby girls). An SRB of around 105 is the biological average in most societies. In South Korea beginning in the late 1980s through the mid-1990s, South Korea has had higher than average SRBs (See Figure 4). Since the Korean War period (1950-1953), the earliest date when official birth data are available, the SRB was just above 105, at around 107 and remained at that level until around 1985. Then, abnormally high SRBs followed, from 1990 (117) until 2000 (110). Poston (2002) has estimated that through the year of 2000 there have been born in South Korea more than 700,000 extra baby boys, who will not be able to find Korean girls to marry.

This surplus of males will start to reach the marriageable age of around 30 in around the year of 2015. Since we already know that older, rural men in South Korea have always been more likely to marry foreign-born women when they could not find Korean-born brides, this surplus of males might follow the same path. Nonetheless, I cannot automatically conclude that these extra boys will immediately look for foreign spouses if they cannot find a suitable Korean-born spouse. Another scenario could be that these males would marry Korean women much younger or older than they. Nevertheless, Korea's unbalanced sex ratios will probably affect in some way the occurrence of international marriages in the near future, when the extra males reach the age of marriage.

This factor of male-female imbalance is also at work in localities that are heavily based on agriculture. International marriages between Korean-born bachelors and foreign-born women mostly from Southeast Asian countries, e.g., Vietnam, first started to be observed in agricultural regions in South Korea as early as the end of the 1980s. The movement of marrying off Korean bachelors in rural areas possibly accelerated the increase in the number of international marriages (Seol, Lee and Cho 2006). A Korean man will often find a bride for an international marriage through acquaintances, by himself alone, through an agency for international marriage, or by way of a religious institution, mostly, the Family Federation for World Peace and Unification. In the rural areas compared to the urban areas, marriages through marriage agencies have tended to occur more frequently. Most Vietnamese women and women from other Southeast Asian countries met their Korean spouses through a marriage agency.

Religious factor

Religion is another factor behind the increased number of international marriages in South Korea. Starting in around 1988, a new phenomenon emerged that has changed the whole picture of international marriages in South Korea. In that year, a mass wedding ceremony was held by the Family Federation for World Peace Unification, also known as *Tongilgyo*, a religion very prominent in Korea and Japan. Six thousand and five hundred (6,500) couples married in the same place on the same day, and they all were almost exclusively the unions of a Korean-born man and a Japanese-born woman (Jo 2005). This mass wedding ceremony informed Korean people of the emergence of a new marriage pattern in South Korea. Mass wedding ceremonies have continuously

occurred under the supervision of the same religious institution, and the most recent ceremony, in which about 20,000 couples from all over the world married, was held in 2014 (조민진 2014). Even though there has been some controversy about around the legitimacy of this religion due to its deviation from Christian orthodoxy, it is difficult to deny its contribution to the initial increase in international marriages. Currently, the marriages are not confined only to those between Korean men and Japanese women; the nationalities of couples having this "blessing-marriage" through "matching" (Personal communication, May 20, 2014 – July 18, 2014) now involves spouses from as many as 194 countries, as of 2014 (조민진 2014). Oftentimes, rural, old men are married off to foreign-women (Japanese women initially and other Southeast Asian women later on through "matching" confirmed by the religious leader).

Political factor

Another important factor that also accelerated the emergence of new marriage patterns in South Korea is the change in international politics between South Korea and China. According to Korean *Social Trends* (석현호, et al. 2009), the number of Korean Chinese women immigrating to South Korea from China to marry a Korean man increased significantly after South Korea re-established a diplomatic relationship with China in 1992. This was a remarkable change because South Korea had not had an official diplomatic relation with China since the end of the Korean War in 1950s.

There are two types of Chinese marriage migrants: the Korean Chinese residing in the Northeastern China and the Chinese who are not ethnic Korean. Among the marriage migrants, almost 30% were Korean Chinese and 22% were Chinese who are

not ethnic Korean as of 2015. Among these migrants, female Chinese migrants were composed of 50% Korean Chinese women and 50% non-Korean Chinese women (Chung, Kim, et al. 2016). Typically, these women have married older Korean men, who were not able to marry Korean women due to their undesirable occupations (i.e. agricultural jobs) in rural area. For this reason, these old men are usually looked down upon by younger Korean women. It seems that more Korean females want to live in metropolitan areas; it has thus become difficult for men in rural areas to find Korean women to marry (김태헌, 이내성 2007, 석현호, 외. 2009, LeeJae-Boon, KangSoon-Won, 외. 2008)

Globalization factor

Another important factor resulting in an increase in the number of international marriages is globalization. As globalization has accelerated, the nationalities of women who immigrate to South Korea to marry Korean men have been diversifying; they now include Chinese, Vietnamese, Filipina, Japanese, Cambodian, Thai, Mongolian, and Russian women, all of whom are from economically less developed countries, except for Japan, (Central Intelligence Agency 2016). However, in comparison, Korean women's foreign spouses usually display the opposite economic characteristics; most Korean women are likely to marry men from more developed countries, such as Japan, the U.S., Canada, Australia, Britain, and Germany (석현호, et al. 2009).

Adjustment Patterns of Multicultural Students in School

Some early literature has discussed some of the maladjustment patterns of multicultural students in school. However, many of these maladjustment patterns have

been observed among students who migrated following their mothers who had migrated earlier to marry a Korean man. Therefore, those students with maladjustment problems were likely to be adolescent or young adults.

Some literature has discussed reasons why some multicultural students move to a different institution other than a regular school or quit school. According to the Korean Women's Development Institute and the National Youth Policy Institute (2007), data based on a 2006 survey of 70 multicultural students going to a regular or an alternative school revealed that about 30% of respondents wanted to quit school because a) they did not enjoy studying (10.1%), b) they were discriminated against or treated unfairly (5.8%), or c) they did not like the teachers and classmates (5.8%) (Korean Women's Development Institute et al., 2007). Kim and Yang (2012) added to this the fact that some of multicultural students ended up leaving school or losing interest in studying due to their lack of Korean skills, insufficient economic support, or school subjects that are too difficult. Regarding the patterns of dropping out, the Ministry of Gender Equality and Family (2013) conducted a survey of 4,775 multicultural students and reported the following to be among the more common reasons for dropping out: a) uneasy relationships with teachers or friends (23.8%) and b) financial difficulties (18.6%). Similar observations have been found in news articles dealing with difficulties multicultural children go through. For example, in 2010, the National Human Rights Commission (as cited in Kim and Yang, 2012, para. 4) concluded that 37% of the multicultural students surveyed had been bullied or shunned because of their accent, origin, rumors about them, skin color, or economic status.

More complex is the non-multicultural peer students' attitudes toward multicultural students. The non-multicultural students' attitudes toward multicultural students do not appear to be identical. Non-multicultural students tend to judge multicultural students based on their parents' origin or their skin color. For example, if a multicultural student's mother is from a developed country, the student is likely to be welcomed and easily approached by non-multicultural students. This point is supported by data in Sim's (2010) survey of 718 non-multicultural elementary school students. In a section in the research report about Korean students' ethnic preferences, Russian-descent students, who are lighter-skinned, were scored the highest compared to other ethnic/national categories of multicultural students. Similarly, in a survey that Jeong (2010) conducted of 138 middle and 138 high school students on their ethnic preferences, the students appeared to prefer White Europeans to African/African Americans or Southeast Asians. Evident from these studies is the finding that non-multicultural students tend to discriminate against darker-skinned multicultural students from developing countries. But even if a multicultural student's mother is from Japan, a developed nation, and the student is light-skinned, discrimination against the student still continues due to an anti-Japanese attitude among Korean students.

Academic Performances of Multicultural Students

The previous literature has indicated that the academic performances of multicultural students were lower on average than those of non-multicultural students. Multicultural students tend to have a difficult time doing homework, carrying out in-class activities, and following class materials. Part of this is due to the lack of language

skills, and part is due to lacking the historical and/or cultural context that they can apply when learning new materials. According to 오성배 (2010), a study revealed that multicultural students who did not reach the minimum academic achievement level accounted for 7.5% and 9.5% of the students in elementary schools and middle schools, respectively. The figure of 7.5% is high compared to 1.45%, the percentage of the total student population not meeting the minimum achievement level. In another study based on interviews with multicultural students, 오성배 (2005) indicated that writing, reading, grammar, and general comprehension skills of multicultural students were lower than those of non-multicultural students. Other studies showed that multicultural students tend to have a difficulty adjusting in school because of the language barrier, their delayed development of Korean skills, and their lack of understanding the Korean culture. All of these may result in their lower levels of academic achievement compared to those of non-multicultural students (오성배 2010, 이재분 2008).

An important source for obtaining data on the educational outcomes of multicultural students is the governmental statistics of South Korea. One of the governmental reports that focused on the educational outcomes of multicultural students analyzed the results of national academic achievement tests. For several years, the Korea Institute for Curriculum and Evaluation had been publishing annual analyses of multicultural students' achievements by academic subject. According to the data for students in elementary school in their report for 2012, for the English subject only, the percentage of multicultural students in the category of upper-level achievement was around 48.2%, compared to that of the entire student population of 71.2%. Meanwhile,

the ratio of multicultural students not meeting the minimum level of educational achievement was 1.5%, which is about 0.8 points higher than that of the total number of students. Adding to this is the obvious gap between the average English scores of multicultural students and the total student population; the average English score for multicultural students was 16.15 points lower than that of the total student population. A similar pattern was shown for mathematics (신진아, et al. 2012). Considering that mathematics and English are the two school subjects on which parents spend most of their budget for private tutoring, the educational gap between multicultural and non-multicultural students could also imply differences in parental socioeconomic status.

A recent study by (Nam and Kim 2011) revealed that multicultural students had generally lower exam scores on five school subjects than those of nonmulticultural students. However, as discussed previously, this study had in the sample 167 multicultural students including children born to foreign-born migrant worker parents. Not surprisingly, they noticed that educational outcomes of the students born to foreign migrant worker couples were lower than those of the students born to a Korean-born parent and a foreign marriage migrant parent. As implied in their study, multicultural children who have at least one Korean-born parent, have resided in South Korea for their entire lives, and have a foreign-born parent with good Korean skills, often have comparable educational outcomes as those of nonmulticultural students.

While the previous literature focused on the lower educational outcomes of multicultural students, there was not much discussion of different educational outcomes among multicultural school children themselves. The ways parents raise their children

might well indicate that their distinct attitudes and values originated from their own nationalities/ethnicities. That is, belonging to different ethnic categories might lead to varying degrees of educational outcomes. Kao and Thompson (2003) noted that the theories about ethnic differences in educational achievement are largely divided into two categories, different cultural orientations and structural positions of ethnic groups. The gist of these categories is that a) different ethnic groups have varying orientations toward achievement and that b) their structural positions, or socioeconomic status, with which ethnic groups move to the host country will tend to be lower. Class differences are generated through parental practices and schooling opportunities; disadvantaged students will often thus be in an unfavorable position. Since marriage migrants in South Korea come from a wide range of countries, from China to the Philippines to Russia to Japan, the socioeconomic statuses of the multicultural households can also vary.

Factors Affecting Educational Performances of Multicultural Students

The literature review of Nam and Kim (2011) revealed that the main reason for the lower educational outcomes of immigrant students are familial and societal cultural backgrounds and language use. In addition, Kao and Thompson (2003) recognized that some researchers stated that the test scores of students reflected inherent or learned characteristics, while other scholars argued against such a conclusion by noting that lower innate abilities of minority persons were more due to unmeasured differences in schooling or other qualities. Controlling for characteristics such as parental socioeconomic status, education levels, school-level factors, and other neighborhood or contextual variables, the gap in educational outcomes between multicultural and non-

multicultural students might thus become narrow or even nonexistent. It is possible that characteristics including parents' immigrant status, governmental attitudes upon arrival of marriage immigrants, parental education level, parents' familiarity with the Korean education system, and school environment factors as well as individual characteristics of students can all affect the educational outcomes of multicultural students. Regarding the contextual variables, Entwisle and Alexander (1992) paid attention to the effects of both home and school environment. Before entering elementary school, students are prepared by their families, and, therefore, their home resources might greatly affect the students. However, as soon as they start school, school tends to have a greater influence on the students, especially the younger ones, because younger students are more easily influenced by school activities and materials.

A different approach that cannot be ignored is Fuligni (1997) analysis of over 1,100 immigrant school children. He revealed that academic attitudes of the students themselves, their parents, and peers were the most significant factors influencing the grades of the students. Socioeconomic factors explained only a small portion of the variation. In other words, it was crucial to know to what degree the parents of the multicultural students emphasized education.

Among the various attitudes of the parents regarding the education of children, parental involvement has been discussed as an important factor influencing the academic achievements of school children. In their analyses of data from the NELS (National Educational Longitudinal Study) survey of 9,810 high school graduates, Perna and Titus (2005) found a positive association between parental discussion with their children and

college enrollment of the children, although there seemed to be different patterns by race/ethnicity. Even though this study sought to reveal such relationships for adolescent cohorts and focused mainly on college enrollment, it still has an implication for multicultural youths in South Korea, where parental involvement plays a huge role early in the life of the child.

While acknowledging that there are various forms of parental involvement, largely categorized into parent-children and parent-school interactions, Park, Byun and Kim (2011) extensively discussed another form of parental involvement: investment in private tutoring. They recognized that an excessive amount of parental involvement was found in Korean education with their large investment in private tutoring. The most common form of private tutoring appears to be private cram schools, where paid teachers teach school subjects to students in a classroom-like setting. However, these are not the same as public or private schools, where tuition is free or low; these tutoring schools are more like private classes outside school, to which parents need to pay higher costs. Supporting this, Park, Byun, and Kim (2011) conducted an analysis to see how the standardized scores of math, English, and Korean are affected by parental involvement, and found out that there was a significant effect of parental involvement on children's math and English scores. Furthermore, the authors mentioned that "[p]rivate tutoring not only imposes an economic burden on parents but also requires parents to gather information on different kinds of private tutoring and compare them to find one that may best fit their children's needs" (2011: 5).

Furthermore, information-sharing among parents about these private institutions is crucial for them to decide to which private cram school they should send their children. Therefore, parental network is important for parents, and oftentimes the quality of the information shared and the network itself depend on how much time and money the parents can spend.

The enthusiasm of Korean parents for educating their children may be demonstrated in a newspaper interview. Some mothers revealed that they became part-time working mothers, leaving behind their full-time working position because they wanted to focus on their children's education (Park, Byun and Kim. 2011).

Parental involvement is often practiced with varying degrees of intensity owing to their different socioeconomic statuses or to the class-specific values of the parents. Interacting with teachers in school can be sometimes limited for lower-class parents, because being involved in school affairs may be considered inappropriate or they do not even have enough time to spend hours meeting with the teachers. In comparison, middle and upper-class parents seem to be more eager to converse with their children about their academic matters and to contact the teachers to discuss their concerns. They may feel more confident in doing so than do the lower-class parents, because they most likely have financial or informational resources enabling their spending time in these activities. An ethnographic study of Calarco (2014) revealed that working-class and middle-class parents transmit different skills and strategies to their children, and that often their children activate those skills in school. Middle-class parents use a transmit "by-any-means (2014: 1021)" approach, including contacting teachers frequently, being involved

in their children's academic issues, and telling their children to seek help from teachers whenever possible. However, working class parents seemed to have a "no-excuses (2014: 1023)" approach; few contacts to teachers were made based on the idea that teachers are the experts, not the parents, nor the students. Even though the sample population of this study was all white, it still has an implication for my dissertation research. Socioeconomic differences between the parents of multicultural students and non-multicultural students will likely result in the parents passing on different sets of skills that they want their children to use in school. Parental involvement, consequently, can have different forms for parents of different socioeconomic statuses. For instance, socioeconomic statuses of the parents might play an important role in sending their children to for-profit cram schools for private tutoring. Attending these institutions is costly; parents with lower socioeconomic status may not be able to afford this private education for their children.

Another potential factor influencing the educational outcomes of multicultural children is the educational level of the parents. This factor has been also studied and used heavily in prior research to predict children's academic behavior. Parental education levels can affect educational attainment and outcomes of their children because parental aspiration and support for their children are likely to differ based on their own education level. Even though the gap in educational achievements between students in the lowest quintile and in the highest quintile was the smallest in South Korea of all the OECD countries in the PISA data of 2000 (Park 2009), South Korea still followed the general trend that parental educational level was positively associated with

the educational outcomes of their children. The PISA data in 2012 (OECD 2013)) also show this pattern. In general, positive relationships were found between parental educational attainments and mathematics performance of students on average among the OECD countries. A similar conclusion was drawn in another study (Nam and Kim 2011) showing that overall education outcomes for school subjects were higher for the elementary school students whose mother had a college degree compared to those mothers with a high school degree or less.

Even though we need more research on this relationship, it is evident that the parents' level of education has a clear effect on the academic outcomes of their children. For foreign-born parents in multicultural families of South Korea, about 78% of the total marriage immigrants had not obtained a college degree; about 42% of them had obtained a high school diploma (김승권, et al. 2009). However, different patterns were observed depending on the country of origin and sex. It was shown that the majority of Filipina, Mongolian, Japanese, and European marriage immigrants had obtained a college degree, while immigrants from countries such as China, Vietnam, and Thailand had middle school or high school education as their highest level of education. The variation based on nationality was clear. Another important trend observed from this national study was that male marriage immigrants with bachelor's degrees were almost twice as large as female with bachelor's degrees (40% verses 20%). About 84% of international marriages were between Korean-born males and foreign-born women as of 2014, and the majority of female marriage immigrants were from developing countries. In contrast, most of the male marriage immigrants were from developed counties (Korean Institute

for Healthy Family 2014). A concern drawn from these patterns is potential educational outcome gaps among multicultural children as well as between multicultural children and non-multicultural children due to not only their parental education levels, but also parental economic statuses.

The Korean language skills of the mother are another factor that has been pointed out in the literature as influencing the educational outcomes of multicultural students. In the case of foreign-born women, they are likely to immigrate to South Korea without sophisticated cultural and linguistic knowledge about the country. There may not be a big improvement in their knowledge by the time they have a child and then send the child to school, especially if the mother does not actively interact with other Korean-born people. The Korean educational system is highly demanding and, therefore, the role of parents, especially that of the mothers, is expected to be equivalent to a personal tutor as well as a time manager. Thus, the frustration for both children and mothers will be increased if the mother lacks basic Korean language skills. Moreover, multicultural children might go through their infant period without acquiring much if any Korean language. The mothers who are less fluent in Korean cannot easily help their children with academic matters. Nam and Kim (2011) found in their study comparing 167 multicultural students with Korean students in elementary schools that students had higher exam scores for Korean, social studies, mathematics, and science if they spoke only Korean at home. The students, who spoke at home both the mother's (or the father's) language and Korean, or who spoke only the foreign language, had lower outcomes for most of the main school subjects compared to the children in Korean-

speaking-only families (Nam and Kim 2011). Considering that many foreign-born mothers are not very fluent in Korean, even accessing information about private institutions can be difficult. Thus, many researchers have concluded that familial factors such as the mother's Korean skills and knowledge about the Korean education system are likely to influence the educational outcomes of multicultural children and their adjustment in school (Oh 2010).

The literature has also discussed economic factors. The Ministry of Health and Welfare of Korea, as of 2005, pointed out that 53% of the marriage migrant women's families in South Korea were living with income below the minimum cost of living, and that 44% of those families were living with income below 50 percent of the minimum cost of living (as quoted in Lee, 2008). An implication is that multicultural students may not have the same opportunity to enroll in private tutoring or to take private lessons as their Korean-born peers because of the high cost of attending private institutions. Private institutions outside school, called *hakwon*, are highly popular among Korean students, especially with regard to the more difficult subjects (Park 2007). A study conducted by the Seoul Metropolitan Government revealed that a monthly payment in 2008 for private tutoring per household was $550. Such an expenditure is about 16% of the average monthly house income; this is a large economic burden on parents (Park et al. 2011).

The school environment is another factor that might affect the educational outcomes of students. Unfortunately, school-level factors have not been examined much at all in the Korean literature. Even though students are individual actors who can make final educational decisions, their decisions are often affected by the local contexts in

which they are placed, especially when they are young. Researchers have found that educational outcomes of students vary by not only socioeconomic status and familial backgrounds, but also by the learning environment, precisely, the school context. Contextual elements in school that might affect students' educational outcomes include teaching practices, the use of class time, structured and adaptive teaching, curriculum coverage, and contents and pace of the curriculum (Willims 2010). Furthermore, Garner and Raudenbush (1991) and Kao and Thompson (2003) have suggested that looking at contextual variables, such as school-related elements, allow one to uncover multilevel factors that affect student outcomes. Similarly, Entwisle and Alexander (1992) have analyzed the effects of both the home and school environments. Before entering elementary school, students are prepared by the families, and, therefore, their home resources might greatly affect the students. However, as soon as they start school, the school starts to have an increasingly larger influence on the students, especially the younger ones, because younger students are more easily influenced by school activities or materials.

Among school-level variables, racial or ethnic differences in the schools can impact the educational outcomes of the students in the form of segregation and peer influences (Kao, Tienda and Schneider 1996), even though the results are mixed (Schleicher 2006). Regarding other school-level variables, Pong and Hao (2007) found in their multilevel analysis a strong association of school SES and school climate on the GPA of the children of immigrants. They noted that immigrants' children rely more on

adults outside their homes as their role models and that the children were less affected by their peers or school policies.

Hypotheses

Based on my extensive review of the literature, I have generated four main hypotheses I will test in my dissertation in my analyses of the educational outcomes of school children in elementary schools in South Korea.

My main hypothesis is as follows.

Hypothesis 1: *Among the students in the 6th grade in elementary schools in the Daegu/Gyeongbuk area, the educational outcomes of multicultural students will be lower than those of non-multicultural students on average, controlling for the other level-1 and level-2 variables.*

Three hypotheses below involve the interaction between being multicultural and the school-level variables.

Hypothesis 2a: *Among elementary schools in Daegu/Gyeongbuk, South Korea, a school with higher mean SES will reduce the effect of the slope coefficient of being multicultural on student educational outcomes, controlling for the other level-1 and level-2 independent variables*.

Hypothesis 2b: *A school with a large student population will reduce the effect of the slope coefficient of being multicultural on student educational outcomes, controlling for the other level-1 and level-2 independent variables*.

Hypothesis 2c: *A multicultural education focused school will be more likely to increase the effect of the slope coefficient of being multicultural on educational*

outcomes of students, controlling for the other level-1 and level-2 independent variables.

In the next chapter of my dissertation I will discuss the data I have gathered in South Korea that will be used to test the above hypotheses, and the statistical methods I will employ in my analyses.

CHAPTER III

DATA AND METHODOLOGY

Data

In this chapter, I discuss in detail the data I gathered and subsequently analyzed in my dissertation. I also review the various statistical methods I used to undertake my analyses.

In the summer of 2015, I sampled several groups of elementary school children of Gyeongbuk Province of South Korea; I conducted separate surveys in several different schools. See the map of South Korea and the location of Gyeongbuk Province (Figure 5).

Figure 5.
Map of South Korea: Provinces and Major Cities (Maps of World 2017)

As of 2014, the number of elementary school students in all of Gyeongbuk Province from multicultural households reached 3,127 (2.4%) out of a total of 131,307 elementary school children. My sample consists of a total of 793 6th grade students in 20 different schools, and the number of multicultural children from internationally married couples was 34. This means that 4.3% of my sampled students are multicultural students. Comparing this percentage to that of the entire province, 2.4%, the percent of 4.3 for the current sample more than suffices. I do recognize that the number of multicultural students is quite small for quantitative analyses. However, this is related to the fact that there are fewer multicultural families in the greater Daegu and Busan areas, compared to those in South Korea as a whole (Korean Women's Development Insitute 2016). Thus, in

many ways my dissertation research may be viewed as a case study of Gyeongbuk province. I will not wish to make statistical inferences to all of South Korea. There are, indeed, studies on multicultural families conducted for other provinces if one wants to consider the differences and similarities in the sociological and demographic dynamics of multiculturalism (for example, see Nam and Kim 2011; 옥경희 and 박미정 2009; 조혜영, et al. 2007; J. Lee 2011).

During the summer of 2015, the students who decided to participate in the survey were asked to fill out a survey questionnaire composed of 29 questions involving several individual-level (level-1) variables including student and parental information. See Appendices for my IRB approval, the questionnaire used for my surveys, and assent and consent forms for the students and their parents.

The second phase of data collection occurred in two different ways. First, I contacted each principal in order to access school information about multicultural education in each school. Then, either the principal him/herself, various administration personnel of the school, or diversity department personnel gave me access to school data on diversity/multicultural events in school, on teachers who have had diversity training on site or outside the school, and on school type (whether it is multicultural-education-focused or not, as accredited by the government). Second, I went to the government website providing school information through a search system (schoolinfo.go.kr), which is managed by the Ministry of Education. I obtained information on the socioeconomic status of school (allocated budget per student) and school size. The information I gathered in this second phase of data collection was used for generating my so-called

level-2 variables dealing with general school characteristics so to provide context for my study.

Measurement

In this section, I introduce my one dependent variable and both the level-1 and level-2 independent variables, and show how I used them in my dissertation analyses. I also show how I operationalized them.

Dependent Variables

My dependent variable refers to the educational outcomes of students in elementary schools in Daegu/Gyeongbuk, South Korea. They refer to the most recent test scores of the students in English. I use this dependent variable because it is considered so important in Korean education; indeed, Korean parents spend most of their money on their children's education in English. The importance of English in South Korea is ever-growing, and Park, Byun and Kim (2011) have showed that parental involvement through private tutoring had significant positive associations with children's English along with mathematics scores. Koreans parents' willingness to invest money for their children to access quality tutoring service for English can be largely explained by the wide-spread belief or reality that the possibility of college entrance, social mobility, and employment opportunities will increase with higher scores in English. The students were asked to give me the ranges of their score (i.e. higher than 50, lower than 60; higher than 60, lower than 70; higher than 70, lower than 80; higher than 80, lower than 90; higher than 90) from the latest academic exam for English. Later on, however, the lowest three categories were collapsed into one category, namely,

higher than 50 to lower than 80, due to substantially fewer number of students in the lowest two categories. Therefore, there are three categories in the English score.

Independent Variables

Individual-level (Level-1) variables

1. Being multicultural: To determine if the respondent is multicultural or not, I asked each student if one of the parents was born in a foreign country. None of my sampled students had two foreign-born parents. This is a dummy variable, coded "1" if the student is "multicultural," and 0 otherwise. This is my principal independent variable. It is the key variable I used to test my main hypothesis, namely, if being multicultural is a disadvantage for students in terms of educational outcomes.
2. Educational attainment of parents: The educational attainments of the parents of a student was measured by asking the respondent the highest educational levels of both their parents. I chose this method over asking the total years of education, because the 6th grade elementary students might not know the exact years of education that their parents have achieved. The answer choices are the following: 1) Elementary school; 2) Middle school; 3) High school; 4) College; 5) Graduate school or higher. I assume that the higher the education levels of the parents, the higher the educational outcomes of the student.
3. Mother's information-sharing intensity: I asked two questions about the degree to which the respondent agrees with the statement that "my father (mother) enthusiastically shares education-related information with other parents." The

literature suggests that a mother's zeal for education impacts very highly the child's academic performance. The responses to the question are the following: 1) Strongly agree; 2) Agree; 3) Do not know/Neutral; 4) Disagree; 5) Strongly Disagree. The result is represented as the "mominfo" variable. I was not able to obtain similar information for the father because only a few respondents reported their fathers being involved in any sharing-behavior.

4. Private tutoring experiences: To create the variable "engtut" referring to English tutoring, I asked two questions about whether the student had tutoring experiences (i.e. studying in a private academy or being taught by a personal private tutor) in the past year, and if yes, how many such experiences, from 0 to 4 or higher (coded "1" through "5"). I assume that a greater number of tutoring experiences would lead to higher educational outcomes of a student.

School-level (Level-2) variables

1. Mean SES: This level-2 variable is calculated for each school by aggregating the economic data of the students in the school. I was unable to gather actual economic data for the families of the students. Instead I obtained self-reported data about how well the respondents thought his/her family was doing economically. The respondent chose one of the following responses: 1) not at all well; 2) not well; 3) okay; 4) somewhat well; 5) very well. The responses from the students then were aggregated and averaged to the school-level variable of "meanses." This variable has been centered for multi-level modeling.

2. School size: This variable refers to the total number of students in each school. I obtained these data via the website (http://www.schoolinfo.go.kr/) containing school-related public information; this site is maintained by the Ministry of Education of South Korea.
3. Multicultural-education-focused school: This variable measures whether the school is a multicultural-education-focused school, coded "1" if yes, and "0" if not. Personnel in charge of multicultural education/diversity matters for each school gave me this information.

Methodology

Ordered Logistic Hierarchical Linear Models

The models that I estimated in this dissertation are ordered logistic hierarchical linear models. Particularly, I estimated proportional odds models to analyze my hierarchical ordinal data. Using the proportional odds model is the most common practice to analyze data in which the outcomes are ordinal and individuals are nested in higher level units (O'Connell 2010). In this section, I will justify my use of ordinal logistic models, i.e., proportional odds models, and multilevel models, respectively. Then, in the following subsections, I will demonstrate the procedure with which I estimated the ordered logistic hierarchical linear models for analyzing my data.

With respect to predicting the response variable English score, fitting ordered logistic models, an extension of logistic regression, is appropriate (Agresti and Natarajan 2001, Agresti 2007, O'Connell 2010, McCullagh 1980) when the multiple outcome categories are ordered, such as 1, 2, 3, 4, and 5. I assume the distances between the five

integers will not be the same. In detail, the students were asked to give me the range of their score for English (i.e. lower than 60; 60 or higher, lower than 70; 70 or higher, lower than 80; 80 or higher, lower than 90; 90 or higher) from the latest academic exams for English. With cumulative logit models, I am able to estimate the estimated odds ratios for the responses with the level-1 and level-2 effects taken into account. As mentioned in the previous section, however, the categories have been collapsed into three for analyses.

I conducted the analysis using both ordinary least squares (OLS) regression and ordinal logit regression to check if the results differ significantly, following the advice of the demographer-statistician Donald Treiman (Treiman 2009, 353). My results indicated that it would be best statistically to use multilevel ordinal logit models, rather than multilevel linear regression models, to predict my dependent variable. I will present a comparison of the results of the two models in the next chapter.

The most common approach used to model ordered categorical dependent variables is the proportional odds model (Agresti and Natarajan 2001, O'Connell 2010). Sometimes, the ordered logit model itself is identified with the proportional odds model (Grilli and Rampichini 2014). A proportional odds model is a type of cumulative ordinal models. In a proportional odds model, there are k levels of ordinal outcomes, and each of the outcome is predicted in a model using a cumulative logit link. There are k-1 divisions in the outcomes for the dependent variable. (Agresti 2007, O'Connell 2010). In my study, there are three different ordered categories of educational outcomes for English and two splits of the outcomes. The ordered logit model is a regression model, in

which the logit of each cumulative probability has a linear predictor function of the covariates (Grilli and Rampichini 2014).

One notable characteristic of proportional odds models is that the effect of the independent variable remains the same for each cumulative probability of a response category rather than having separate effects for each cumulative logit (Agresti 2010). Thus, using proportional odds models, I estimated the effect of being multicultural, my main individual-level variable, on the odds of each response category. Then, I calculated their predicted probabilities in turn with the effect of the independent variable taken into account. Below is the model I used to predict the log odds of a response category.

$$\text{logit}\,[P(Y \leq j)] = \alpha_j + \beta x,\ j=1, \ldots, c-1, \qquad (1)$$

In model (1), β denotes the common effect throughout the entire range of the outcomes in the dependent variable, e.g., the mean English score and x the independent variable. The coefficient of x, β, e.g., whether the student is multicultural or not, is estimated to calculate the amount of change in the log-odds of a response category x. In a proportional odds model, as implied in the name, the sum of all of the categories of the outcomes equals one.

However, the modeling strategy for my dissertation should not only take into account the ordered nature of the responses for my dependent variables, but also the fact that the study subjects, i.e., students, are nested in contexts, i.e., schools. Multilevel modeling or hierarchical linear modeling comes in handy for this particular situation. Multilevel models deal with data that are nested (Agresti 2010).

I estimated multilevel models predicting my dependent variable of English language achievement, using independent variables from two levels, that of the student and that of the school. Raudenbush and Bryk (1986) early on recognized that the results of single-level models based on traditional linear models can be misleading. The development of multilevel analysis in education research is attributed to the fact that important independent variables are measured at a higher-level of context, i.e., the school; relationships between the variables are thus hierarchical (Garner and Raudenbush 1991). Multilevel analysis is appropriate for gauging the effects of both personal characteristics of students and those of the students' schools on an outcome. Such an analysis captures a more complete set of factors affecting the educational outcomes of each student. It enables a researcher to look at the social contexts of the settings at higher levels (Chang 2003). Moreover, Kao and Thompson (2003) have stated that there is a growing number of researchers looking at how parents, schools, and peers affect test scores based on the implication from previous research that educational gaps are shaped at early ages. Considering the importance of the contexts, i.e., the schools where the students are placed, multilevel (student- and school-level) analysis is surely appropriate for my research.

Thus, the models that I estimated in this dissertation are ordered logistic hierarchical linear models. In the following subsections, I will explain further the appropriate procedure for analysis and I will present an overview of the specific models used in my analyses.

One-way ANOVA models

I first estimated an analysis of variance (ANOVA) model for English scores. An

ANOVA model is simple to estimate, but it is a crucially important first step in the analysis. It is intended to examine if there is enough within-school variance and between-school variance (Raudenbush and Bryk 2002). I first present the results of the ANOVA model to ascertain whether there is a statistically significant amount of variance in the educational outcome of English at the school-level, thus justifying my multi-level analyses. I estimate the total variance in the dependent variable for English scores both at level-1 (student level,) and level-2 (school-level). If there is enough variance at the school-level, multilevel analysis is appropriate.

The level-1 equations predicting the odds of each category for mean English scores is as follows.

$$\log[\phi^*_{1ij}/(1 - \phi^*_{1ij})] = \beta_{0j}$$
$$\log[\phi^*_{2j}/(1 - \phi^*_{2ij})] = \beta_{0j} + \delta_2 \qquad (2)$$

Where ϕ_{ij} is the probability for each category, β_{0j} is the intercept (the log-odds for the first category for the scores less than 80), and δ is the difference to be adjusted from the first probability function to the next.

In the level-2, school-level equation is the following:

$$\beta_{0j} = \gamma_{00} + u_{0j} \qquad (3)$$

The variance components at level-2 (between schools), τ_{00}, is produced in model (3). If the level-2 variance, τ_{00}, represented as u_{0j}, is significantly different from zero, I can argue that there is a significant amount of variability in the dependent variable at the school-level. Such a result will justify my decision to estimate multilevel models. Thus, I

calculate an intra-class correlation (ICC) to show the proportion of variance in the log-odds of the dependent variable between schools. To calculate the proportion, I need the variance at level-1, and the most common practice is to use $\pi^2/3$ for nonlinear logistic regression multilevel models (Hosmer, Lemeshow and Sturdivant 2013, 327; Treiman 2009, 347).

The formula for ICC is the following.

$$\rho = \tau_{00} / (\tau_{00} + \pi^2/3) \qquad (4)$$

I will be able to show the proportion of the variance of the dependent variable, i.e., English scores, with this formula. In detail, the intra-class correlation coefficient, ρ, is calculated in model (4) with τ_{00}, denoted as u_{0j}, divided by the combination of τ_{00}, the level-2 variance, and $\pi^2/3$, the variance among the students at level-1. I will present the results of the ICC calculation for my dependent variable in the next chapter.

Random-coefficient models: estimating the effects of the individual-level variables in HLM

In these models, I will estimate each logit of student's English score by combining a student-level equation and a school-level equation, as follows. First of all, I will display the individual-level. i.e., level-1, equation with the main independent variable, i.e., whether the student is multicultural or not, denoted as MULTI. I only show one level-1 independent variable in the example:

$$\log[\phi^*_{1ij}/(1 - \phi^*_{1ij})] = \beta_{0j} + \beta_{1j}*(\mathrm{MULTI}_{ij}) \qquad (5)$$

In this equation (5), the log-odds of English score for the category of 1 is predicted by the MULTI variable, i.e., whether the student is multicultural or not. β_{0j}

represents the intercept, i.e., the mean log-odds for an educational outcome, and β_{1j} the coefficient of MULTI.

The level-2 equations are as follows.

$$\beta_{0j} = \gamma_{00} + u_{0j}$$
$$\beta_{1j} = \gamma_{10} + u_{1j} \quad (6)$$

In these equations, the parameters, β_{0j} and β_{1j}, are the combinations of a grand mean and a random error term across the 20 schools in the level-2 model. γ_{00} is the grand mean among the schools and u_{0j} is the random effect associated with school j added to the grand mean. Regarding the second equation, γ_{10} represents the mean MULTI slope across the schools, and u_{1j} is the adjustment to the mean MULTI slope in school j (Raudenbush and Bryk 2002).

Intercepts- and slopes-as-outcomes models: estimating the effects of the individual- and school-level variables with interactions

The intercepts- and slopes-as outcomes model enables me to see the random effects on the intercept and slope at the school-level while controlling for level-1 and level-2 variable (Raudenbush and Bryk 2002). I will estimate each logit of student's English score by combining a student-level equation and a school-level equation, as follows (I only show one level-1 independent variable in the example below):

$$\log[\phi^*_{1ij}/(1 - \phi^*_{1ij})] = \beta_{0j} + \beta_{1j}*(\text{MULTI}_{ij}) \quad (7)$$

In this equation, the log-odds of English score for the category of 1 is predicted by the MULTI variable. β_{0j} represents the intercept and β_{1j} the coefficient of MULTI. The school-level equations are (I only show one level-2 variable):

$$\beta_{0j} = \gamma_{00} + \gamma_{01}*(\text{MEANSES}_j) + u_{0j}$$

$$\beta_{1j} = \gamma_{10} + \gamma_{11}*(\text{MEANSES}_j) + u_{1j} \qquad (8)$$

Models (8) now have MEANSES (the average SES score for school, aggregated from the student-level socioeconomic status data) as the school-level predictor. The two level-2 equations are then combined into the student-level equation, as follows:

$$\log[\phi^*_{1ij}/(1- \phi^*_{1ij})]$$

$$= \gamma_{00} + \gamma_{01}*\text{MEANSES}_j + \gamma_{10}*\text{MULTI}_{ij} + \gamma_{11}*\text{MEANSES}_j*\text{MULTI}_{ij}$$

$$+ u_{0j} + u_{1j}*\text{MULTI}_{ij} \qquad (9)$$

Here, the log-odds of English score is predicted with the grand mean (γ_{00}), the main effect of the student-level variable (γ_{10}), the main effect of the school-level variable (γ_{01}), and the cross-level interaction of the school variable with the slope (γ_{11}), and the random error component ($u_{0j} + u_{1j}*\text{MULTI}_{ij}$). In my dissertation, I added in more independent variables to the equations. The random effect components, τ_{00} and τ_{11} are also included in the final equation (9), in the symbolic representations of u_{0j} and u_{1j} for each school. τ_{01} is the covariance in the intercept and slope. In the models, I only looked at the random effects at the level-2 for the Multicultural variable, which is my main variable.

In the next chapter, I present the detailed results of my statistical models.

CHAPTER IV

RESULTS

This chapter contains the results of my analyses of the effect of multiculturalism on the English achievements of schoolchildren in South Korea. I begin the chapter with several descriptive analyses of my data. Then, I present my regression analyses.

Descriptive Analyses

Descriptive Statistics

Table 1 presents descriptive statistics for the dependent and independent variables I used in my analysis. I analyses 793 elementary school children in the 6th grade in 20 different elementary schools in the Daegu/Gyeongbuk province. The English language dependent variable is scored in three categories: less than 80; higher than 80, less than 90; higher than 90 (See Table 1). About 23%, 21%, and 55% of the students were in the respective categories. Concerning my independent variables, there are four level-1 variables and three level-2 variables. The Multicultural variable ("multi") and Multicultural-Education-Focused variable ("mfocus") are both dummy variable, recorded as 1 if yes, and 0 if no. In this sample, mothers' average education attainment level was high school or possibly higher level of education. The scale was from 1 (elementary school) to 5 (graduate school or higher). Regarding Private English tutoring experience, the average number of tutoring experiences was about 1.9 (the scale ranges from 1 = none to 5 = 4 or higher), which means that on average, students had registered for a private academy or their parents had hired a personal private tutor for their children

about once. At the school level, average Mean SES was about 3.31, a little higher than mid-range with a small standard error, while the School Size variable (the number of students in total in each school) showed a wide range of responses from 62 as the smallest to 1,938 as the largest. School sizes were recoded as 1, 2, 3, and 4, according to their ranges (i.e., 0 to 499 as 1; 500 to 999 as 2; 1,000 to 1,499 as 3; 1,500 to 2,000 as 4).

Table 1.
Descriptive Statistics of the Variables

Name	Label	Number	Mean	Min	Max	S.D.
DV						
Eng	English Score	789	2.32	1	3	.83
IV						
Student-level						
Multi	Whether Multicultural or not	793	0.04	0	1	0.2
Momedu	Mother's Education Level	689	3.6	1	5	0.7
Mominfo	Mother's Information-Sharing	778	3	1	5	1.2
Engtut	Private English Tutoring Experience	790	1.9	1	5	0.8
School-level						
Meanses	Mean SES	793	0	-.27	3.7	.16
Schsize	School Size	793	2.40	1	4	.98
Mfocus	Multicultural-Education-Focused	793	.16	0	1	.37

Note: Variable "meanses" has been centered.

Correlation Matrix

In this section, I present two correlation matrices to display how individual-level and school-level variables are correlated. I wished to ascertain whether the associations are as expected. The correlation table will show the associations of the variables with the dependent variable, English Score. See Table 2.

Descriptive analysis revealed that there are significant associations between the independent variables and the dependent variable worth exploring further in several established models. As the previous literature indicated, being multicultural seems to have a negative effect on students' educational outcomes, while mother's education, information-sharing behavior, and tutoring experience work in the other way. Mean SES and School Size had a positive association with English Score. A notable pattern from the correlation matrices regarding the school-level variables was that being in a multicultural-education-focused school worked as a barrier in achieving higher educational outcomes. I turn next to the regression analyses of my data.

Hierarchical Linear Models (HLM)

ANOVA Model: Variance at Level-2 and Intra-Class Correlation Coefficients

The results of the ANOVA (see my discussion in the previous chapter) are presented in this section. The variance at level-2, τ_{00}, is 0.097 for English ($\chi^2 = 37.677$; P = 0.007). The variance at level-2 is significantly different from zero. I conclude that it is statistically appropriate for me to engage in multilevel analyses of English language achievement.

Table 2.
Correlation Matrices of Student- and School-Level Variables of Elementary School Children (DV: English Score)

	English	Multicultural	Mother's Education	Mother's Info	MeanSES	School Size
Student-Level						
Multicultural	-0.1114***					
Mother's Education	0.1325***	-0.0311				
Mother's Behavior	0.1719***	-0.1199***	0.0759*			
Tutoring	0.1173***	-0.0828**	0.0972*	0.2377**		
School-Level						
MeanSES	0.1283***	-0.0071	0.1743***	0.0516		
School Size	0.0810**	-0.0164	0.1382***	0.0188	0.4610***	
Multicultural-Focused	-0.1163***	0.0240	-0.1053*	-0.0256	-0.5133***	0.0001

(*p < .1; ** p < .05; *** p < .01)

Next, I calculated an intra-class correlation (ICC) for the dependent variable to show the proportion of variance in the log-odds of the dependent variables between schools. To calculate the proportion, I obtained the value for the English score variable for the variance at level-2, τ_{00}, or u_{0j}, and the values for the variance at level-1, $\pi^2/3$, for nonlinear logistic regression multilevel models (Hosmer, Lemeshow and Sturdivant 2013, 327; Treiman 2009, 347). Using formula (4), I found the proportion of variance at level-2 to be 0.0286. In other words, around 2.9 percent of the variance in English language achievement occurs at the school level.

Ordinary Least Squares Models Versus Ordered Logistic Regression Models

In this section, I present the results of the conventional ordinary least squares (OLS) models and ordered logistic regression models. A comparison of the two different models will enable me, likely, to better justify my selection of ordered logistic regression for the analysis of my data. I first ascertained whether my dependent variable of English score is negatively skewed. The variable is skewed. This implies a violation of the normality assumption of the OLS regression. Meanwhile, ordered logistic models do not have such distributional assumption for the data. Having that in mind, I ran both models to further justify my use of ordered logistic regression for my analyses.

Multilevel Ordinary Least Squares Models Versus Multilevel Ordered Logistic Regression Models

I estimated both multilevel OLS model and multilevel ordered logit model for the dependent variable, English score. Precisely, they are random coefficients models. I only included the main variable, whether the student is multicultural or not, in the regression

models. The main purpose of fitting the two models is to compare two different approaches for modeling the dependent variable. See Table 3.

Table 3.
Comparison of Multilevel OLS Model with Multilevel Ordered Logit Model.

Items	OLS Coefficients	Ordered Logit coefficients
Multi	-.4543895*** (.1469388)	**-1.037741***** (.340046)
Intercept	2.332472*** (.0405915)	
Cut Point 1	**-**	**-1.249459*****
Cut Point 2	**-**	**.243081****
τ_{00}	**.0211586**	**.0842343**
τ_{11}	**.0211586**	**.066745**
τ_{01}	**.0169056**	**.0749815*****

(***p < .01)
Note: Random effects were not stable for the OLS regression.

First of all, the coefficients for the both variables are significant at the .01 level. The coefficients are not at all comparable to each other; this is mainly due to the differing metrics of the dependent variable (i.e., linear outcomes versus logits) in the two models. The major problem estimating an OLS model is with the interpretation of the coefficients. In the OLS model in Table 3, even though I know that it is significant and has a negative impact, I would not know very precisely the magnitude of the effect of the "multi" variable on the mean English score of a student; the coefficient is -.45, controlling for School Size. My dependent variable, English Score, has three ordered

categories of score ranges, and the effect of -.45 cannot be appropriately interpreted in the OLS regression model. A decrease in the dependent variable by .45 of a category is not very intuitive. OLS works well with a continuous dependent variable, where it is assumed that the distance between the categories is the same, or with a dependent variable with a lot of categories. My dependent variable, the logits of English score ranges, does not necessarily have the same distance between the three outcome categories.

On the other hand, the "multi" variable has a common effect of -1.04 on the logits of English scores in the ordered logit model, which then can be used along with a cut point to calculate the odds and predicted probability of a specific category. The cut points or the splits for the categories are significantly different from zero. For the current multilevel ordered logit model, for a multicultural student, there is a decrease of 1.04 in the log odds of his/her English score. This means that the odds of having a higher English score decreases by around 65% for a multicultural student.

Therefore, I decided to employ the multilevel ordered logit models over the OLS models for analyzing my ordered categorical dependent variable, English Score. It makes so much more statistical sense to estimate ordered logit models to interpret the effects of the coefficients. I would prefer an OLS model over an ordered logit model if I had a continuous, normally distributed integer variable as my dependent variable. Last but not least, I would have violated the normality assumption of the OLS regression if I used an OLS model to predict my skewed dependent variable.

Effects of the Individual-Level Variables in the Hierarchical Models

Now, I estimate the effects of the independent variables at level-1 in the multilevel models with the random effects at the school-level taken into account. I added one or two variables at a time to show the changes in the coefficients and the statistical significance of the independent variables. The models that I fit are random coefficients models with the level-1 independent variables, because I wanted to ascertain whether the "multi" variable has an effect on the logits of English score, and if so, whether the relation is similar across schools. Remember equations (5) and (6) for this model.

$$\log[\phi^{*}_{1ij}/(1 - \phi^{*}_{1ij})] = \beta_{0j} + \beta_{1j}*(MULTI_{ij}) \qquad (5)$$

$$\beta_{0j} = \gamma_{00} + u_{0j}$$
$$\beta_{1j} = \gamma_{10} + u_{1j} \qquad (6)$$

First, I start with the multilevel logit model that only includes the main variable, the indicator of being multicultural. Then, I add in a control variable, mother's education attainment level, mother's information-sharing intensity, or English tutoring experience at a time. Lastly, I estimate the entire model with all of the level-1 variables. The results are shown in Table 4.

The main finding from the analyses is that the Multicultural variable maintain its significance in model 1 (M1), model 3 (M3), and model 4 (M4), even though it loses its significance at some point. See Table 4. Being multicultural alone has a significant negative effect at .05 level on the log odds of English score in M1. It is still significant, but with a decreased effect, when controlling for mother's information sharing intensity in M3 or English tutoring experience in M4, while the two control variables are also significant. The Multicultural variable becomes insignificant, however, when introduced

with Mother's Education in M2 and in the full model of M5. These results imply that even though being multicultural is a disadvantage for students with respect to the academic achievements in English, this disadvantage is no longer significant when mother's education is controlled. See Table 4. Therefore, I suspect that mother's education is a strong factor in predicting the log odds of English achievement. To examine whether this is the case or not, I calculated the standardized coefficients for the independent variables. For the full model M5, the standardized coefficient for Mother's Education is -.51 and that for Mother's Information-Sharing Intensity is -.22 (these are the only significant effects in the full model). The standardized coefficient for Mother's Education has an effect twice the effect of Mother's Information-Sharing Intensity. Comparing Multicultural and English Tutoring in M4, the difference in the relative effects for Multicultural and English Tutoring is immense; for Multicultural, the x-standardized coefficient is 4.7 and 0.34 for English Tutoring. Nonetheless, I conclude that Mother's information has the largest relative effect on the log odds of English score.

Overall, I conclude that being multicultural loses its significant effect on the log odds of English Score, controlling for other variables, particularly mother's characteristics and tutoring experiences variables together. This means that once students are equalized with the same amount of maternal involvement in their education, the disadvantage of being multicultural might disappear. With these results in mind, I move now to the presentation of the results of intercepts-and-slopes-as-outcomes models with both level-1 and level-2 variables included along with potential interaction effects.

Table 4.
Effects of the Individual-Level Variables (Random-Coefficients Model)

Coefficients		M1	M2	M3	M4	M5
Multicultural	γ_{10}	**-1.04*** **	-.79	**-.86** **	**-.94*** **	-.53
		(.34)	(.50)	**(.36)**	**(.33)**	(.55)
Mother's Education	γ_{20}		**.39*** **			**.35*** **
			(.12)			**(.12)**
Mother's Info	γ_{30}			**.27*** **		**.26*** **
				(.06)		**(.07)**
Tutoring Experience	γ_{40}				**.28*** **	.16
					(.09)	(.10)
/cut1		**-1.25*** **	.01	**-.46 ** **	**-.73*** **	**.99** **
		(.11)	(.43)	**(.22)**	**(.21)**	**(.49)**
/cut2		**-.24** **	**1.06** **	**.56** **	**.29**	**2.06*** **
		(.10)	**(.43)**	**(.22)**	**(.21)**	**(.50)**
Random Effects	τ_{00}	.08	.06	.08	.11	.09
		(.003)	(.06)	(.07)	(.07)	(.08)
	τ_{11}	.007	1.10	.09	-	1.58
		(.002)	(1.86)	(.87)		(2.13)
	τ_{01}	**.07*** **	.14	.07	-7.85e-07	.12
		(.002)	(.21)	(.16)		(.25)

(** p < .05; *** p < .01)
Note: Standard errors are shown in parentheses below the gamma and tau coefficients.

Educational Outcomes: Multilevel Analysis

Result of Intercept-and-Slopes-as-Outcomes Models

I now model the logit of student's English score in a combined student-level equation and a school-level equation. Recall equations (7) and (8) where I included both fixed and random effects of "MULTI" and "MEANSES" in the equations to predict the log odds of having an English score in the first range, i.e. less than 80.

$$\log[\phi^*_{1ij}/(1 - \phi^*_{1ij})] = \beta_{0j} + \beta_{1j}*(MULTI_{ij}) \quad (7)$$

$$\beta_{0j} = \gamma_{00} + \gamma_{01}*(MEANSES_j) + u_{0j}$$

$$\beta_{1j} = \gamma_{10} + \gamma_{11}*(MEANSES_j) + u_{1j} \quad (8)$$

These two equations now yield the following mixed model.

$$\log[\phi^*_{1ij}/(1- \phi^*_{1ij})]$$

$$= \gamma_{00} + \gamma_{01}*MEANSES_j + \gamma_{10}*MULTI_{ij} + \gamma_{11}*MEANSES_j*MULTI_{ij}$$

$$+ u_{0j} + u_{1j}*MULTI_{ij} \quad (9)$$

Models with interaction effects

This section contains the major analyses of my dissertation. I displayed the direct effects of both level-1 and level 2 variables on English scores and the cross-level (interaction) effects to show how they increase or reduce the level-1 effects. See Table 5. I fitted nine different models, in three major sets. For each set, I first included the Multicultural independent variable. Then, I added in two level-1 variables, mother's education attainment level and mother's information-sharing, in addition to the main multicultural variable. Lastly, I added in the variable for English tutoring experience.

Table 5.
The HLM Models English Score for School Children in Daegu/Gyeongbuk, South Korea, 2015
(Intercept-and-Slopes-as-Outcomes Models with Interactions)

γ coefficients		M1a	M2a	M3a	M4a	M5a	M6a	M7a	M8a	M9a
Fixed Effects for English Score										
Multicultural	γ_{10}	**-1.02*** (.33)**	-.53 (.55)	-.53 (.53)	-1.190 (.90)	-.57 (1.32)	-.48 (1.27)	**-1.03*** (.37)**	-.19 (.66)	-.19 (.64)
Mother's Education	γ_{20}		**.33*** (.12)**	**.31*** (.12)**		**.36*** (.12)**	**.34***(.12)**		**.35*** (.12)**	**.33*** (.12)**
Mother's Behavior	γ_{30}		**.27*** (.07)**	**.25*** (.07)**		**.27*** (.07)**	**.26*** (.07)**		**.27*** (.07)**	**.26*** (.07)**
Tutoring	γ_{40}			.15 (.10)			.15 (.10)			.15 (.10)
MeanSES	γ_{01}	**1.63*** (.48)**	**1.61*** (.51)**	**1.60*** (.51)**						
School Size	γ_{02}				.144 (.09)	.11 (.10)	.11 (.10)			
Multicultural- Focused	γ_{03}							**-.62*** (.22)**	**-.62*** (.20)**	**-.63*** (.23)**
For ***Multicultural*** Slope										
MeanSES	γ_{11}	-.54 (1.94)	-.40 (3.33)	-.79 (3.15)						
School Size	γ_{12}				.07 (.35)	.02 (.53)	-.02 (.51)			
Multicultural-Focused	γ_{13}							.11 (.86)	-1.58 (1.57)	-1.45 (1.55)

(*** p < .01)

The school-level (level-2) variables (Mean SES, School Size, or Multicultural-Focused) are controlled throughout the models in a set.

At first glance, it is notable that the effect of being multicultural is shown to be significant in model 1a (M1a) and in model 7a (M7a); in both these models "Mean SES" or "Multicultural-Focused" is the only control variable (See Table 5). This means that being multicultural still has a negative effect on the log-odds of having a high English score. This negative effect of being multicultural has already been observed in the previous random coefficients models with the level-1 variables only. The relationships still hold until introduced with other level-1 variables. The variables for mother's education and mother's information-sharing intensity are shown to be significant at .01 level throughout the models.

Looking at the second panel at the bottom of the table at the Multicultural slope, I found that none of the coefficients of the interaction effects is significant at .05 level. This implies that none of the level-2 variables, i.e., school's mean SES, the size of the school, and whether the school is focused on multicultural education has a positive or negative impact on the slope of being multicultural. Therefore, my hypotheses 2a, 2b, and 2c are not supported for significant interactions effects. I thus decided to hence run the analyses again without the interaction effects for the sake of having simpler models with variables with significant variables. However, it might be worthwhile to just have a look at the effects of the other variables and their significance to see how my second model specification would work out.

To be specific, I found that the direct effects of "Mean SES" and "Multicultural-Focused" on the log-odds of English score are still significant through 1a (M1a), 2a (M2a), and 3a (M3a) and (7a) M7a, 8a (M8a), and 9a (M9a), respectively, at the .01 level. The results tell me that on average there are common effects of 1.60 of "Mean SES", and -.62 of "Multicultural-Focused" on the log odds of English score, controlling for the other variables.

Models without interaction effects

Now, I move on to the models without the interaction effects. In these models, I displayed the direct effects of the level-1 and level-2 variables, and the cut-points (intercepts). For these analyses, I also fitted 9 different models, but without interaction effects. The first three models include the individual-level variables that are added in order and the school Mean SES variable. The second and third sets of three models have the same individual-level variables being added with the school-level variables, School Size and Multicultural-Focused, respectively. In these models, my main goal is to examine the effect of being multicultural on the log-odds of English language achievement and the direct effects on English achievement of the school-level variables. See Table 6.

First of all, I see that "Multicultural" is significant in M1b, M4b, and M7b when the models control for one school-level variable (Mean SES in M1b; School Size in M4b; Multicultural-Focused in M7b). Adopting a latent variable conceptualization of my dependent variable (J. Scott and Jeremy 2014, 188-190), the interpretation of the effect of being multicultural in M1b is as follows. Other things equal, being multicultural

compared to non-multicultural reduces the log odds of the student's English achievement by 1.02. However, an interpretation using the odds ratio of "Multicultural," .36, will be easier to grasp. For a multicultural student compared to a non-multicultural student, the odds of having a higher English score are multiplied by .36, holding constant the Mean SES variable. In other words, there is a 64% decrease in the odds of having a higher English achievement when the student is multicultural compared to being non-multicultural, other things equal. As noted, the effect of the Multicultural variable is similar for M4b and M7b (See Table 6). Thus, I conclude, for the time being, that being multicultural has a negative effect on English language achievement, controlling for each of the school-level variables, considered one at a time.

It is also notable that the effect of the two level-2 variables, Mean SES and Multicultural-Focused, are significant in the two simplest models, M1b and M7b, respectively. The odds of having a higher English score is 5.03 greater for every increase in school mean SES, holding other things constant. Or I can say that the odds of a student having a higher English language score increase by around 400% for every increase in school mean SES. A somewhat more interesting finding is in model 7b (M7b), in which "Multicultural" and "Multicultural-Focused" are the predictors. First, I note that the signs of the two coefficients are both negative; both of the variables have a negative impact on the English language score. On average, the odds of a student having a higher English score are multiplied by .52 when the school is multicultural-education-focused, controlling for the "Multicultural" variable. In other words, the odds decrease by 48% under this condition.

Table 6.
The HLM Models English Score for School Children in Daegu/Gyeongbuk, South Korea, 2015
(Intercept-and-Slopes-as-Outcomes Models without Interactions)

γ coefficients		M1b	M2b	M3b	M4b	M5b	M6b	M7b	M8b	M9b
Fixed Effects for English Score										
Multicultural	γ_{10}	**-1.02*** (.35)**	-.52 (.55)	-.51 (.53)	**-1.02*** (.33)**	-.52 (.57)	-.51 (.55)	**-1.05*** (.35)**	-.51 (.55)	-.49 (.53)
Mother's Education	γ_{20}		**.32*** (.12)**	**.31*** (.12)**		**.36***(.12)**	**.34*** (.12)**		**.35*** (.12)**	**.33*** (.12)**
Mother's Behavior	γ_{30}		**.27*** (.07)**	**.25*** (.07)**		**.28***(.07)**	**.26*** (.07)**		**.27*** (.07)**	**.26*** (.07)**
Tutoring	γ_{40}			**.14*** (.10)**			.15 (.10)			.16 (.10)
MeanSES	γ_{01}	**1.62*** (.49)**	**1.61*** (.51)**	**1.60*** (.51)**						
School Size	γ_{02}				.15 (.09)	.11 (.10)	.11 (.10)			
Multicultural- Focused	γ_{03}							**-.65** (.27)**	**-.66*** (.22)**	**-.68*** (.24)**
Cut1		**-1.27*** **	.56	.74	**-.92*** **	.99	**1.19** **	**-1.36*** **	.56	.75
Cut2		**.26*** **	**1.64*** **	**1.81*** **	.09	2.06	**2.25*** **	**-.35*** **	**1.63*** **	**1.82*** **
τ_{00}		.12	.01	.01	.06	.06	.07	.09	.002	.02
τ_{11}		.03	1.8	1.49	.02	1.89	1.59	.13	1.60	1.42
τ_{01}		**.06*** **	**.13*** **	**.13*** **	**.04*** **	.15	.12	**.11*** **	-.002	-.04

(**p < .05; *** p < .01)

I suspect that this result might be not unrelated to one of the common findings in my qualitative interview data collected back in 2014. At that time, I interviewed 23 multicultural young adults, who were in college, taking a break, or still seniors in high school. I wished to explore potential factors affecting the educational outcomes of multicultural students. Many of my interviewees told me that their multiculturalism-related programs or events, if any, in school was a "show-off" to look at the outside. Sangjee (pseudonym), one of my interviewees, went to a multicultural-education-focused school as a child. Below is a quote from the transcribed interview with her.

> "[The multiculturalism-related] programs were just for a show-off. They weren't really helping multicultural students in real life. I think being multicultural is a good thing. But in Korea, being Korean is the most important. Schools didn't teach about other countries but just had superficial festivals on multiculturalism, which wasn't really helping the multicultural students. I wanted programs could help me to be proud of myself (Personal communication, June 14, 2014)."

An implication is that the designation of multicultural-focused schools might not necessarily be helping multicultural students, but creating an environment where multicultural students feel left out or segregated in some sense. Other interviewees also told me that the multiculturalism-related events were only for multicultural students, and no invitations were given out to non-multicultural students, which might have further alienated multicultural students. However, this does not suffice to explain the significant, negative effect of the variable Multicultural-Focused. Indeed, multicultural-education-focused schools in my data are all located in small, non-metropolitan regions,

characterized by manufacturing factories and rural areas. This regional effect might also have an impact on English score.

Now, I move on to the next models with more control variables, mother's education attainment level, mother's information-sharing intensity, and the number of English tutoring experiences. The crucial finding from these models is that being multicultural no longer has a significant effect when controlling for more level-1 variables. Furthermore, it is notable that the two variables related to mother's characteristics, Mother's Education and Mother's Information-Sharing Intensity, continue to have significant positive effects on the log odds of English Score, controlling for the other variables. The English Tutoring variable has a significant effect at the .05 level only in M3b; it is not a strong predictor for the log odds of English score with the presence of mother's characteristics and school-level variables controlled. The fact that the significance of the Multicultural effect vanishes with more control variables means that the lower educational outcomes of multicultural students discussed in the previous literature (see my reviews in Chapter 2 of this dissertation) are incorrect conclusions; the other effects need to be taken into consideration, such as mother's characteristics, and school-level characteristics, such as school mean SES and if the school is multicultural-education-focused or not.

My qualitative data provide some further interpretation of my quantitative data. Regarding being multicultural, many of my interviewees from 2014 gave me insightful comments. The gist is that being multicultural does not totally explain their educational outcomes. For example, most of my interviewees told me about how different their

mothers were from the mothers of non-multicultural children. Below are a couple of quotes related to this point.

> Hyunsoo: "My mother wasn't like the *typical* Korean mothers… She didn't send me to private academies at all unless I wanted… There was nothing like 'chee-ma-pa-ram [a term similar to "helicopter parenting (Padilla-Walker and Nelson 2012)"]'. She had the *Japanese style* [emphasis added] (Personal communication, June 12, 2014)."

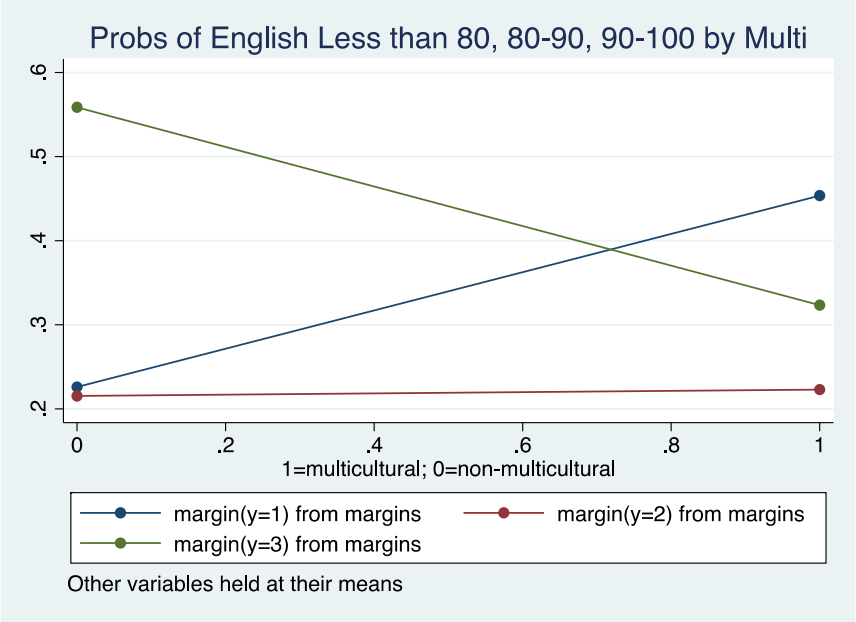
> Sangjee: "She [my mother] didn't interact with Korean mothers. She never got along with other mothers to share information on where good private academies are. I was the one to find out about the private academy and make the final decision to go there (Personal communication, June 14, 2014)."

Comparing their mothers to Korean-born mothers, my interviewees admitted that their mothers were frequently different from "typical" Korean mothers. Growing up, they realized that there was not much pressure from their mothers to study, mainly because the mothers did not seem to have the "educational zeal" of the Korean mothers. Moreover, there was a pattern shared among the mothers of my interviewees that they did not get along with the Korean mothers especially with regard to the sharing of the education-related information for their children. These quotations emphasize the possibility that there are more factors to consider when examining the educational

outcomes of multicultural children. Hopefully, the results of my dissertation address this void.

I return now to my quantitative analyses in order to present more engaged interpretations of the effects of the significant independent variables at both the student and the school levels. I thus examined the changes in the predicted probabilities for each outcome of the English language score. First, I present how the predicted probabilities change when the student is multicultural compared to non-multicultural in M7b where Multicultural-Focused is controlled. See Figure 6. The category of each margin is a range of the English Score, namely, less than 80 (margin Y=1); higher than 80, less than 90 (margin Y=2); higher than 90 (margin Y=3). From Figure 6, it is obvious that being multicultural compared to being non-multicultural increases the predicted probabilities from .22 to .43 for having an English score in the lowest range (less than 80), controlling for the Multicultural-Focused. Meanwhile, the predicted probabilities of having an English score of the highest range (higher than 90) is reduced from about .55 when the student is non-multicultural to about .32 when the student is multicultural. This means that even after controlling for whether the school is Multicultural-Focused, being multicultural works as a barrier for a student in attaining a higher English language score. In the figure 6, however, one needs to be cautious at the fact that the Multicultural variable is a dummy variable. It is coded either 0 or 1; number figures other than 0 and 1 in the x-axis should not be used for interpretation.

Figure 6.
Changes in Predicted Probabilities of English Score Ranges (Less than 80; 80 to less than 90; 90 to 100) by "Multi", Controlling for Multicultural-Focused



Next, I move my attention to models M3b and M9b, the full models with all of the level-1 and one level-2 variable, Mean SES or Multicultural-Focused. The coefficients for the variable Multicultural is no longer significant at the .05 level in these models. The coefficient for Multicultural is around -.50, which might have implied that there is a decrease of .50 in the log odds of English score when the student is multicultural, controlling for the other variables. But the coefficient is not statistically significant.

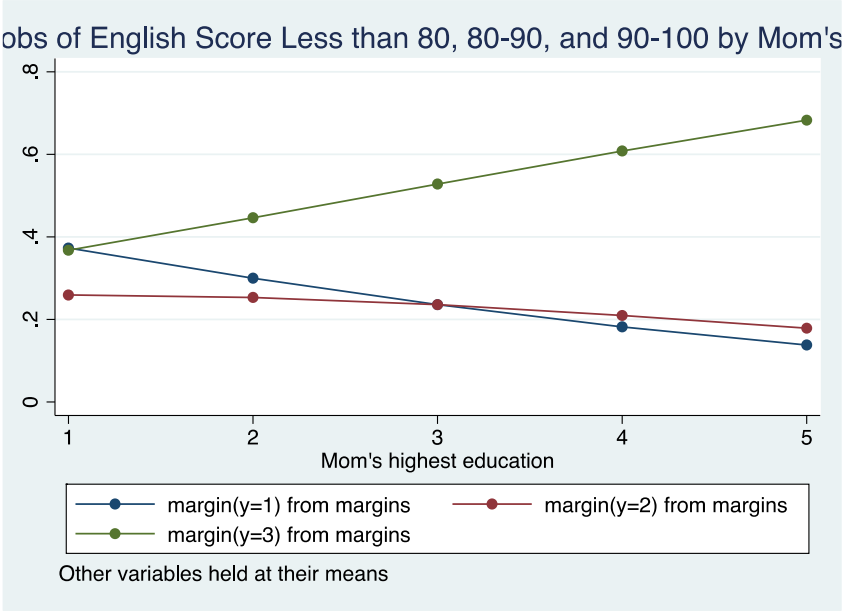
But what about the effects of the other variables that are significant? Comparing the relative effects based on their standardized coefficients, it turned out that the Mean

SES variable has the largest effect with a standardized coefficient of 10, while the coefficient of Mother's Education, .46; Mother's Information-Sharing, .21; English Tutoring, .17. Furthermore, except for the Multicultural variable, all the other independent variables are statistically significant at the .01 level in the full model, M3b. The pattern is similar in M9b, where the school-level variable of Multicultural-Focused is controlled. While English Tutoring became insignificant when the level-2 variable of Multicultural-Focused is controlled, the level-1 variables of Mother's Education and Mother's Information-Sharing Intensity continue to be significant.

See Figure 7 for the predicted probability changes in each category of English outcomes by Mother's highest education level. As mother's education level increases, the probability of having an English score in a highest category increases, holding the other variables constant.

The relative effects based according to the standardized coefficients in this model, M9b, are as follows: Mother's Education, .49; Mother's Information, .22; Multicultural-Focused, -1.84. Therefore, the relative effect is the largest for the school-level variable, Multicultural-Focused. Again, all of these three independent variables are significant at .01, which confirms for me the utility of the fixed effects for the variables.

Figure 7.
Predicted Probabilities of English Score by Mother's Education

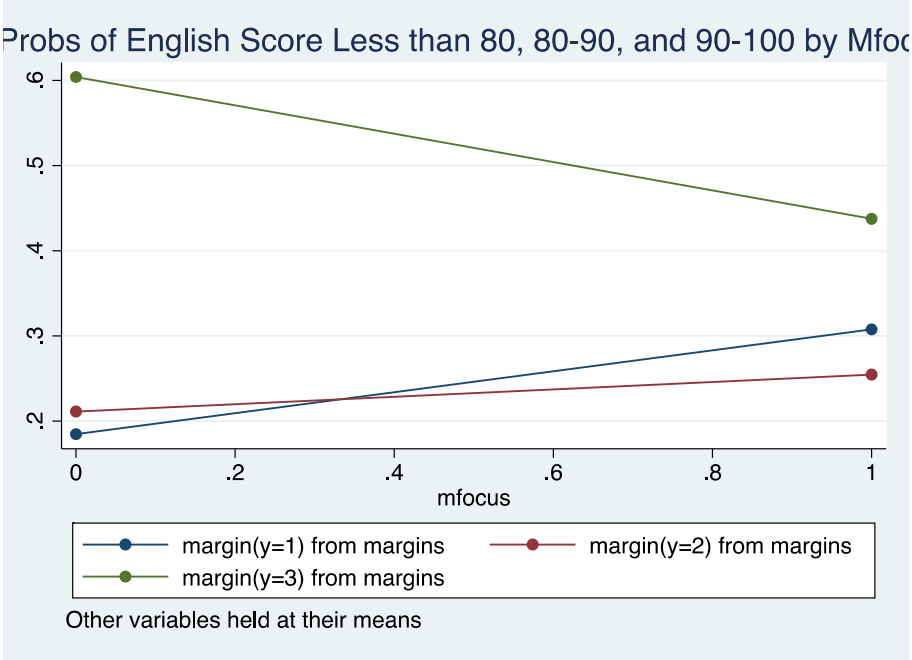


This implies a very important point. The fixed effect of Multicultural-Focused is still significant even after controlling for the individual-level variables related to the mother's behavior. In a designated school for multicultural-education, the log odds of English score for a student decreases by -.68, controlling for the other variables. In other words, the odds of having a higher English score decreases by 49% when the student is in such school, controlling for the other variables. See Figure 8 for the changes in predicted probabilities for each category. The Multicultural-Focused variable is a dummy variable; thus, one needs to exercise caution with its interpretation. The predicted probabilities for English score category of 1 increases when the school is multicultural-education-focused compared to a regular school, holding the other

variables at their means, while the predicted probabilities for category 3 decreases under the same condition.

Initially, I expected that the student in a multicultural-education-focused school would have a higher English achievement as I hypothesized that the variable Multicultural-Focused would reduce the slope effect of being multicultural. A possible explanation for the negative effect of the variable Multicultural-Focused is a selection bias. In other words, the multicultural-education-focused schools in my study might have not been designated by the local government mainly based on the percentage of the multicultural students in school. In the current process of designating a school, the Gyeongbuk local education office receives applications from elementary schools for a designation and makes a decision after reviewing each school's own plan for multicultural education, the ratio of multicultural students, whether KSL (a Korean language program) is in operation, and other aspects (Gyeongsangbuk-do Office of Education 2016). As a designated school receives financial support from the Office of Education to carry out their plans, it is possible that schools located in the rural area with smaller numbers of students apply for a designation.

Figure 8.
Predicted Probabilities of Having English Score:
Less than 80, 80-90, and 90-100 by Multicultural-Focused



Conclusion

This chapter was the most important chapter in my dissertation. It contains and presents the statistical analyses and the results of the testing of my hypotheses. In this conclusion section of the chapter I review and summarize my main results.

Among my four hypotheses, only hypothesis 1 on the effect of being multicultural on English language achievement was supported, and this only occurred when the multicultural variable was the only level-1 X variable in the equation. The results of the tests of hypotheses 2a, 2b, and 2c about school-level interaction effects on the slope of being multicultural on English language achievement were not statistically significant.

Specifically, I found that when considered by itself the multicultural variable was significantly related to English language achievement. Being multicultural compared to being non-multicultural was shown to have a statistically significant and negative effect on the log odds of English language achievement in the random coefficients model. Even after controlling for a school-level variable and a level-1 variable, one at a time, i.e., the intensity of mother's information-sharing, or English tutoring experience, being multicultural continued to be significant. Also, among the other individual-level variables, mother's educational attainment and mother's information-sharing intensity were shown to be statistically significant, controlling for the other level-1 variables in the full random coefficients model. The two level-1 variables continued to be significant in the full intercept- and slopes-as-outcomes model when a level-2 variable, such as Mean SES or Multicultural-Focused was controlled.

Regarding the level-2 X variables, a multicultural student is likely to have a 64% decrease in the odds of having an English score higher than 90, significant at the .05 level, when the school mean SES is held constant. This negative effect is similar when the other school-level variable, Multicultural-Focused, is held constant. These two level-2 variables, i.e. Mean SES and Multicultural-Focused, were shown to be statistically significant in all of the intercept- and slopes-as-outcomes models. But the School Size level-2 variable did not have a statistically significant effect on the log odds of the English score in any of the models.

The major finding of this dissertation is that the multicultural variable has a significant and negative effect on English language achievement when it is the only X variable in the regression equation. But when other level-1 X variables are introduced, the effect of the multiculturalism variable loses its statistical significance. Thus, as I noted earlier in this chapter, in the full equation with such other level-1 variables as mother's education and the intensity of her information sharing, the multicultural variable no longer has a significant negative effect on English language achievement. This suggests that the negative effect on English language achievement for a multicultural student may be offset by having a mother with a higher level of educational attainment and having a mother who shares information about the student and the school with other mothers.

I turn now to the last chapter of my dissertation, in which I explore the implications of my findings and note some of the questions left unanswered by my

research. I will also point to some areas of future research on this topic that I plan to address in the years ahead.

CHAPTER V

CONCLUSION

This is the final chapter of my dissertation. In this chapter I first summarize my major findings. In then discuss some of the implications of my findings as well as some of its limitations. Finally, I point to some areas of future research on this topic that I would plan to investigate in future years.

Summary of Findings

The research I conducted in this dissertation was based mainly on four key hypotheses that I developed from the previous literature. Of the four hypotheses, only hypothesis 1, on the effect of being multicultural on English language achievement, partially supported. The other hypotheses, 2a, 2b, and 2c, dealt with the effects of school-level interaction effects on the slope of the Multicultural variable did not have enough support from my analyses.

Specifically, I found that being multicultural compared to being non-multicultural alone has a significant, negative effect on the log odds of English language achievement in the multilevel model. Even after controlling for a school-level variable and one level-1variable at a time, such as, mother's information-sharing intensity or English tutoring experience, being multicultural continued to be significant. Among the individual-level variables, mother's educational attainment and mother's information-sharing intensity were shown to have significant effects on English achievement, even after controlling for the other level-1 variables in the full random coefficients model.

The two level-1 variables continued to be significant in the full "intercept- and slopes-as-outcomes" model where a level-2 variable, i.e., Mean SES or Multicultural-Focused was controlled.

With regards to the level-2 variables, a multicultural student is likely to have a 64% decrease in the odds of having an English score higher than 90, significant at the .05 level, when school mean SES was held constant. This negative effect was shown to be similar when the other school-level variable, Multicultural-Focused, was controlled. The two level-2 variables, of Mean SES and Multicultural-Focused were shown to be significant throughout the analyses in both models. But the level-2 School Size variable was not significant in any of the models.

Among the independent variables in the full intercept- and slopes-as-outcomes model, the level-2 variables, i.e., Mean SES and Multicultural-Focused, were shown to have the largest relative effects, controlling for all the other level-1variables. Among the level-1 variables, Mother's Education had the largest relative effect. This tells me that there are very important effects related to the mother's characteristics and school characteristics. The results imply that multicultural students are not likely to have a disadvantage in obtaining a high English language achievement once their mothers have education attainment levels equivalent to those of Korean-born mothers and a network among mothers to share education-related information for their children. However, the equality in the mother's characteristics would not alone offset the disadvantage for a multicultural student in achieving a higher English language achievement. Lifting the inequality in school characteristics, as well as in the mother's characteristics will remove

that disadvantage. My main finding, therefore, is that being multicultural is not necessarily an automatic disadvantage. What are some of the implications of my research?

Implications

The South Korean government in 2008 started establishing policies for multicultural families when they became concerned about the well-being of multicultural families (See Korea Ministry of Government Legislation 2008, Multicultural Families Support Act). The policies initially focused on the adjustment of female marriage migrants in Korean society and the establishment of support for their marital unions and child-raising processes. Even though the law in 2008 focused mainly on economically disadvantaged female marriage migrants from adjacent Asian countries, it is now the case that virtually all marriage migrants, both male and female, are eligible for legal support from the government regardless of their actual socioeconomic statuses. The scope of the governmental support ranges from providing information and education about social adjustment to subsidies for medical service; the support also includes financial assistance for the parents and children in supplemental Korean language classes.

The local policies and practices to support multicultural families were first introduced owing to the common view that multicultural families do not do well socially and economically compared to the average families with two Korean parents. Some of the examples that are designed to help the adjustment of multicultural children include event-like local programs targeted at multicultural children, subsidies in medical services

and family education. Moreover, special consideration was given to multicultural students hoping to enter college in the major universities in Korea; such policies are somewhat equivalent to Affirmative Action policies in the U.S.

Nonetheless, there is currently a debate in South Korea about automatically providing support to all multicultural families. Are all multicultural families suffering economic hardships equally so that they all require governmental assistance? For example, some multicultural families are relatively well off economically; they really do not need financial support from the government. According to Chung et al (2016) in their nation-wide sample study in the year of 2015, about 37% of multicultural households have a monthly income higher than $2,652, and 26.5% lived with $3,537 on average. Multicultural households with average incomes under $2,652 comprised just under two-thirds of all multicultural households (Chung, et al. 2016). These results tell me that there is a divide between the low-income and high-income multicultural households. Therefore, governmental assistance should perhaps be given to households on the basis of their economic status, and not solely whether the household is multicultural. Regarding this issue, here is a quotation from the interview with Hyunsoo (pseudonym) in my pilot study that I conducted back in 2014 (see my discussion earlier in this dissertation).

> "I'm against the current policy because the policy tends to place all of the multicultural students into a category of poor people, regardless of their actual socioeconomic statuses... They need to have programs that have specific goals… not the programs that are for *multicultural people* [emphasis added] as a whole

> group … [T]hey are not all the same… [T]he government should figure out how different multicultural students are doing because they would not want to waste their budget on something unnecessary. There are people who are adjusting to the Korean society well. They need to be distinguished from the people who have a difficulty adjusting to the Korean society (Personal communication, June 12, 2014)".

Regarding the school-level efforts, the results of my analyses revealed that there might not be any utility in designating schools as multicultural-education-focused schools in order to improve the educational achievements of multicultural students. If any, the designation may well have a negative effect on the educational achievements of students. This might be due to the fact that the schools with smaller sizes with the presence of multicultural students tend to be designated by the local education offices as multicultural-education-focused schools. The local governments then allocate specific budget for these schools; the greater the budget, the more the benefits for the schools. Usually, each designated school makes a report of planned school programs, events, and supplementary classes for multicultural students. However, the programs tend to focus on dual-language classes or on increasing the awareness of different cultures. These attempts do not necessarily improve the English language achievements of multicultural students.

Based on the results of my analyses, the mother's characteristics were also shown to be important factors for students' academic achievements. This is important considering the fact that 70% of the international marriages that occur in South Korea

are between a Korean-born man and a foreign-born woman. Regarding this point, most of my interviewees from the pilot study in 2014 revealed two important patterns about their mothers. First of all, throughout the years from elementary school up to high school, the mothers of multicultural children did not always show the "educational zeal" of the mothers of non-multicultural children. Second, the mothers did not seem to be interacting in the networks with other mothers and sharing information related to their children's education. Some mothers of my multicultural interviewees did not understand the Korean education system. If the goal is to make the academic achievements of multicultural students equivalent to those of non-multicultural students, the government should focus on providing resources for the mothers, and put less emphasis on the cultural awareness sessions for the students in general. What the students need are resources provided at home, which they could utilize to better their academic grades and college entrance outcomes in the future.

Unless the current education system that forces millions of Korean students "to kill" in order to enter a university in the greater Seoul area is altered all of a sudden to another less competitive system, the most practical way right now to tackle the unequal academic achievements of the multicultural students would appear to be providing maternal resources and school environments leading more toward equality, rather than providing resources that maintain the division between multicultural and non-multicultural students.

Limitations

This dissertation needs to be considered as a case study because my sample data were drawn from a specific region, Gyeongbuk Province of South Korea. Furthermore, the size of multicultural school children in this province is rather small; the largest shares of multicultural children in South Korea are located elsewhere, specifically, in the greater Seoul metropolitan area. According to Chung et al (2016), Daegu, a metropolitan area in Gyeongbuk Province, and Busan, a metropolitan area in Gyeongnam Province, have, respectively, 1.9% and 2.6% lower percentages of multicultural families residing there, compared to average percentage of the entire country (Chung, Kim, et al., An Analysis on the National Survey of Multicultural Families 2015 2016). For this reason, it should not be surprising to know that even finding a school with a few sixth-grade multicultural students was not easy. But my dissertation does have a unique contribution in two ways. First, it is a case study of a region where fewer multicultural families reside, an area that has been understudied compared to the other regions such as, the greater Seoul metro area and Choongchung Province. Second, school children in this region might well have different dynamics regarding their academic achievements compared to those in the other regions, owing possibly to fewer school facilities and resources that are crucial to overcome the educational inequality.

Another issue that needs to be addressed is related to the format of my dependent variable. There are potential validity issues that can arise from self-reported academic scores. One of them is a potential upward bias in the outcomes. Indeed, among my sample respondents, there were more students with English language scores in the

highest category than the lowest category. A possibility is that students might have tried to report a higher score range than their actual one because of their unwillingness to be honest about their academic grades. This might be the case especially for the students with English scores in the lowest category, of less than 80 (See Nederhof 1985). Nonetheless, considering the fact that the number of sixth-grade students with the highest academic achievement level[2] in English is increasing (Chung, Kim, et al., An Analysis on the National Survey of Multicultural Families 2015 2016), it is also possible that there is not as much bias in the responses of the students in my sample.

Future Research

Regarding future research, one important issue would be the replication of this study in another region or at the national level with an increased sample size of multicultural students. Since Gyeongbuk Province did not have a lot of multicultural students compared to the other regions in South Korea, a comparison between Gyeongbuk Province and another region will be useful to see if there exist any differences between the regions. In doing so, adding an indicator variable about whether the region is metropolitan or not, or urban or rural, will help us further understand the results.

[2] There are four types of academic levels determined by the results of the national-level academic achievement exams in South Korea. The four types of achievements include excellent, average, minimum, and below-minimum levels. Among these, the highest level of academic achievement for each main academic subject, e.g., English, means that the student perfectly understands what the questions are asking and is able to give the appropriate answers. Regarding the English subject, the criterion for each level is determined by the number of the questions the student answered correctly in four different categories, namely, reading, listening, speaking, and writing. The questions in these national-level exams reflect what students have learned in school.

Regarding the English Tutoring variable, it remained significant when the Multicultural variable was the only control variable. However, it lost its significance when the other level-1 variables were controlled. My suspicion is that it might have had a significant effect throughout the models if it were asking about the actual expenses devoted monthly to tutoring services in the last year. According to 마강래, 강은택 and 임보영 (2016), the average monthly household expense on private tutoring varied from $40 to $540 by group[3] based on the adolescent panel data of 2002. Furthermore, a few years later, the rate of entering a four-year university of these very same students in 2002 also differed by group: 70% of the highest quintile students entered a four-year university while only 52% of the lowest quintile ended up in a four-year university. Considering the fact that intensive private tutoring can start even before the child enters elementary school, I posit that the actual household expenses devoted to paying for private tutoring services may be a better variable to use in analyses of English language achievement than the number of tutoring services used. In my dissertation research, I did not conduct a survey of the parents to ask about the actual amount the money spent in private tutoring. I was somewhat limited with respect to the types of data I was able to collect from the school children.

[3] In this study, the researchers made five different quintile groups by monthly household expense on private tutoring. The average expense of 1st, 2nd, 3rd, 4th, and 5th quintiles range from $40 to $540.

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APPENDIX A

IRB APPROVAL LETTER

DIVISION OF RESEARCH

TEXAS A&M UNIVERSITY

DATE: May 27, 2016

MEMORANDUM

TO: Dudley L Poston
TAMU - College Liberal Arts - Sociology

FROM: Dr. James Fluckey
Chair, TAMU IRB

SUBJECT: Expedited Approval

Study Number:	IRB2015-0476D
Title:	Educational Outcomes of Multicultural Students in South Korea:A Proposal for a Survey of Students in Elementary Schools
Date of Determination:	
Approval Date:	07/27/2015
Continuing Review Due:	04/15/2017
Expiration Date:	05/15/2017
Documents Reviewed and Approved:	Only IRB-stamped approved versions of study materials (e.g., consent forms, recruitment materials, and questionnaires) can be distributed to human participants. Please log into iRIS to download the stamped, approved version of all study materials. If you are unable to locate the stamped version in iRIS, please contact the iRIS Support Team at 979.845.4969 or the IRB liaison assigned to your area.

Submission Components			
Study Document			
Title	Version Number	Version Date	Outcome
Assent form_Korean_051816	Version 1.1	05/17/2016	Approved
Assent form_Korean_051816	Version 1.0	05/17/2016	Void
Assent form English_051816	Version 1.1	05/17/2016	Approved
Assent form English_051816	Version 1.0	05/17/2016	Void
Parental Permission Form Korean_051816	Version 1.1	05/17/2016	Approved
Parental Permission Form Korean_051816	Version 1.0	05/17/2016	Void
Perental Permission Form English_051816	Version 1.1	05/17/2016	Approved
Perental Permission Form English_051816	Version 1.0	05/17/2016	Void
Study Consent Form			
Title	Version Number	Version Date	Outcome

750 Agronomy Road, Suite 2701
1186 TAMU
College Station, TX 77843-1186
Tel. 979.458.1467 Fax. 979.862.3176
http://rcb.tamu.edu

Consent Form Korean_051816	Version 1.1	05/17/2016	Approved
Consent Form Korean_051816	Version 1.0	05/17/2016	Void
Consent form English_051816	Version 1.1	05/17/2016	Approved
Consent form English_051816	Version 1.0	05/17/2016	Void

Document of Consent: Written consent in accordance with 45 CF 46.116/ 21 CFR 50.27

Comments:

- This IRB study application has been reviewed and approved by the IRB. Research may begin on the approval date stated above.
- Research is to be conducted according to the study application approved by the IRB prior to implementation.
- Any future correspondence should include the IRB study number and the study title.

Investigators assume the following responsibilities:

1. **Continuing Review:** The study must be renewed by the expiration date in order to continue with the research. A Continuing Review application along with required documents must be submitted by the continuing review deadline. Failure to do so may result in processing delays, study expiration, and/or loss of funding.
2. **Completion Report:** Upon completion of the research study (including data collection and analysis), a Completion Report must be submitted to the IRB.
3. **Unanticipated Problems and Adverse Events:** Unanticipated problems and adverse events must be reported to the IRB immediately.
4. **Reports of Potential Non-compliance:** Potential non-compliance, including deviations from protocol and violations, must be reported to the IRB office immediately.
5. **Amendments:** Changes to the protocol and/or study documents must be requested by submitting an Amendment to the IRB for review. The Amendment must be approved by the IRB before being implemented.
6. **Consent Forms:** When using a consent form or information sheet, the IRB stamped approved version must be used. Please log into iRIS to download the stamped approved version of the consenting instruments. If you are unable to locate the stamped version in iRIS, please contact the iRIS Support Team at 979.845.4969 or the IRB liaison assigned to your area. Human participants are to receive a copy of the consent document, if appropriate.
7. **Post Approval Monitoring:** Expedited and full board studies may be subject to post approval monitoring. During the life of the study, please review and document study progress using the PI self-assessment found on the RCB website as a method of preparation for the potential review. Investigators are responsible for maintaining complete and accurate study records and making them available for post approval monitoring. Investigators are encouraged to request a pre-initiation site visit with the Post Approval Monitor. These visits are designed to help ensure that all necessary documents are approved and in order prior to initiating the study and to help investigators maintain compliance.
8. **Recruitment**: All approved recruitment materials will be stamped electronically by the HRPP staff and available for download from iRIS. These IRB-stamped approved documents from iRIS must be used for recruitment. For materials that are distributed to potential participants electronically and for which you can only feasibly use the approved text rather than the stamped document, the study's IRB Study Number, approval date, and expiration dates must be included in the following format: TAMU IRB#20XX-XXXX Approved: XX/XX/XXXX Expiration Date: XX/XX/XXXX.
9. **FERPA and PPRA:** Investigators conducting research with students must have appropriate approvals from the FERPA administrator at the institution where the research will be conducted in accordance with the Family Education Rights and Privacy Act (FERPA). The Protection of Pupil Rights Amendment (PPRA)

protects the rights of parents in students ensuring that written parental consent is required for participation in surveys, analysis, or evaluation that ask questions falling into categories of protected information.

10. **Food:** Any use of food in the conduct of human research must follow Texas A&M University Standard Administrative Procedure 24.01.01.M4.02.
11. **Payments:** Any use of payments to human research participants must follow Texas A&M University Standard Administrative Procedure 21.01.99.M0.03.
12. **Records Retention**: Federal Regulations require records be retained for at least 3 years. Records of a study that collects protected health information are required to be retained for at least 6 years. Some sponsors require extended records retention. Texas A&M University rule 15.99.03.M1.03 Responsible Stewardship of Research Data requires that research records be retained on Texas A&M property.

This electronic document provides notification of the review results by the Institutional Review Board.

APPENDIX B

STUDENT CONSENT FORMS

TEXAS A&M UNIVERSITY HUMAN SUBJECTS PROTECTION PROGRAM

CONSENT FORM

Project Title: Educational Outcomes of Students in Elementary School

You are invited to take part in a research study being conducted by Nayoung Heo, a researcher from Texas A&M University. The information in this form is provided to help you decide whether or not to take part. If you decide to take part in the study, you will be asked to sign this consent form. If you decide you do not want to participate, there will be no penalty to you, and you will not lose any benefits you normally would have.

Why Is This Study Being Done?
The purpose of this study is to compare educational outcomes of multicultural students and non-multicultural students in elementary schools and explore various factors for those outcomes, such as, socioeconomic status, private tutoring experiences, and diversity-related activities. The desired goal of this research is to suggest appropriate educational policy implications.

Why Am I Being Asked To Be In This Study?
You are being asked to be in this study because you are in the 6th grade in the elementary school that was selected for the survey.

How Many People Will Be Asked To Be In This Study?
About 800 people (participants) will be invited to participate in this study locally. Overall, a total of 35 to 40 people will be invited at 20 different study centers.

What Are the Alternatives to being in this study?
No, the alternative to being in the study is not to participate.

What Will I Be Asked To Do In This Study?
You will be asked to fill out a survey questionnaire. Your participation in this study will last up to 15 to 20 minutes and includes one single visit.

Are There Any Risks To Me?
The things that you will be doing are no greater than risks than you would come across in everyday life. Although the researchers have tried to avoid risks, you may feel that some questions/procedures that are asked of you will be stressful or upsetting. You do not have to answer anything you do not want to.

Will There Be Any Costs To Me?
Aside from your time, there are no costs for taking part in the study.

Will I Be Paid To Be In This Study?
The researcher will give you a stationery item as you complete a survey.

Will Information From This Study Be Kept Private?
The records of this study will be kept private. No identifiers linking you to this study will be included in any sort of report that might be published. Research records will be stored securely and only the researcher, Nayoung Heo, will have access to the records.

Information about you will be stored in locked file cabinet; computer files protected with a password. This consent form will be filed securely in an official area.

People who have access to your information include the Principal Investigator and research study personnel. Representatives of regulatory agencies such as the Office of Human Research Protections (OHRP) or entities such as the Texas A&M University Human Subjects Protection Program may access your records to make sure the study is being run correctly and that information is collected properly.

The institution(s) where study procedures are being performed (your school) may also see your information. However, any information that is sent to them will be coded with a number so that they cannot tell who you are. Furthermore, your name is not being asked in this research. If there are any reports about this study, your name will not be in them.

Information about you and related to this study will be kept confidential to the extent permitted or required by law.

Who may I Contact for More Information?
You may contact the Protocol Director, Nayoung Heo at +1 979-220-2657, +82 010–2841-4575 or nh7948@tamu.edu. You may also contact the Principal Investigator, Dr. Dudley Poston, to tell him/her about a concern or complaint about this research at +1 979-862-3947 or d-poston@tamu.edu.

For questions about your rights as a research participant; or if you have questions, complaints, or concerns about the research, you may call the Texas A&M University Human Subjects Protection Program office at (979) 458-4067 or irb@tamu.edu.

What if I Change My Mind About Participating?
This research is voluntary and you have the choice to be in this research study. You may decide to not begin or to stop participating at any time. If you choose not to be in this study or stop being in the study, there will be no effect on your student status or relationship with your school. Any new information discovered about the research will be provided to you. This information could affect your willingness to continue their participation.

STATEMENT OF CONSENT
I agree to be in this study and know that I am not giving up any legal rights by signing this form. The procedures, risks, and benefits have been explained to me, and my questions have been answered. I know that new information about this research study will be provided to me as it becomes available and that the researcher will tell me if I must be removed from the study. I can ask more questions if I want. A copy of this entire consent form will be given to me.

Participant's Signature _____ Date _____

Printed Name _____ Date _____

INVESTIGATOR'S AFFIDAVIT:
Either I have or my agent has carefully explained to the participant the nature of the above project. I hereby certify that to the best of my knowledge the person who signed this consent form was informed of the nature, demands, benefits, and risks involved in his/her participation.

Signature of Presenter _____ Date _____

Printed Name _____ Date _____

텍사스에이앤엠대학교 인간 대상 보호 프로그램

동의서

설문 제목: 초등학생들의 학업성취도에 영향을 미치는 요인

안녕하세요. 당신을 미국 텍사스 주 텍사스 에이엔엠 대학교 박사과정 학생 연구자 허나영이 진행하는 연구에 초대합니다. 이 동의서에 있는 정보는 당신이 이 설문에 참여할 지 하지 않을 지 결정하는데 도움을 줄 것입니다. 참여하기로 결정하셨다면, 이 동의서에 사인을 해 주십시오. 만약 참여하지 않기로 결정 하시더라도 당신에게는 어느 불이익도 없을 것입니다.

설문 목적: 이 연구는 초등학교의 다문화가정 학생들과 비다문화가정 학생들의 학업 성취도를 분석하고, 학업성취도에 영향을 미칠 수 있는 여러 요인들을 탐구하는 것을 목표로 삼고 있습니다. 요인들은 사회경제적 요인, 학원/과외 경험, 교내외 다문화 관련 프로그램 등을 포함합니다. 이 연구의 최종 목표는 적절한 교육 정책 제안을 하는 것입니다. 당신이 초대된 이유는 당신이 연구를 위해 선택된 학교에 다니는 학생이기 때문입니다. 대략 800명 정도의 참여자 수가 예상되며, 20개 가량의 학교에서 설문이 실시될 것입니다. 설문지를 작성하는 데 걸리는 시간은 대략 15분 정도가 될 것입니다. 연구 참여 결정은 전적으로 당신에게 달렸습니다.

위험, 비용, 보상: 당신이 이 이 설문에 참여함으로써 생기는 위험은 거의 없습니다. 연구자 허나영은 위험 요소를 피하기 위해 노력 했으나, 만약 당신이 몇몇 질문들이 심한 스트레스를 주거나 감정을 상하게 한다고 느끼신다면 대답을 하지 않으셔도 됩니다. 인터뷰를 하는 데 걸리는 15분 내지 20분을 제외하면 당신이 지불해야 할 금전적 비용은 전혀 없습니다. 연구자는 당신이 이 설문을 끝내면 감사의 표시로 학용품을 제공할 것입니다.

비밀과 안전 보장: 여러분의 설문지는 철저하게 비밀이 보장될 것입니다. 연구자 허나영만이 연구 기록을 저장, 열람할 수 있습니다. 당신에 대한 정보는 파일 캐비넷에 잠겨서 보관될 것입니다. 컴퓨터 파일들은 암호를 통해 보호됩니다. 이 동의서는 공식적인 장소에 안전히 보관될 것입니다.

여러분에 대한 정보를 찾아볼 수 있는 사람들은 오직 이 연구를 진행하는 연구자들 뿐입니다. 예외는 인간연구보호사무소나 텍사스 에이엔엠 대학교 인간 대상 보호 프로그램 같은 단체들인데, 이들은 연구가 잘 진행되고 정보가 올바르게 수집되었는지 확인하기 위해 당신의 정보를 열람할 수도 있습니다. 만약 당신의 학교에서 이 연구 자료를 요청할 시, 모든 자료는 숫자로 코딩이 되어 넘겨질 것이기 때문에 학교 관계자는 당신이 설문에 어떻게 답했는 지 전혀 알 수가 없습니다. 게다가, 이 연구는 당신의 이름은 묻지 않기 때문에, 이 연구와 관련한 보고서가 작성된다 하더라도 당신의 개인정보에 대한 비밀은 보장됩니다. 당신과 이 연구에 관한 정보는 법에 의해 비밀리에 보관될 것입니다.

연락처: 만약 이 연구에 대한 염려나 불만이 있으시다면 연구자 허나영에게 연락해 주십시오. 전화번호는010-2841-4575 (한국), +1 979-220-2657 (미국)이고, 이메일 주소는 nh7948@neo.tamu.edu입니다. 연구 참여자로서의 당신의 권리에 대한 질문이나 이 연구 자체에 대한 질문, 불만, 염려가 있으시다면

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텍사스에이앤엠대학교 인간 대상 보호 프로그램

동의서

텍사스 에이앤엠 대학교 인간 대상 보호 프로그램 사무실에 +1 979-458-4067로 전화를 주시거나 이메일을 irb@tamu.edu로 보내주시면 됩니다.

참여 중단: 이 연구에의 참여 여부는 자발적인 것이며 참여 여부는 당신의 결정에 달렸습니다. 당신은 어느 때에든 참여하지 않는다는 결정을 내릴 수 있으며 중단을 할 수도 있습니다. 혹여나 당신이 이 연구에 참여하지 않는 다는 결정을 내린다 하더라도 당신의 학생으로의 신분이나 학교와의 관계에 악영향이 미치는 일은 없을 것입니다. 만약 이 연구에 관한 새로운 정보가 있다면 당신에게 통보될 것입니다. 이는 당신이 참여를 계속 할 지의 여부에 영향을 미칠 수도 있기 때문입니다.

동의 진술

저는 이 연구에 참여하는 것에 동의하고, 또한 이 동의서에 사인을 하는 것이 저의 법적 권리를 포기하는 것을 의미하는 것이 아님을 알고 있습니다. 저는 참여 절차, 위험요소, 이익 등에 대해 설명을 들었으며, 저의 추가적인 질문에 대한 대답을 들었습니다. 저는 이 연구에 대한 새로운 정보가 있을 시 저에게 통보가 될 것임을 알고 있고, 연구자는 만약 제가 이 연구에서 제외되야 할 시에는 저에게 알려줄 것입니다. 만약 제가 원한다면 저는 추가적인 질문을 할 수 있습니다. 이 동의서의 사본이 저에게 제공될 것입니다.

참여자 사인	날짜
참여자 이름	날짜

연구자 선서

저는 혹은 저의 대행인은 참여자에게 이 연구에 대한 내용을 자세히 설명하였습니다. 저는 이 동의서에 사인을 한 사람이 그의 참여에 관련한 이 연구의 성질, 요구, 이익, 위험요소에 대한 정보를 충분히 제공받았음을 증언합니다.

연구자 사인	날짜
연구자 이름	날짜

IRB NUMBER: IRB2015-0476D
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APPENDIX C

PARENTAL PERMISSION FORMS

TEXAS A&M UNIVERSITY HUMAN SUBJECTS PROTECTION PROGRAM

PARENTAL PERMISSION FORM

Project Title: Educational Outcomes of Students in Elementary School

You are invited to take part in a research study being conducted by Nayoung Heo, a researcher from Texas A&M University. The information in this form is provided to help you and your child decide whether or not to take part. If you decide to allow your child to take part in the study, you will be asked to sign this permission form. If you decide you do not want your child to participate, there will be no penalty to you or your child, and your child will not lose any benefits they normally would have.

Why Is This Study Being Done?
The purpose of this study is to compare educational outcomes of multicultural students and non-multicultural students in elementary schools and explore various factors for those outcomes, in order to suggest a more appropriate educational policy.

Why is My Child Being Asked to Be in This Study?
Your child is being asked to be in this study because your child is in the 6th grade in the elementary school that was selected for the survey.

How Many People Will Be Asked To Be In This Study?
About 800 people (participants) will be invited to participate in this study locally. Overall, a total of 35 to 40 people will be invited at 20 different study centers.

What Are the Alternatives to being in this study?
No, the alternative to being in the study is not to participate.

What Will My Child Be Asked To Do In This Study?
Your child will be asked to fill out a survey questionnaire. Your child's participation in this study will last up to 15 to 20 minutes and includes one single visit.

Are There Any Risks To My Child?
The things that your child will be doing are no greater than risks than your child would come across in everyday life. Although the researchers have tried to avoid risks, your child may feel that some questions/procedures that are asked of you will be stressful or upsetting. Your child does not have to answer anything they do not want to.

Will There Be Any Costs To My Child?
Aside from their time, there are no costs for taking part in the study.

Will My Child Be Paid To Be In This Study?
The researcher will your child a stationery item as you complete a survey.

Will Information From This Study Be Kept Private?
The records of this study will be kept private. No identifiers linking your child to this study will be included in any sort of report that might be published. Research records will be stored securely and only the researcher, Nayoung Heo, will have access to the records.

Information about your child will be stored in locked file cabinet; computer files protected with a password. This consent form will be filed securely in an official area.

Information about your child will be kept confidential to the extent permitted or required by law. People who have access to your information include the Principal Investigator and research study personnel. Representatives of regulatory agencies such as the Office of Human Research Protections (OHRP) and entities such as the Texas A&M University Human Subjects Protection Program may access your child's records to make sure the study is being run correctly and that information is collected properly.

The institution(s) where study procedures are being performed (your child's school) may also see your child's information. However, any information that is sent to them will be coded with a number so that they cannot tell who you are. Furthermore, your child's name is not being asked in this research. If there are any reports about this study, your child's name will not be in them.

Information about you and related to this study will be kept confidential to the extent permitted or required by law.

Who may I Contact for More Information?
You may contact the Principal Investigator, Dr. Dudley Poston, to tell him/her about a concern or complaint about this research at +1 979-862-3947 or d-poston@tamu.edu. You may also contact the Protocol Director, Nayoung Heo at +1 979-220-2657 or 010–2841-4575 or nh7948@tamu.edu.

For questions about your child's rights as a research participant; or if you have questions, complaints, or concerns about the research, you may call the Texas A&M University Human Subjects Protection Program office at (979) 458-4067 or irb@tamu.edu.

What if I Change My Mind About Participating?
This research is voluntary and you have the choice whether or not to allow your child to be in this research study. Your child may decide to not begin or to stop participating at any time. If they choose not to be in this study or stop being in the study, there will be no effect on their student status or relationship with the child's school. Any new information discovered about the research will be provided to you and your child. This information could affect your willingness to allow your child to continue their participation.

STATEMENT OF CONSENT
The procedures, risks, and benefits of this study have been told to me and I agree to allow my child to be in this study. My questions have been answered. I may ask more questions whenever I want. I do not give up any of my child's or my legal rights by signing this form. A copy of this consent form will be given to me.

_____
Child's Name

Parent/Legal Guardian Signature _____ Date _____

Parent/Legal Guardian Signature _____ Date _____

INVESTIGATOR'S AFFIDAVIT:
Either I have or my agent has carefully explained to the parent the nature of the above project. I hereby certify that to the best of my knowledge the person who signed this consent form was informed of the nature, demands, benefits, and risks involved in his/her participation.

Signature of Presenter _____ Date _____

Printed Name _____ Date _____

텍사스에이앤엠대학교 인간 대상 보호 프로그램

동의서

설문 제목: 초등학생들의 학업성취도에 영향을 미치는 요인

안녕하세요. 당신을 미국 텍사스 주 텍사스 에이앤엠 대학교 박사과정 학생 연구자 허나영이 진행하는 연구에 초대합니다. 이 동의서에 있는 정보는 여러분의 자녀가 이 설문에 참여할 지 하지 않을 지 결정하는데 도움을 줄 것입니다. 자녀가 참여하는 것을 허락하신다면, 이 동의서에 사인을 해 주십시오. 만약 참여하지 않기로 결정 하시더라도 여러분과 여러분 자녀에게 어느 불이익도 없을 것입니다.

설문 목적: 이 연구는 초등학교의 다문화가정 학생들과 비다문화가정 학생들의 학업 성취도를 분석하고, 학업성취도에 영향을 미칠 수 있는 여러 요인들을 탐구하는 것을 목표로 삼고 있습니다. 이 연구의 최종 목표는 적절한 교육 정책에 대한 제안을 하는 것입니다. 당신의 자녀가 초대된 이유는 이 연구를 위해 선택된 학교에 다니는 학생이기 때문입니다. 대략 800명 정도의 참여자 수가 예상되며, 20개 가량의 학교에서 설문이 실시될 것입니다. 설문지를 작성하는 데 걸리는 시간은 대략 15분 정도가 될 것입니다. 연구 참여 결정은 전적으로 여러분과 여러분의 자녀에게 달렸습니다.

위험, 비용, 보상: 자녀분이 이 이 설문에 참여함으로써 생기는 위험은 거의 없습니다. 연구자 허나영은 위험 요소를 피하기 위해 노력 했으나, 만약 여러분의 자녀가 몇몇 질문에 의해 심한 스트레스를 받거나 감정이 상한다면 대답을 하지 않아도 됩니다. 인터뷰를 하는 데 걸리는 15분 내지 20분을 제외하면, 자녀가 지불해야 할 금전적 비용은 전혀 없습니다.

비밀과 안전 보장: 자녀분의 설문지는 철저하게 비밀이 보장될 것입니다. 연구자 허나영만이 연구 기록을 저장, 열람할 수 있습니다. 여러분의 자녀에 대한 정보는 파일 캐비넷에 잠겨서 보관될 것입니다. 컴퓨터 파일들은 암호를 통해 보호됩니다. 이 동의서는 공식적인 장소에 안전히 보관될 것입니다.

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연락처: 만약 이 연구에 대한 염려나 불만이 있으시다면 연구자 허나영에게 연락해 주십시오. 전화번호는010-2841-4575 (한국), +1 979-220-2657 (미국)이고, 이메일 주소는 nh7948@neo.tamu.edu입니다. 연구 참여자로서의 여러분의 자녀의 권리에 대한 질문이나 이 연구 자체에 대한 질문, 불만, 염려가 있으시다면 텍사스 에이앤엠 대학교 인간 대상 보호 프로그램 사무실에 +1 979-458-4067로 전화를 주시거나 이메일을 irb@tamu.edu로 보내주시면 됩니다.

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텍사스에이앤엠대학교 인간 대상 보호 프로그램

동의서

참여 중단: 이 연구에의 참여 여부는 자발적인 것이며 참여 여부는 여러분과 당신의 자녀의 결정에 달렸습니다. 여러분의 자녀는 어느 때에든 참여하지 않는다는 결정을 내릴 수 있으며 중단을 할 수도 있습니다. 혹여나이 연구에 참여하지 않는 다는 결정을 내린다 하더라도, 자녀의 학생으로의 신분이나 학교와의 관계에 악영향이 미치는 일은 없을 것입니다. 만약 이 연구에 관한 새로운 정보가 있다면 여러분과 자녀에게 통보될 것입니다. 이는 참여를 계속 할 지의 여부에 영향을 미칠 수도 있기 때문입니다.

동의 진술

저는 저의 자녀가 이 연구에 참여하는 것에 동의하고, 또한 이 동의서에 사인을 하는 것이 저의 자녀의 법적 권리를 포기하는 것을 의미하는 것이 아님을 알고 있습니다. 저는 참여 절차, 위험요소, 이익 등에 대해 설명을 들었으며, 저의 추가적인 질문에 대한 대답을 들었습니다. 저는 이 연구에 대한 새로운 정보가 있을 시 저에게 통보가 될 것임을 알고 있고, 연구자는 만약 저의 자녀가 이 연구에서 제외되어야 할 시에는 저에게 알려줄 것입니다. 만약 제가 원한다면 저는 추가적인 질문을 할 수 있습니다. 이 동의서의 사본이 저에게 제공될 것입니다.

_____

자녀의 이름

_____ _____

부모님/보호자 사인 날짜

_____ _____

부모님/보호자 사인 날짜

연구자 선서

저는 혹은 저의 대행인은 참여자에게 이 연구에 대한 내용을 자세히 설명하였습니다. 저는 이 동의서에 사인을 한 사람이 그의 참여에 관련한 이 연구의 성질, 요구, 이익, 위험요소에 대한 정보를 충분히 제공받았음을 증언합니다.

_____ _____

연구자 사인 날짜

_____ _____

연구자 이름 날짜

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APPENDIX D

ASSENT FORMS

TEXAS A&M UNIVERSITY HUMAN SUBJECTS PROTECTION PROGRAM

ASSENT

Below is the script to explain my survey to and gain assent from my potential participants. The homeroom teacher will read and distribute the script below to the students. The teacher will also hand out the consent forms to the students so that the students can bring them back the next day. Then, I will come in, see who are giving me assent, retrieve the consent forms, and carry out the survey.

"Hello! My name is Nayoung Heo. I do research at Texas A&M University of the U.S. It is great to meet you! I am sure you are excited about your summer vacation. Before you carry out your summer plans, it will be nice if you help me know about you a little. I am trying to learn how teens like you are doing in school, home, and your daily life. I will also ask you about your school grades to see how your daily life is related to your grades.

In detail, I will ask you to complete a survey. It has 28 questions and will take about 15 to 20 minutes to complete. It will ask questions like, 'Where were you born?' 'How many times have you travelled?' 'Do your parents help you study English?' 'How long?' Participating in a study like this can be fun. But to thank you for the time you'll spend helping me, we'll give you a pencil. I am looking for about 800 students at your age from 20 schools. Your participation will greatly help me do my research.

Now, I want to tell you that I am the only person who can see your answers. I promise you that I will keep all of your answers a secret. Nobody will know how you answered. I will make sure to keep your survey questionnaire in a safe place. I will not ask you to write down your name on the questionnaire either.

If you have any questions about the study or what you would be asked to do if you decide to be in the study, don't be afraid to ask. I would like for you to be in the study, but you don't have to be. The choice is yours. You can decide that you want to be in the study now, and change your mind later. If you decide later that you don't want to be in the study, you can just tell me. You can also decide after you talk about this with your parents at home. I will come back in a few days to know your decision and answer your questions if any."

Assent will be denied if the child verbally denies when asked to be in the study. Assent will be given if the child verbally agrees when asked to be in the study. The child can withdraw participating verbally or return the survey incomplete.

텍사스에이앤엠대학교 인간대상보호프로그램

동의 스크립트

아래는 설문 참여자들에게 내 설문에 대해 설명을 하고 동의를 구할 때 사용할 스크립트이다. 담임선생님이 이 스크립트를 학생들에게 읽어주고 나눠 줄 것이다. 선생님은 또한 동의서를 학생들에게 나누어 줄 것이고 학생들은 다음 날 그것을 다시 가져오도록 안내받을 것이다. 이 과정이 끝나면 연구자가 교실에 들어가 설문에 동의를 한 학생들에게서 동의서를 받고, 스들을 대상으로 설문을 실시할 것이다.

"안녕하세요, 내 이름은 허나영이에요. 나는 미국에 있는 텍사스 에이앤엠대학교라는 대학교에서 연구를 하고 있어요. 곧 여름방학이라 신나겠어요! 즐거운 여름방학 보내기 전에 제가 친구를 조금 알아가는데 도움을 준다면 정말 고마울 거에요. 나는 여러분이 어떻게 학교, 집, 일상에서 생활하는지 알고 싶어요. 또, 학생의 학교 성적이 어떻게 일상 생활과 관련이 있는 지도 물어볼 거에요.

자세히 말해서, 나는 여러분에게 설문 하나를 해 줄것을 부탁할 거에요. 설문에는 28개의 질문이 있고 다 끝내는데 약 15분 내지 20분의 시간이 걸릴 거에요. '어디에서 태어났나요?' '여행을 몇 번 해봤나요?' '부모님이 영어공부를 도와주시나요?' '얼마나 많이 도와주시나요?' 등의 질문들이에요. 이런 설문에 참여하는 것이 재밌을 수도 있지만, 나의 연구를 도와주는 여러분에게 감사하는 마음으로 연필 한 자루를 준비했어요. 나는 20개의 학교에서 여러분 나이의 학생 약 800명을 모집하고 있어요. 여러분의 참여가 나의 연구에 정말 큰 도움이 될 거에요.

질문에 대한 여러분의 답은 오직 나만 볼 수 있고, 그 답은 여러분과 나 사이의 비밀로 간직한다고 약속할게요. 어느 누구도 그걸 볼 수 없어요. 안전한 장소에 학생들이 작성한 설문지를 보관할 거에요. 설문지에 이름을 적을 필요도 없어요.

만약 연구에 대해서 질문이 있거나, 설문에 동의한다면 그 다음에는 뭘 해야 하는지 알고 싶다면 주저말고 물어보세요. 나는 물론 여러분이 참여하는 것을 원하지만 여러분이 억지로 참여하는 것은 원치 않아요. 선택은 여러분에게 달렸어요. 지금 참여 결정을 해도 되고 나중에 마음을 바꿔도 됩니다. 나중에 참여하고 싶지가 않으면 그냥 나에게 말을 해 주세요. 또한 집에서 부모님과 이야기를 해 본 후 결정을 내려도 됩니다. 나는 며칠 후에 다시 돌아와서 동의를 하는 인원수를 확인하고, 그리고 여러분이 혹시 질문이 있으면 거기에 답을 해줄게요.

참여에 대한 동의는 참여자가 구두동의를 했을 때 , 비동의는 참여자가 구두로 거절을 했을 때 발생한다. 참여하는 학생은 설문 도중 구두로 참여를 중지할 수 있으며, 또한 설문지를 모두 작성하지 않고 연구자에게 돌려주어도 된다.

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APPENDIX E

SURVEY QUESTIONNAIRES

A Survey on Education of Elementary School Students (2015)

Student Questionnaire

[redacted] Hello! The 27 questions below are designed to obtain basic information about you, your parents, and your education. Because the questionnaire does not ask you to put your name or date of birth on it, nobody will be able to find out who you are. **Your privacy about all of your answers will be protected.** There are no correct answers. You can choose or write down the most appropriate answer for each question. If you do not understand anything on the questionnaire, please ask your teacher; he or she will kindly help you answer.

I. Questions about You

1. Name of School: Grade:

2. Age: (American Age) years old

3. What is your gender? Circle your answer. Male Female

4. What is your country of birth? Circle your answer.
   ① South Korea
   ② China
   ③ Vietnam
   ④ The Philippines
   ⑤ Japan
   ⑥ Another foreign country ( ) *Write down the name of the country.

5. **For the most recent year**, how many times have you travelled **within** Korea (consider travels both by yourself and with your family)? Circle your answer.
   ① 0 times
   ② Once
   ③ Twice
   ④ Three times
   ⑤ 4 times or more

6. **For the most recent year**, how many times have you travelled **to another country** other than Korea (this includes trips both by yourself and with your family)? Circle your answer.
   ① 0 times
   ② Once
   ③ Twice
   ④ Three times
   ⑤ 4 times or more

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7. How well do you think your family is doing economically? Circle your answer.
① Not at all well
② Not well
③ Okay
④ Somewhat well
⑤ Very well

8. **For the most recent year**, how many times have you registered for a private academy or started private tutoring for the subject of mathematics? These exclude afterschool classes. Circle your answer.
① 0 times
② Once
③ Twice
④ 3 times
⑤ 4 times or more

9. **For the most recent year**, how many times have you registered for a private academy or started private tutoring for the subject of English subject? These exclude afterschool classes. Circle your answer.
① 0 times
② Once
③ Twice
④ 3 times
⑤ 4 times or more

10. How good was your last math test score? Circle your answer. (Please be honest answering. Your answer will not be shown to anyone else).
① 90 or higher
② 80 or higher, but lower than 90
③ 70 or higher, but lower than 80
④ 60 or higher, but lower than 70
⑤ Lower than 60

11. How good was your last English test score? Circle your answer. (Please be honest answering. Your answer will not be shown to anyone else).
① 90 or higher
② 80 or higher, but lower than 90
③ 70 or higher, but lower than 80
④ 60 or higher, but lower than 70
⑤ Lower than 60

12. **For the most recent year**, have you ever seen or heard of any event or program related to the topic of multiculturalism* being held in your school or your classroom (including occasions where you have seen or heard of one but not participate)? Circle your answer.
① Yes
② No

***Multiculturalism is about the occasion where people of different ethnicities or cultures get along or live together (examples: family of international marriage and foreign worker families).**

13. **For the most recent year**, how many times have you participated in those events or programs related to multiculturalism in your school or your classroom (excluding occasions where you have seen one but not participated)? Circle your answer.

① 0 times
② Once
③ Twice
④ 3 times
⑤ More than 4 times

II. Questions about Your Parents

14. Are you living with both of your birth parents? Circle your answer.

① Yes
② No

15. If you are not living with both of your birth parents, select the answer below that best indicates the persons with whom you are living.

① A birth father and a stepmother
② A birth mother and a stepfather
③ A birth father or a birth father
④ Grandparents (both your grandfather and grandmother, or only your grandfather, or only your grandmother)
⑤ Other person(s) ( ) *Write them down in the parentheses.

16. How old are your parents? Write down their numerical ages in number.

- Father: years old
- Mother: years old *If you are not sure, say "you don't know."

17. In which country was your father born? Circle your answer.

① Korea
② Another country ( ) *Write down the name of the country.

18. In which country was your mother born? Circle your answer.

① Korea
② Another country ( ) *Write down the name of the country.

***Questions 19 and 20 on next page are only for the students who answered that they have at least one foreign-born parent. If you did not answer so, please go to Question 21.**

19. What language do you usually use when you talk with your **foreign-born parent**? You can choose more than one answer.

① Korean
② Chinese
③ English
④ Tagalog, or another language of the Philippines
⑤ Vietnamese
⑥ Another language ( ) *Write it down in the parenthesis.

*For question 20, circle your answer after reading the sentence below.

20. The Korean language skills of my foreign-born parent are as the same as those of the Korean-born parents of my friends.

① Strongly disagree
② Disagree
③ Neutral/Do not know
④ Agree
⑤ Strongly agree

21. What are the highest levels of education completed* by your parents? Circle your answer.

- **Father**

①Elementary school ②Middle school ③High school ④College ⑤Graduate school or higher

- **Mother**

①Elementary school ②Middle school ③High school ④College ⑤Graduate school or higher

*A person's highest level of education is obtained when the individual **has graduated** from the academic institution that he or she had attended for the last time. For example, if your father went to high school but did not graduate, his highest level of education completed is middle school.

22. In what year did your parents become married? Write down the year. If you don't know, say you don't know.

In the year of _____

*For question 23, circle your answer after reading the sentence below.

23. "My mother actively obtains/shares information about private tutoring for my education from/with other mothers."

① Strongly disagree
② Disagree
③ Neutral/Do not know
④ Agree
⑤ Strongly agree

24. "My father actively obtains/shares information about private tutoring for my education from/with other mothers."

① Strongly disagree
② Disagree
③ Neutral/Do not know
④ Agree
⑤ Strongly agree

* For questions 24 to 27, write an "X" in the box that best describes your circumstance.

Choices / Questions	①. Less than 1 hour	②. More than 1 hour, but less than 2 hours	③. More than 2 hours, but less than 3 hours	④. More than 3 hours, but less than 4 hours	⑤. More than 4 hours
25. On average, how much time in a week does your **father** spend in helping you preview, review or do your homework for the subject of mathematics?					
26. On average, how much time in a week does your **mother** spend in helping you preview, review or do your homework for the subject of mathematics?					
27. On average, how much time in a week does your **father** spend in helping you preview, review or do your homework for the subject of English?					
28. On average, how much time in a week does your **mother** spend in helping you preview, review or do your homework for the subject of English?					

You completed this survey. Thank you for your participation!! Please contact the researcher Nayoung Heo if you have any further questions at 010-5223-[redacted] or nh7948@gmail.com.

초등학생들의 학업에 관한 설문조사 (2015)

[redacted] 안녕하세요! 아래 28 개의 질문들은 학생 여러분과 학업 그리고 가정에 대한 정보를 얻기 위한 것입니다. 설문지는 여러분의 이름이나 생년월일을 묻지 않으므로, 여러분이 누구인지를 다른 사람이 알아낼 수 없습니다. **즉, 모든 문항에 대한 비밀이 보장됩니다.** 여러분이 생각하기에 가장 맞는 답을 작성해 주세요. 모르는 사항은 선생님께서 친절히 답해 주실 것입니다.

I. 학생 여러분에 관한 문항

1. 학교: 학년:

2. 나이: 세

3. 성별이 무엇인가요? 해당 사항에 O 표 하세요. 남 여

4. 태어난 곳은 어디인가요? 맞는 번호에 O 표 해 주세요.

① 한국
② 중국
③ 베트남
④ 필리핀
⑤ 일본
⑥ 다른 외국 ( ) **나라의 이름을 꼭 한에 적어주세요**

5. **최근 일 년간** 몇 번의 **국내 여행** (명절에 시골 내려가는 것 **빼고**) 을 했나요? 가족과 함께하거나 혼자했던 것 모두 포함합니다. 맞는 번호에 O 표 해 주세요.

①. 0 번 ②. 1 번 ③. 2 번 ④. 3 번 ⑤. 4 번 이상

6. **최근 일 년간** 몇 번의 **해외 여행**을 했나요? 가족과 함께하거나 혼자했던 것 모두 포함합니다. 맞는 번호에 O 표 해 주세요.

①. 0 번 ②. 1 번 ③. 2 번 ④. 3 번 ⑤. 4 번 이상

7. 우리집은 경제적 수준은 어떻다고 생각하나요? 맞는 번호에 O 표 해 주세요.

①. 매우 어렵다
②. 어려운 편이다
③. 보통이다
④. 넉넉한 편이다
⑤. 매우 넉넉한 편이다

8. **최근 일년간** 수학 과목을 위해 학원에 등록하거나 과외를 시작한 적이 몇 번인가요? 학교에서의 방과후 수업은 제외합니다. 맞는 번호에 O 표 해 주세요.

①. 0 번 ②. 1 번 ③. 2 번 ④. 3 번 ⑤. 4 번 이상

9. **최근 일년간** 영어 과목을 위해 학원에 등록하거나 과외를 시작한 적이 몇 번인가요? 학교에서의 방과후 수업은 제외합니다. 맞는 번호에 O 표 해 주세요.

①. 0 번 ②. 1 번 ③. 2 번 ④. 3 번 ⑤. 4 번 이상

10. 자신의 마지막 **수학** 시험 성적은 어땠나요? 맞는 번호에 O 표 해 주세요. 비밀은 절대적으로 보장됩니다.

①. 90 점 이상
②. 80 점 이상 90 점 미만
③. 70 점 이상 80 점 미만
④. 60 점 이상 70 점 미만
⑤. 60 점 미만

11. 자신의 마지막 **영어** 시험 성적은 어땠나요? 맞는 번호에 O 표 해 주세요. 비밀은 절대적으로 보장됩니다.

①. 90 점 이상
②. 80 점 이상 90 점 미만
③. 70 점 이상 80 점 미만
④. 60 점 이상 70 점 미만
⑤. 60 점 미만

12. **최근 1 년간** 학교에서 혹은 반에서 다문화*를 주제로 한 행사나 프로그램이 열리는 것을 **본 적**이 있나요? 본 적만 있고 참여하지 않은 경우도 해당합니다. 맞는 번호에 O 표 해 주세요.

①. 네 ② 아니요

*다문화란 다른 민족 혹은 다른 문화를 가진 사람들이 어울려 지내거나 함께 사는 것을 뜻합니다 (예: 국제결혼 가정, 외국인가정).

13. **최근 1 년간** 학교에서 혹은 반에서 다문화를 주제로 한 행사나 프로그램에 **참여**한 적이 몇 번인가요? 열리는 것을 본 적만 있고 참여하지 않은 경우는 해당되지 않습니다.

①. 0 번 ②. 1 번 ③. 2 번 ④. 3 번 ⑤. 4 번 이상

II. 부모님에 관한 문항

14. 지금 친아버지, 친어머니 두 분과 함께 살고 있나요? 맞는 번호에 O 표 해 주세요.

①. 네 ② 아니요

15. 두 분과 함께 살고 있지 않다면, 누구와 함께 살고 있는지 아래에서 골라 주세요.

①. 친아버지와 양어머니 *부모님께서 재혼을 하신 경우입니다.
②. 친어머니와 양아버지 *부모님께서 재혼을 하신 경우입니다.
③. 친어머니랑만 또는 친아버지랑만 *두 분중 한 분과만 사는 경우입니다.
④. 조부모님 (예: 할아버지와 할머니 두 분 다/할아버지 한 분만/할머니 한 분만)
⑤. 다른 사람 ( ) *괄호 안에 적어 주세요.

16. 아버지, 어머니의 연세가 어떻게 되나요? 숫자로 적어 주세요.

- 아버지: 세
- 어머니: 세 ***모르면 '모른다'고 답해 주세요.**

17. **아버지**는 어느 나라에서 태어나셨나요? 맞는 번호에 O 표 해 주세요.

①. 한국
②. 외국 ( ) ***외국일 경우 괄호 안에 적어 주세요.**

18. **어머니**는 어느 나라에서 태어나셨나요? 맞는 번호에 O 표 해 주세요.

①. 한국
②. 외국 ( ) ***외국일 경우 괄호 안에 적어 주세요.**

***다음의 19 번과 20 번 질문은 외국에서 태어난 부모님이 있다고 대답한 학생들만을 위한 것입니다. 두 분 다 한국에서 태어나셨다면 *21 번*으로 넘어가 주세요!!**

19. **외국에서 태어난 부모님**과 대화할 때 주로 어떤 언어로 대화하나요? 두 개 이상일 경우 여러개를 선택해도 됩니다.

①. 한국어
②. 영어
③. 중국어
④. 필리핀어
⑤. 베트남어
⑥. 다른 외국어 ( ) ***다른 외국어일 경우 괄호 안에 적어 주세요.**

*다음 문장을 읽고 해당 번호에 O 표 하세요.

20. "외국에서 오신 나의 부모님의 한국어 실력은 다른 내 친구들의 부모님 (한국에서 태어나신) 의 한국어 실력과 똑같다."

①. 전혀 그렇지 않다
②. 그렇지 않다
③. 보통이다
④. 그렇다
⑤. 매우 그렇다

21. 부모님의 최종학력'은 무엇인가요? 맞는 번호에 O 표 해 주세요.

- **아버지**

①초등학교 졸업 ②중학교 졸업 ③고등학교 졸업 ④대학교 졸업 ⑤대학원 졸업 이상

- **어머니**

①초등학교 졸업 ②중학교 졸업 ③고등학교 졸업 ④대학교 졸업 ⑤대학원 졸업 이상

***최종학력이란 마지막으로 다녔던 교육 시설에서 졸업을 했다는 것을 말합니다. 예를 들어 아버지께서 고등학교를 다니긴 하셨으나 졸업을 하지는 않으셨다면, 아버지의 최종학력은 중학교 졸업입니다.**

22. 두 분은 몇 년도에 결혼을 하셨나요? 아래에 숫자로 적어 주세요.

년도 ***모를 경우 '모른다'고 답해 주세요.**

*다음 문장을 읽고 해당 번호에 O 표 하세요.

23. "나의 어머니는 나의 학원/과외에 관한 정보를 다른 어머니들과 열심히 나누고 들으신다."

① 전혀 그렇지 않다
② 그렇지 않다
③ 보통이다
④ 그렇다
⑤ 매우 그렇다

24. "나의 아버지는 나의 학원/과외에 관한 정보를 다른 어머니들과 열심히 나누고 들으신다."

① 전혀 그렇지 않다
② 그렇지 않다
③ 보통이다
④ 그렇다
⑤ 매우 그렇다

* 25 번부터 28 번까지는 각 문항에 대해서 나의 부모님에 대해 가장 잘 설명하는 칸을 골라 동그라미를 그려 넣으세요.

질문 / 선택지	① 1 시간 미만	② 1 시간 이상 2 시간 미만	③ 2 시간 이상 3 시간 미만	④ 3 시간 이상 4 시간 미만	⑤ 4 시간 이상
25. 수학 과목의 예습/복습/숙제를 할 때 **아버지**께서 일주일에 몇 시간 정도 도움을 주시나요?					
26. 수학 교과목의 예습/복습/숙제를 할 때 **어머니**께서 일주일에 몇 시간 정도 도움을 주시나요?					
27. 영어 교과목의 예습/복습/숙제를 할 때 **아버지**께서 일주일에 몇 시간 정도 도움을 주시나요?					
28. 영어 교과목의 예습/복습/숙제를 할 때 **어머니**께서 일주일에 몇 시간 정도 도움을 주시나요?					

[redacted]

모든 설문이 끝났습니다. 참여해 주셔서 감사합니다!! 궁금한 사항은 연구자 허나영 (전화번호: 010-[redacted]; 이메일: nh7948@gmail.com)에게 연락주세요!