Kobe University Repository : Kernel

PDF issue: 2026-07-14

An Analysis of the Relationship between Socioeconomic Status and the Transition to High School in the Republic of Korea from a Social Cognitive Career Theory

Kim, Seil

(Degree)
博士（学術）

(Date of Degree)
2023-03-25

(Date of Publication)
2024-03-01

(Resource Type)
doctoral thesis

(Report Number)
甲第8674号

(URL)
https://hdl.handle.net/20.500.14094/0100482422

※ 当コンテンツは神戸大学の学術成果です。無断複製・不正使用等を禁じます。著作権法で認められている範囲内で、適切にご利用ください。

Submitted on December 9, 2022

An Analysis of the Relationship between Socioeconomic Status and the Transition to High School in the Republic of Korea from a Social Cognitive Career Theory

（韓国における社会経済的地位と高校進学との関係

：社会認知的キャリア理論の視点から）

Faculty	**Graduate School of International Cooperation Studies**
Department	**Regional Cooperation Policy Studies**
Academic Advisor	**Professor. Keiichi Ogawa**
Student Number	**154I411I**
Name	**KIM SEIL**

SUMMARY

Socioeconomic disparities in educational attainments (e.g., years of schooling, the level of education completed) are well-documented, but less attention has been paid to qualitative differences at the same level of education. Previous studies claim that educational inequality persists if a certain level of education is not universal across different socioeconomic groups. Thus, educational expansion to the saturation level would lead to a decline in socioeconomic inequality (Hout, 2006; Raftery & Hout, 1993). However, the effectively maintained inequality (EMI) theory claims that educational inequality is maintained in the form of qualitative differentials among educational institutions even when a given education level is universal (Lucas, 2001, 2009). In the Republic of Korea (Korea, hereafter), previous literature has found that socioeconomically advantaged students are more likely to transition to academic high school high schools and attend four-year universities over vocational high schools and two-year colleges (Byun & Park, 2017; Choi, 2020).

However, previous studies investigating the relationship between family socioeconomic backgrounds and students' high school transition in Korea have several limitations. First, previous literature has only focused on the high school track, academic versus vocational (Byun & Park, 2017; Choi 2020), which does not reflect Korea's diversified high school types since the late 2000s: vocational, general, autonomous, and special-purpose high schools. Such institutional changes in high school could affect students' high school choices given the strong relationship between students' high school type and their postsecondary career in Korea (Byrne & McCoy, 2017; Byun & Park, 2017). In addition, less attention has been devoted to addressing the underlying mechanism of how students from different socioeconomic status (SES) make such high school decisions. In order words, there is a dearth of research to understand a career decision-making process of why and how students from different SES choose high schools despite the perceived qualitative differential outcomes among high school types in Korea.

In this regard, this study uses a social cognitive career theory (SCCT) to unravel the underlying mechanism of how students from different SES have transitioned to different high school types in Korea. A social cognitive career theory (SCCT) has received interest from researchers to provide a theoretical framework to understand individuals' career decision-making process. The SCCT show its validity of predicting several educational outcomes, such as the choice of college majors (Fouad & Santana, 2017) and educational attainment (Bolkan et al., 2021). However, it has not been applied to investigate students' high school transition. First, this study examines whether the educational disparity in high school transition owing to family SES has persisted or diminished using two datasets of 2007-8 and 2017-8 in Korea. The empirical evidence of socioeconomic differences among high school types provides the social and institutional contextual backgrounds in students' academic and career development in Korea. In addition, this study investigates how family SES has shaped middle school students' social cognitive factors, which are self-efficacy, educational aspiration, and career maturity, Finally, this study investigates how these social cognitive factors are associated with students' high school transition.

First, this study demonstrates the persistent and significant role of family SES in determining students' high school type before and after the reform using two datasets of 2007-8 and 2017-8 in Korea. Specifically, this study finds that high-SES students are more likely to attend autonomous or special-purpose high schools, while low-SES students are more likely to attend vocational high schools despite having higher academic achievement than their counterparts. The findings of this study also suggest the hierarchically structured high school system according to family SES and academic achievement. In this context, socioeconomically advantageous students can have higher institutional advantages to progress upwardly in the school hierarchy.

In addition, this study investigates the role of family SES on developing students' cognitive variables, academic self-efficacy, educational aspiration, and career maturity, which

are key SCCT elements to determine students' high school transition. Corroborating with previous findings (Ahuja, 2016; Honicke & Broadbent, 2016), this study finds that high-SES students are more likely to have higher academic self-efficacies and aspiring higher education levels. It shows the advantages for high-SES students in their academic and cognitive development (e.g., Kalaycioglu, 2015; Li et al., 2019). On the other hand, this study finds a non-linear U-shape relationship between family SES and students' career maturity (e.g., understanding of career interests and goals), contrary to the previous studies proposing a linear and positive relationship (e.g., Flores et al., 2017). The evidence shows that students from both low SES and high SES are likely to have a higher career maturity. Statistically, students at the bottom income decile are likely to have a higher career maturity and have developed their understanding of career plans in the high school transition period. The evidence suggests that low-SES students are more likely to allocate their resources to career exploration in high school transitions. This result aligns with previous literature that found improvised people are more likely to focus on career activities in consideration of their financial constraints (Duflo & Banerjee, 2011; Hu et al., 2020). That is, students in need have less control over the situation and tend to allocate their resources in a way of meeting immediate goals, such as obtaining a job quickly and parenting earlier (Griskevicius et al., 2013; Mittal & Griskevicius, 2014). The results of the study suggest that students in economic constraints are likely to turn their interest to career exploration in high school transitions

Finally, this study examines the role of social cognitive variables in SCCT in explaining the relationship between family SES and students' high school transitions. First, high-SES students are more likely to attend autonomous and special-purpose high schools, interacting with higher academic self-efficacies and pursuing higher education levels (Bolkan et al., 2021). On the other hand, this study adds to the SCCT literature by showing how high career maturity between high- and low-SES students leads to different educational paths. High career maturity is interpreted as an advantage for high-SES students in high school transition by attending special-purpose high schools that show a higher probability of entering prestigious universities

in Korea. In contrast, high career maturity among low-SES students leads them more likely to attend vocational high schools, which can produce adverse postsecondary career outcomes in the long run (e.g., college entrances, job prospects). It suggests the cognitive process among socioeconomically disadvantaged students that they attend vocational high schools to satisfy their current needs (e.g., entering job markets earlier), which comes from their understanding of financial constraints (Hu et al., 2019). In particular, their understanding on career have improved in the last year of middle school, which is the high school transition period. It shows that the cognizance of their socioeconomic backgrounds is a significant factor in determining students' high school decision-making process. It aligns with Kim (2012) that students choosing vocational high school are more likely to take into account their family financial circumstances and career choices after graduation, while special-purpose high school students prioritize their academic interest and aptitude in high school choice.

The underlying mechanisms for explaining how young people make educational transitions responding to their socioeconomic backgrounds have not been fully addressed in the previous literature (Andrew, 2017; Ghassemi et al., 2017). This study expands that the SCCT has the potential to provide a robust theoretical framework to explain the psychological processes that underlie the relationship between family SES and the SCCT factors in key educational transitions. Specifically, this study fills the research gap by showing how family SES has influenced students cognitive factor and how these beliefs about their academic ability and career readiness are associated with the different educational pathways of high school transition.

Overall, the stability of the SCCT model in predicting students' high school transition allows policymakers, teachers, and career counselors to intervene better in students' high school decision, especially for impoverished students. First, educators and policymakers need to reduce qualitative educational inequity. Expanding educational opportunities, such as diversifying school types or eliminating admission requirements, does not guarantee equal

educational opportunities to students from all social strata. In addition, career counselors and teachers need to provide adequate information to adolescents in disadvantaged environments to understand how their educational choice influences access to higher education and work in the future. This study finds that even high-achieving students with low socioeconomic backgrounds who are eligible to enter autonomous or special-purpose high schools are more likely to attend general or vocational high schools. The results suggest the cognitive process among socioeconomically disadvantaged students that they perceive vocational high schools provide education that satisfies their fulfilments. This self-perception on career maturity is more likely to derive from meeting current needs (Hu et al., 2019). In reality, vocational high school graduates have difficulty finding jobs, and their expected income is low (MoE, 2020). Thus, career counselors and teachers need to provide information to understand how their educational choice to pursue long-term career goals.

ACKNOWLEDGEMENT

I've been immensely fortunate to have had the love and support of many throughout this journey. First and foremost, I thank God for His faithfulness. Only He could sustain me through the late nights, the challenges, and the sacrifices.

To my Supervisor, Dr. Keiichi OGAWA, thank you for pushing me during my academic journey. I am so grateful that you make me realize the power of 'aspiration' to think beyond the walls. Like I began this journey with a desire to be a better person, this study is also about understanding of aspirations and limitations. Through this study, I wanted to understand why some aspire greatly while others couldn't even dream.

Thank you for my parents, who comforted me from the beginning to the end. They have been my inspiration through goodness and sincerity.

To my wife, Jen, I met you at the very beginning of this journey. Thank you for your love and consistent support. Thank you for your patience when I was working on the computer at insane times of the day and night and with my endless piles of research.

"Leaf by Niggle" is a short strong written by J.R.R Tolkien, who is the author of The Hobbit, The Lord of the Ring. In this story, the painter named Niggle, is eager to paint a canvas of a great Tree. In his vision, the Tree has innumerable branches, thrusting out fantastic roots. However, Niggle is forced to take his unprepared trip, as humans often are not prepared for death. After his death, the neighbor visited his house and saw his paintings. They lament his futile death and his painting that was dawn a leaf. Fortunately, the story is not ended here. On this trip, he discovers the true realization of his vision, the Tree. Like Leaf by Niggle, my study and work may seem small and shady. But, I still draw a tree like Niggle, expecting He will carry it on to completion until the day of his vision. Anything can be done through Christ, who strengthens me.

Table of Contents

SUMMARY i

ACKNOWLEDGEMENT vi

ACRONYM & TERMINOLOGY 3

LIST OF FIGURES 4

LIST OF TABLES 6

CHAPTER I: INTRODUCTION 8

1.1. Background 8

1.2. Problem Statement 15

1.3. Research Questions 21

1.4. Objectives of the Study 23

1.5. Significance of the Study 24

CHAPTER II: THEORETICAL BACKGROUNDS 28

2.1. Effectively Maintained Inequality in the Korean High School System 29

2.2. Social Cognitive Career Theory 32

2.3. Transition to High School from the SCCT Perspective 37

CHAPTER III: LITERATURE REVIEW 40

3.1. The Role of Family SES in Students' High School Transition in Korea 41

3.2. The Relationship between Family SES and the SCCT factors 49

3.3. Social Cognitive Career Theory on Career Cognitive Outcomes 53

CHAPTER IV: KOREAN HIGH SCHOOL SYSTEM AND SCCT 57

4.1. Korean High School System 58

4.2. Historical Changes of High School System in Korea....62
4.3. Persistent Educational Inequality in High School System in Korea....68
4.4. Korean Contextual Backgrounds for SCCT....79
CHAPTER V: METHODS....85
5.1. Theoretical Framework....85
5.2. Conceptual Framework....90
5.3. Hypotheses....94
5.4. Analytic Model....95
5.5. Data....99
CHAPTER VI. RESULTS....107
6.1. Persistent Socioeconomic Disparity in the High School Transition....107
6.2. Students' Social Cognitive Career Development during Middle School....122
6.3. High School Transition from the SCCT Perspective....132
CHAPTER VII. DISCUSSION & CONCLUSION....155
7.1. Discussion....155
7.2. Conclusion....164
7.3. Limitations....169
REFERENCES....171
APPENDIX....187

ACRONYM & TERMINOLOGY

Acronym & Terminology	Description
Career maturity	Career maturity is defined as the degree to which individuals are prepared to make good educational or vocational decisions
Educational aspiration	Educational aspiration reflects the educational goals an individual sets for themselves (Fraser, 2011) and the level of formal schooling that one would like to complete (Johnson and Reynolds 2013)
EMI	Effectively maintained inequality (EMI) is proposed to be an explanation for contemporary socioeconomic disparities in education. Socioeconomic inequalities are 'maintained' by students from lower socioeconomic backgrounds that take less advantageous curricula, which influence their post-school destinations (Lucas 2001; 2009)
IIA	Independence from irrelevant alternatives
KEDI	Korea Educational Development Institute
KELS	Korean Education Longitudinal Study
MLM	Multinomial logistic regression
MMI	The maximally maintained inequality (MMI) hypothesis claims that education expansion causes the decline in quantitative inequalities in enrollment rates once the enrollment rate for the most advantaged socioeconomic (SES) group approaches the saturation point.
MoE	Ministry of Education
OECD	Organization for Economic Cooperation and Development
OLS	Ordinary least squares (OLS)
SCCT	Social cognitive career theory (SCCT) posits that career development behaviors are affected by three social cognitive processes - self-efficacy beliefs, outcome expectations, and career goals and intentions which interplay with socioeconomic status, ethnicity, culture, gender, social support, and any perceived barriers to shape a person's educational and career trajectories (Lent et al., 2000; Blanco, 2011).
Self-efficacy	Self-efficacy(SE) is a person's particular set of beliefs that determine how well one can execute a plan of action in prospective situations (Bandura 1999)
SES	Socioeconomic status (SES) is an individual's social standing or class, which incorporates parental income, education, and occupation as its main factors (Hauser 1994; Gottfried 1985; Sirin 2005).
SLA	Self-regulated Learning Admission
STEM	Science, technology, engineering, and mathematics

LIST OF FIGURES

Figure 1.1. Hierarchically structured high school system in Korea.....10

Figure 1.2. The SCCT's choice model.....12

Figure 2.1. Hierarchically structured high school type in Korea.....31

Figure 2.2. The SCCT model of career-related interest development and choice-making.....33

Figure 3.1. Flowchart showing educational pathways by family SES 42

Figure 3.2. Hierarchically structured high school system in Korea.....44

Figure 3.3. The SCCT's model of career-related interest development 49

Figure 3.4. The SCCT's career choice model.....54

Figure 4.1. Korean K-12 education system 59

Figure 4.2. Changes in the number of high schools by school type. 64

Figure 4.3. Changes in the number of students by high school type 65

Figure 4.4. Academic achievement by income quintile.....69

Figure 4.5. High school type by academic achievement in the 3rd year of middle schools.....70

Figure 4.6. Proportion of students attending high school by income quintile 71

Figure 4.7. Hierarchically arranged high school type in Korea.....72

Figure 4.8. College entrance rate between academic and vocational high schools 77

Figure 4.9. Employment rate for vocational high school graduates 77

Figure 4.10. Relative earnings by educational attainment.....78

Figure 5.1. Hierarchically arranged high school system in Korea.....87

Figure 5.2. SCCT's model of career-related interest development and choice-making.....89

Figure 5.3. Conceptual framework of the SCCT's model in predicting students' high school transition 93

Figure 6.2.1. Fitted plot on family SES and career maturity 129

Figure 6.2.2. Fitted plot on private education spending and career maturity 129

LIST OF TABLES

Table 3.1. Factors utilized in high school transition in Korea 46

Table 4.1. Korean high school type after the reform in 2010 60

Table 4.2. The number of high school and students by type in 2020 61

Table 4.3. High school admission requirements before and after the reform in 2010 67

Table 4.4. Transition matrix for high school transition by SES factors 75

Table 5.1. Data used for the respective research question 100

Table 5.2. Description of data 105

Table 6.1.1. Logistic model for predicting high school track between academic and vocational track 109

Table 6.1.2. Logistic model for predicting high school tracks between academic and vocational tracks with interaction dummies 111

Table 6.1.3. Multinomial logistic model for predicting students' high school transition with all school types 115

Table 6.1.4. Multinomial logistic model for predicting students' high school transition with all school types (each SES factor) 118

Table 6.1.5. Multinomial logistic regression for high school transition with all school types with interaction dummies 120

Table 6.2.1. Panel regression results of the relationship between family and students' academic and cognitive outcomes 125

Table 6.2.2. Panel regression results on the relationship between family SES and students' career maturity 128

Table 6.2.3. Relationship between family income level and students' career maturity 130

Table 6.3.1. Stepwise mediation analysis of predicting students' high school track between academic and vocational high schools 134

Table 6.3.2. Logistic model for predicting high school track between academic and vocational tracks 137

Table 6.3.3. Multinomial logistic model for predicting high school transition with all high school types 140

Table 6.3.4. Predicted probabilities by socioeconomic status and academic achievements for high school transition 143

Table 6.3.5. Predicted probabilities by income quintile and academic achievements for the transition to high school 145

Table 6.3.6. Prediction on students' attending vocational high schools by career maturity at the bottom and top income quintile 147

Table 6.3.7. Prediction on the transition to high school by career maturity at the bottom and top income quintile 149

CHAPTER I: INTRODUCTION

1.1. Background

Numerous studies have investigated socioeconomic disparity in educational attainments (e.g., years of schooling), but less attention has been paid to the study of qualitative distinctions at the same level of education. Previous studies claim that educational inequality persists if a certain level of education is not universal across different socioeconomic groups. Thus, educational expansion to the saturation level would lead to a decline in socioeconomic inequality (Hout, 2006; Raftery & Hout, 1993).

However, scholars have found that educational inequality persists in the form of qualitative differences at the same level of education (e.g., Byrne & McCoy, 2017; Guetto & Vergolini, 2017). The effectively maintained inequality (EMI) hypothesis claims that educational inequality is maintained in qualitative distinctions in educational institutions even when a given education level is universal (Lucas, 2001, 2009). In this context, socioeconomically advantaged students are more likely to boost their position in a qualitatively differentiated education system (Andrew, 2017). In contrast, socioeconomic disparity exacerbates educational opportunities among socioeconomically disadvantaged students concerning the type of education or academic curricular (Andrew, 2017; Guetto & Vergolini, 2017). Thus, family socioeconomic status (SES) leads children to a higher or lower probability of selecting different school tracks or academic curricula, even in the context of universal enrollment, and it can effectively reproduce patterns of advantages or disadvantages for children in the future (Lucas & Byrne, 2017).

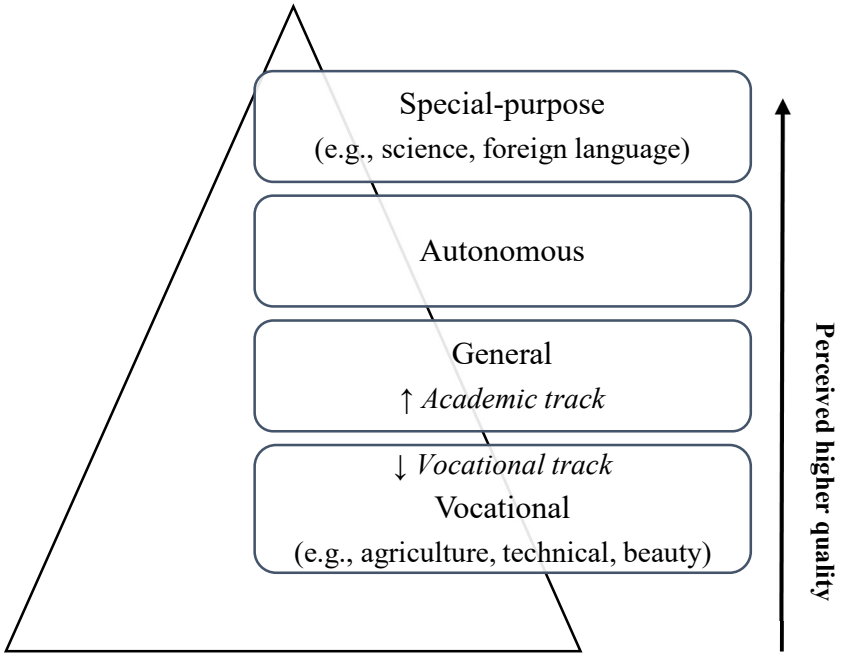
Previous literature testing the EMI theory has found evidence of a significant role of family SES in transitioning different educational institutions from secondary to post-secondary education across countries, including the U.S., Germany, and the Republic of Korea (Korea, hereafter) (e.g., Andrew, 2017; Byrne & McCoy, 2017; Byun & Park, 2017). In Korea, previous literature has also found that students with higher SES are more likely to choose

academic high schools and attend four-year universities over vocational high schools and two-year colleges than low-SES counterparts (Byun & Park, 2017; Choi, 2020). These studies claim that persistent educational inequality exists in the form of different types of education.

However, previous studies investigating the relationship between family socioeconomic backgrounds and students' high school transition in Korea have several limitations. For instance, Byun and Park (2017) focused on academic versus vocational tracks in high school, which does not reflect Korea's recently reformed high school system. Since the 2010s, the Ministry of Education (MoE) in Korea has diversified high schools and stipulated four high school types since the 2010s: vocational, general, autonomous, and special-purpose high schools (MoE, 2010). Such institutional changes in high school could affect students' high school choices given the strong relationship between students' high school type and their postsecondary career in Korea (Byrne & McCoy, 2017; Byun & Park, 2017). For instance, previous literature has found disparities among high school types in students' academic achievement in high school and college transition rate after controlling initial academic ability and family SES (Jang, 2015; Byun & Park, 2017). It remains in question whether the socioeconomic disparity in high school type has persisted or diminished after the high school diversification reform in Korea. Previous studies also note that EMI research should consider qualitative differentials in line with the evolving school system (e.g., Andrew, 2017). Thus, it is worth revisiting socioeconomic differences among the diversified high school types in high school transition (Hur, 2018).

This hierarchically arranged high school system in Korea is illustrated in *Figure 1.1*, which hypothesizes the perceived qualitative distinctions in high school types (Andrew, 2017). Under the stratified high school system, students from different socioeconomic backgrounds are able or unable to maintain their advantage by progressing upwardly. In this regard, this study begins by exploring socioeconomic disparity among high school types in the recently reformed high school system in Korea.

Figure 1.1. Hierarchically structured high school system in Korea



Source: Created by the author based on the model of Andrew (2017)

However, the EMI hypothesis is limited to addressing the underlying mechanism of how students from different socioeconomic backgrounds make such transitions. Marks (2018) points out that the EMI literature ignores the role of students' cognitive and psychological aspects, which has a more substantial impact than family SES on students' education transitions. In addition, it is important to scrutinize whether students from different socioeconomic backgrounds voluntarily choose schools or are being transitioned to school. This selectivity explains that such behaviors are practiced by institutional selectivity or students' career decision-making process (Andrew, 2017; Hu et al., 2020).

It is noteworthy that high school admissions are generally made at the choice of students in Korea. Students can choose a high school based on their aptitude and career interests (Ryu et al., 2015). Moreover, these students' high school transition in Korea is the key career choice for adolescents in determining their future educational and occupational trajectories (Choi, 2020; Byun & Park, 2017; Im, 2010). For instance, the high school track between academic and vocational high schools has an effect on college admission and future earnings (Shim and

Kim, 2014; Byun & Park, 2017). About 77% of students on academic tracks (general, autonomous, and special-purpose high schools) attend colleges, while only 58% of vocational high school graduates do (MoE 2020). Moreover, about 39% of new students at the top three universities[1] in Korea were from special-purpose high schools (20%) and autonomous high schools (19%), which only accounted for 11% of the total high school graduates in 2020 (MoE, 2021). Consequently, the qualitatively different educational outcomes among high school types could risk socioeconomically disadvantaged students' future trajectories and hinder progressing to upward social mobility (Alon, 2009; Andrew, 2017; Byun & Park, 2017).

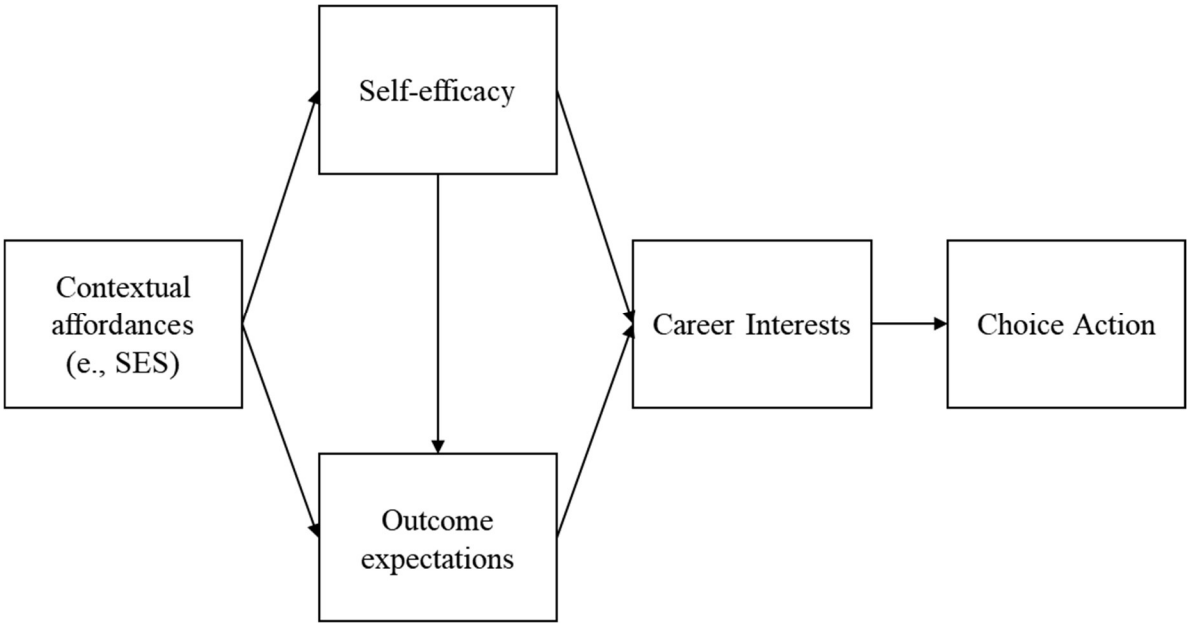
Despite perceived qualitative differentials among high school types, students from low SES are likely to make moves below, such as vocational and general high school, in the high school hierarchy in Korea. In particular, a substantial proportion of socioeconomically disadvantaged students attend vocational high schools (Choi, 2020). From the career decision-making perspective, students choosing vocational high schools perceive that they provide an educational curriculum or postsecondary career that satisfies their career interests and aptitude. This study explores the selectivity of students' high school choices from a career decision-making process.

Social cognitive career theory (SCCT) has received interest from researchers to provide a theoretical framework to understand individuals' career decision making-process (Blanco, 2011; Lent & Brown, 2019). SCCT describes individuals' career decision process through three primary social cognitive constructs, self-efficacy, outcome expectations, and career interest. These cognitive elements interact with broader contextual backgrounds (e.g., gender, ethnicity, family socioeconomic backgrounds) to shape the course of career decisions (Brown & Lent, 2017; 2019) (*see Figure 1.2 below*). For instance, a hypothesized student from a

[1] Prestigious universities are Seoul National University, Yonsei University, and Korea University (MoE, 2021)

socioeconomically advantaged environment is more likely to receive good grades in math & sciences, which leads to belief in their academic ability (academic self-efficacy) (Han et al., 2014). This improved academic self-efficacy reinforces the student's career interest in educational activities and results in choosing Science, technology, engineering, and mathematics (STEM)-related university majors or academic curricular (Brown & Lent, 2019).

Figure 1.2. The SCCT's choice model



Source: Adapted from Lent & Brown (2019)

Previous literature using SCCT predicted several career and educational outcomes, including the choice of college majors (Fouad & Santana, 2017), educational attainment (Bolkan et al., 2021), and academic achievement (Lent & Brown, 2019). However, there is a dearth of research regarding students' high school transition from a theory-driven understanding of how family socioeconomic backgrounds have shaped students' social cognitive factors and, consequently, influence students' high school transition. This study examines the underlying mechanism between family SES and students' high school transition from the SCCT perspective.

To examine students' high school transition using SCCT, this study sets out to explore how students have responded to their socioeconomic backgrounds in developing cognitive and career aspects during middle school, which expects to determine their high school decision. The SCCT studies posit a positive and linear relationship between SES and career cognitive factors (Lent, 2017). The empirical evidence supports that parental socioeconomic status is positively and significantly associated with key career cognitive variables in SCCT, including educational aspiration (Guyon & Huillery, 2014), academic self-efficacy (Han et al., 2014), and career interests (e.g., Kim, 2008).

However, scholars argue that adolescents from different SES are likely to invest their resources in career activities to meet their respective demands (Demanet & Houtte, 2017). Hu et al. (2020) suggests that socioeconomically disadvantaged adolescents invest their resources in fulfilling their current needs (e.g., obtaining a job quickly) rather than long-term gains (e.g., entering a university) (Griskevicius et al., 2013; Laran & Salerno, 2013). This implies that even students in impoverished environments are likely to have higher career interests and occupational plans. In addition**,** Callander and Schofield (2016) find that adolescents tend to accept their position in their SES hierarchy and develop a sense of efficacy congruent with their status. Thus, socioeconomically disadvantaged students are more likely to have low self-efficacy, which leads to adjusting their educational goals when faced with their career choice (Hu et al., 2020). In this context, students from low SES are likely to allocate their resources to career activities to meet their current needs in recognition of their financial circumstances.

In this regard, this study aims to fill the gap mentioned above by investigating the non-linear relationship between socioeconomic backgrounds and career maturity, comprising career self-awareness and career plans. In short, this study proposes that students from both high and low socioeconomic backgrounds are likely to have higher career cognitive outcome, career maturity, which affects transitioning to high school.

Finally, this study examines the mediating role of SCCT variables on the relationship between SES and the high school transition in Korea. Furthermore, this study explores the dynamics in career cognitive predictors that how students' career maturity with different socioeconomic backgrounds is associated with attending different high school types within the stratified high school system in Korea.

To summarize, the primary aim of the study is to examine the applicability of SCCT in identifying the underlying mechanism of how students with different socioeconomic backgrounds transition to different high school types in Korea. First, this study examines whether the educational disparity in high school type owing to socioeconomic backgrounds has persisted or diminished using two datasets of 2007-8 and 2017-8 in Korea. The empirical evidence of socioeconomic differences among high school types provides the social and institutional contextual affordances in unraveling the mechanism of students' high school transition. In addition, this study investigates how family SES has shaped students' social cognitive factors during middle school, which are significantly associated with students' high school decisions. Finally, using the SCCT model, this study examines the underlying mechanism between family SES and students' high school transitions through the SCCT variables.

1.2. Problem Statement

The literature shows growing interest from researchers and policymakers in educational inequality in students' high school transition. Much literature on the transition from lower secondary to upper secondary education has focused on socioeconomic disparities among high school types in Korea (e.g., Choi, 2020; Byun& Park, 2017).

However, little attention has been devoted to the school system changes in the relationship between family socioeconomic backgrounds and high school transition. In addition, although the high school transition is a key career choice for students, few researchers have examined this educational transition from the theory-driven models of students' career decision-making process. In this respect, this section seeks to specify the research gaps above

1.2.1. Persistent educational inequality in high school transition

As Korea seeks to reduce educational disparity, there is a need to understand the changes in socioeconomic differences among high school types in alignment with the structural high school reforms. Scholars testing the EMI hypothesis have found evidence of the significant role of family SES in transitioning to different high school types, which influences students' prospects for college matriculation and their future earnings (e.g., Lucas & Byrne, 2017; Byun & Park, 2017; Ayalon & Shavit, 2004; Protsch & Solga, 2016). In Korea, Byun and Park (2016) and Choi (2020) find that students from higher SES are more likely to attend academic high schools and enter 4-year universities in Korea.

Previous EMI literature in Korea has limitations. For instance, Byun and Park (2017) only focused on a high school track, academic versus vocational tracks, which does not reflect Korea's recently reformed high school system. In Korea, the MoE has reformed the high school system. Accordingly, a new type of high school, autonomous high school, was introduced and more special-purpose high schools have been established to satisfy students' aptitudes and career interests (Choi & Kim, 2017). In addition, the MoE categorized the Korean high school

type into vocational, general, autonomous, and special-purpose high schools. Despite its expansion of high schools, empirical studies have only investigated the high school track between vocational and academic high schools (Byun & Park, 2017; Choi, 2020). Previous studies note that institutional changes should be considered, given their relationship with students' educational outcomes (Byrne & McCoy, 2017; Byun & Park, 2017).

However, few studies examine the trends in educational inequality in the transition to high school in alignment with educational reforms (Hur, 2018; Ryu et al., 2015). The research gap remains with the educational disparities among the expanded high school type. As there is a strong association between high school type and post-secondary career (Byrne & McCoy, 2017; Byun & Park, 2017), it is worth revisiting socioeconomic differences in the transition to different high school types. Furthermore, the high school admission procedures have been reformed to limit educational disparities. Previous studies have found mixed results on whether educational disparity owing to socioeconomic differences has intensified or diminished over time (Ryu et al., 2015; Hur, 2018).

Thus, this study seeks to address how the influence of family SES on the transition to high schools has evolved with two datasets ranging from the late 2000s to late 2010. In extending empirical studies of the EMI theory, this study analyses persistent socioeconomic inequality among high school types in the reformed high school system. The empirical findings propose that the high school system has been stratified in which the type of school has been determined according to socioeconomic status.

In addition, this investigation of socioeconomic differences among the diversified high school type provides social and institutional contextual backgrounds for applying the SCCT model in predicting students' high school transition in Korea.

1.2.2. The relationship between family SES and Students' career cognitive constructs

This study uses the SCCT model to explain students' high school transition through primary social cognitive factors. The SCCT's model describes individuals' career development progress through three key cognitive constructs (self-efficacy, outcome expectations, and career goals), and these social cognitive constructs interact with broader contextual backgrounds (e.g., gender, family socioeconomic backgrounds) to shape the course of career decisions (Brown & Lent, 2017).

As one part of contextual affordances, previous studies have found that family SES plays a significant role in cognitive and career development (e.g., Flores et al., 2017). Specifically, previous studies have supported the significant relationship between family SES and students' career cognitive elements, including self-efficacy (e.g., Callander & Schofield, 2016), career interest (Hui & Lent, 2018), and educational and occupational goals (Flores et al., 2017).

However, previous SCCT research has hypothesized a positive and significant association between family SES and career cognitive outcomes (e.g., career interest) despite the possibility that even low-SES students can improve career interests in the career transition. This is because of the limitation of empirical methods (structural equation modelling and logistic regressions) and the nature of outcomes (e.g., 4-year graduation, STEM-major interests), which examines the linear association between an outcome variable and independent variables.

When facing career decision-making, family SES shapes adolescents' perception of resource scarcity in the situation, the trade-offs they make when allocating resources to career activities, and influences their career cognitive outcomes (Hu et al., 2019). Socioeconomic advantages for students can translate into greater career interest in prestigious jobs and more education aspirations. In contrast, students in need have less control over the situation and tend to allocate their resources in a way of meeting immediate goals such as obtaining a job quickly and parenting earlier (Griskevicius et al., 2013; Mittal & Griskevicius, 2014). This means adolescents from different socioeconomic backgrounds show disparate career development

pathways to meet their respective demands (Demanet & Houtte, 2017). It suggests that students from socioeconomically disadvantaged backgrounds allocate their limited resources to career activities to meet their current needs, which develop their career cognitive outcomes.

Moreover, in the Korean educational context, where there is significant association between parental socioeconomic background and academic achievement (e.g., Bae & Wickrama, 2015), socioeconomically disadvantaged students are disadvantaged in improving academic achievement and self-efficacy, which may make them allocate their resources in career activities rather than pursuing higher educational goals during the high school transition period. In short, even low-SES students are likely to have a higher career interest level by investing their resources in career-related activities when facing high school choices to fulfil their current shortages.

However, little attention has been devoted to this non-linear relationship between family SES and students' career cognitive constructs. In this respect, this study seeks to address the gap in how different family socioeconomic backgrounds have shaped students' social cognitive factors in the face of the high school transition. This study postulates that both high-SES and low-SES students are likely to have higher career maturity, comprising of career plans (e.g., I experienced various career activities for my future) and career self-awareness (e.g., I understand what I like to do), in transitioning to different high school types. In addition, this study investigates the relationship between family SES and the three key social career cognitive elements, academic self-efficacy, educational aspiration, and career maturity.

1.2.3. Predicting the high school transition using the SCCT model

In general, students can choose their high schools in Korea, and thus, person cognitive factors play a significant role in their course of high school decision-making process. As stated, transitioning from lower secondary to upper secondary education in Korea is a critical career choice for adolescents. Previous literature supports that students' choice of high school type plays a significant role in determining postsecondary careers in Korea (e.g., Byun & Kim, 2010; Byun & Park, 2017; Choi, 2020). For instance, students graduating from academic high schools (e.g., general, autonomous, special-purpose high schools) have a higher academic achievement (Jang, 2017), a higher probability of entering four-year universities (e.g., Byun & Park, 2017; Choi, 2020) and receiving higher earnings (OECD, 2020) than vocational high school graduates in Korea.

However, previous EMI literature on the relationship between SES and key educational transitions in Korea has overlooked the role of students' cognitive and psychological aspects, which has a more substantial impact than SES in determining educational transitions (Marks, 2018). In particular, the mechanism of how students from SES progress upwardly and place low in the high school hierarchy is less understood from an individual's decision-making process.

Few empirical studies have investigated the role of respective cognitive variables in predicting high school transition in Korea and have found mixed results. Previous literature on the determinants of high school type examines the role of social cognitive career-related factors respectively, including academic self-efficacy (Kim & Back, 2010), educational aspiration (Jeon, 2015), career maturity (Shin & Kim, 2014), and students' high school types in Korea. For instance, Shim (2014) found that career maturity is not associated with high school types, whereas Im (2013) found a significant difference in subjective career preparation between general and vocational high school entrants.

SCCT has received attention from scholars for explaining individuals' career decision-making processes (Lent, 2010). SCCT rests on three primary social cognitive factors of career development to explain individual career choice: self-efficacy, outcome expectations, and personal career goals or intentions (Kanny et al., 2014). Previous research using SCCT predicted various career and educational choices, including the choice of major (e.g., STEM fields) (e.g., Fouad & Santana, 2017), educational attainment (e.g., college graduation) (Bolkan et al., 2021), and Academic achievement (Lent & Brown, 2019).

Previous studies that use the SCCT framework to explain the transition to high school are non-existent. In addition, there is a dearth of research regarding students' high school transition from a theory-driven understanding of career development perspective in Korea. As noted, students can choose a high school type, which is a key career choice to predict postsecondary education and job projects in Korea. Thus, high school transition should be understood from the perspective of career decision-making.

Furthermore, Flores et al. (2017) argue that SCCT requires a more contextualized articulation of how social class operates within the border society and how this functions within an individual's career development. As SCCT is primarily concerned with an individual's career development within a specific context, socioeconomic disparities among high school types may affect students' high school choices through students' career development in Korea. More specifically, this study address aforementioned research gap by using social cognitive career theory to test the notion that students with different career cognitive variables influence their likelihood of attending different high school types.

1.3. Research Questions

The purpose of this study is to understand students' high school choice through social career cognitive factors from the SCCT perspective. The primary research question to be addressed in this study is: to what extent SCCT produce the mechanism between family SES and the transition to high school within the stratified high school type in Korea. To respond to the research gaps mentioned, the following research questions emanated.

The first research question of this study examines persistent educational inequalities among high school types, which provides the social and institutional backgrounds in high school transition in Korea. Specifically, this study examines socioeconomic differences among high school types in students' high school transition in 2007-8 and 2017-8;

Research Question 1. How have socioeconomic differences among high school types changed before and after the school admission reform in 2010 in Korea? (Hur, 2018; Ryu, 2015)

1.1. How does the high school diversification reform in 2010 influence intensifying or relieving educational disparity in transiting to different high school types?
1.2. Are students from high SES likely to move forward (e.g., autonomous, special-purpose high schools) in a qualitatively stratified high school system? In contrast, do low-SES students make moves below (e.g., vocational and general high schools) in the high school hierarchy despite having high or middle academic achievement?

The following research questions investigate how family SES has shaped students' social cognitive career constructs during middle school, which directly influences students' high school choices. In particular, this study investigates the non-linear relationship between family SES and students' career maturity, consisting of career plans and career self-awareness, hypothesizing that students from both high SES and low SES are likely to have higher career maturity.

Research Question 2. How does family SES shape middle students' social cognitive factors, which are academic self-efficacy, educational aspiration, and career maturity, and what is the interrelation among them in the high school transition? (Fouad & Santana, 2017; Sheu & Bordon, 2017)

2.1. To what extent has family SES influenced students' academic and cognitive development (self-efficacy, educational aspiration) during middle school?

2.2. How are low- or high-SES students associated with career maturity (career plan and self-awareness) in transitioning to high school? Do socioeconomically disadvantaged students are likely to have a higher level of career maturity?

In line with the second research question, the final investigation examines how students' social cognitive career variables, interacting with their socioeconomic strata, are associated with their high transition.

Research Question 3. To what extent does SCCT produce an adequate mechanism to understand the relationship between family SES and students' high school transition (Andrew, 2017; Fouad & Santana, 2017; Hu et al., 2020)?

3.1.To what extent do socioeconomically advantaged but academically equivalent students' progress in the stratified Korean high school system interact with academic self-efficacy and educational aspiration?

3.2. How do students with high or low career maturity at the equivalent level of SES transition to high school? Are students having high career maturity but high SES and low SES likely to show different paths to transition to high school?

1.4. Objectives of the Study

The study's primary aim is to examine the applicability of SCCT in identifying the underlying mechanism of how students with different SES progress upwardly or move below in the high school hierarchy in Korea. Specifically, this study investigates how family socioeconomic backgrounds have influenced students' career cognitive elements during middle school and how these are associated with high school transition.

First, this study examines the changes in the socioeconomic gap among high school types before and after the school reform in 2010 with two national datasets in 2007-8 and 2017-8. This study investigates whether educational inequality due to socioeconomic differences among the high school types in Korea has intensified or diminished. It posits qualitative differentials among high school types in Korea and students transitioning to high school according to their SES in the high school hierarchy (Lucas & Byrne, 2017). Under this high school quality hierarchy, high-SES students will likely maintain their advantages by progressing upwardly.

Such institutional and contextual affordances may shape the way adolescents from different socioeconomic strata allocate their resources to cognitive and career development in transitioning to high school (Flores et al., 2017). In this regard, this study provides a deeper understanding of the dynamics of students' career development process interacting with family socioeconomic backgrounds. This study investigates family SES's influence on key SCCT variables, which are academic self-efficacy, educational aspiration, and career maturity, and the reciprocal relationship among them during middle school. The development of SCCT variables and the interrelationship among SCCT variables are critical since the SCCT factors predict an individual's career decision-making. Specifically, this study investigates how students from low or high SES have developed their career cognitive outcome, career maturity, before the high school transition. This study proposes that even students from low SES are likely to have a higher career maturity level to meet their current needs (e.g., obtaining a job) in recognition of their financial deficit in transitioning to high school (Hu et al., 2019)

Finally, this study identifies the underlying mechanism of how students from different socioeconomic backgrounds transition to different high school types in Korea from the SCCT perspective. In particular, this study assesses the role of career maturity, including career self-awareness and career plans, in students' educational transition to high school. This study explores the distinctive role of high career maturity to students from high and low socioeconomic status in students' high school choice. This specification could answer the dynamics in high school stratifications and an understanding of student's career decision-making process in Korea.

1.5. Significance of the Study

Educational inequalities owing to an SES gap have received great attention from researchers and policymakers. However, while many studies have found a relationship between SES and educational transitions (e.g., Andrew, 2017; Byrne & McCoy, 2017; Byun & Park, 2017), there is a dearth of studies to understand this association from an individual's career decision-making process. In other words, persistent socioeconomic disparity among educational institutions at the same level of education has long been examined, but the mechanism between family SES and students' choice of educational pathways is less understood.

In this regard, using the SCCT model, this study identifies the mechanism of how family SES has shaped students' SCCT factors and how these cognitive constructs have influenced students' high school decisions in the stratified Korean high school system. In this respect, three significances of the study were developed as follows.

With respect to the transition to high school, where there is substantial empirical evidence on the relationship between family SES and upper secondary transition (e.g., Li et al., 2019; Sirin, 2005; Duncan et al., 2015), but only a few studies investigate the trends in the disparity among high school type in alignment with education reforms (e.g., Hur, 2018; Ryu et al., 2015).

In Korea, high school has been diversified since the 2010s, and new types of high school were introduced. Such changes in high school structure could affect students' high school transition, given the strong relation of high school type in college matriculation and job prospects (Byrne & McCoy, 2017; Byun & Park, 2017). In addition, previous literature finds mixed results on familial influence on the high school reform in Korea (Hur, 2018; Ryu et al., 2016). Thus, questions remain about whether the educational disparity in high school transition owing to socioeconomic backgrounds has persisted or diminished since high school diversification in Korea. Previous studies also note that EMI research should consider the evolving school system in investigating educational disparities (e.g., Andrew, 2017). Thus, it is worth revisiting socioeconomic differences in the transition to different high school types from the EMI perspective (Byrne & McCoy, 2017). The investigation of the trends of educational disparity among high school types enhances the understanding of policymakers to provide future interventions for relieving inequality in school types. In addition, it gives the social and institutional backgrounds in the high school system, which plays a significant role in shaping students' social cognitive career elements during middle schools.

In addition, this study investigates how family socioeconomic backgrounds have shaped students' perceptions of academic self-efficacy, educational aspiration, and career maturity, which are primary elements of SCCT to understand individuals' career decisions. Flores et al. (2017) note that family socioeconomic background is still underrepresented in students' career development research and calls for more sophisticated analysis to understand the relationships between SES and career development processes and outcomes. While previous studies have investigated the relationship between SES and career development cross-sectionally (e.g., Kim et al., 2016), this study utilizes the panel data dataset that contains students' career and academic development during middle school. In this regard, this study shows how family SES have influenced students' academic and cognitive development. This study reveals the gap in verifying the reciprocal relationship among academic self-efficacy, educational aspiration, and academic achievement through its impact of family SES.

Furthermore, this study contributes to the previous literature on SCCT by identifying the association between SES and career maturity, especially for students in impoverished environments. In other words, this study seeks to determine how students in economically disadvantaged backgrounds have responded to their SES in career maturity in the transition to high school.

Scholars argue that adolescents from different SES are likely to invest their resources in career activities to meet their respective demands (Demanet & Houtte, 2017). Socioeconomic advantages for students can translate into greater interests in prestigious jobs and more education aspirations. In contrast, students in need have less control over the situation and tend to invest in immediate goals such as obtaining a job quickly and parenting earlier (Griskevicius et al., 2013; Mittal & Griskevicius, 2014). It suggests that socioeconomically disadvantaged students invest their resources in fulfilling their current needs (e.g., obtaining a job quickly) rather than long-term gains (e.g., entering a university) (Griskevicius et al., 2013; Laran & Salerno, 2013). This implies that even students in impoverished environments are likely to understand their career interests and occupational plans in response to their financial deficits

Moreover, in the Korean educational context, where the significant role of parental socioeconomic backgrounds in determining students' academic achievement has been found (e.g., Bae & Wickrama, 2015), socioeconomically disadvantaged students are unfavourable in improving academic achievement and self-efficacy, which may make them allocate their resources in career activities rather than pursuing higher education during the high school transition period. In this respect, this study hypothesized this non-linear association between family SES and career maturity that students from both high- and low-SES are likely to have higher career maturity, consisting of career self-awareness and career plan, in contrast to the extant finding of SCCT.

Finally, the extant literature on the relationship between SES and students' choice of school overlooked the role of students' cognitive and psychological aspects, which has more substantial impact than SES in determining educational transitions (Marks, 2018). However,

previous studies have not explored the mechanism of how family SES influences students' high school choices from the SCCT perspective.

In this regard, this study examines the mediating role of SCCT variables on the relationship between SES and the high school transition in Korea. Furthermore, this study explores the dynamics in career development that how career maturity with different socioeconomic backgrounds are associated with attending different high school type under the stratified high school system in Korea. In doing so, this study addresses the research gap in the literature on how family SES influences students' high school transition through students' career cognitive constructs. The findings of this study will benefit policy-making in tackling education inequality.

The underlying mechanisms for explaining how young people make educational transitions responding to their socioeconomic backgrounds have not been fully addressed in the previous literature (Andrew, 2017; Ghassemi et al., 2017). In this regard, this study aims to fill the research gap by showing how family SES has influenced students' social career cognitive development and how students' beliefs about their academic ability and career readiness are associated with the different educational pathways of high school transition. Thus, the findings of this study add to the body of literature by demonstrating that students' educational outcomes, in the form of high school choice, are a product of a stratified high school system, and their SES leads students to have different trajectories through their career cognitive development. In doing so, this study suggests practical implications for policymakers and career counselors who work for high school education by identifying which students are mostly influenced by their family SES, and understanding the high school decision-making process of students from low and high socioeconomic backgrounds.

CHAPTER II: THEORETICAL BACKGROUNDS

This chapter outlines social cognitive career theory and contextualizes it to examine the underlying mechanism of students' high school transition in Korea. The primary aim of the study is to examine the validity of SCCT in explaining the underlying mechanism of how students from different socioeconomic backgrounds transition to different high school types through personal cognitive factors. This study posits that students' high school transition is a career decision-making process, and it is predicted by key career cognitive variables (e.g., academic self-efficacy, educational aspiration, career maturity), interacting with socioeconomic backgrounds.

First, this chapter outlines the EMI theory to understand the social and institutional backgrounds of the Korean high school system. It describes qualitative distinctions, such as academic achievement and postsecondary trajectories, among high school types and perceived socioeconomic differences in the high school transition among high school types in Korea.

In addition, this study investigates how family SES has influenced students' social cognitive career constructs, which are academic self-efficacy, educational aspiration, and career maturity, during middle school to predict students' high school choice. Specifically, the section describes how middle school students have responded to their family socioeconomic backgrounds in developing their career cognitive variables, which shape the course of the high school decision process.

Finally, it briefly describes the key concept of SCCT's career choice-making model and contextualizes the model to predict students' high school transition in Korea. It aims to unravel the underlying mechanism of how students from different socioeconomic backgrounds transition to high school in the high school hierarchy in Korea from the SCCT perspective. Specifically, this study investigates the distinctive role of career maturity in different SES on high school transition.

2.1. Effectively Maintained Inequality in the Korean High School System

Quantitative educational disparity (e.g., years of schooling, level of education completed) is well-recognized. Still, relatively fewer studies have been devoted to qualitative educational inequality (e.g., academic curriculum, type of education) at the same level of education. The maximally maintained inequality (MMI) hypothesis claims that educational inequality persists if a certain level of education is not universal across different socioeconomic groups, and thus educational expansion to the level of saturation would lead to a decline in socioeconomic inequality (Hout, 2006; Raftery & Hout, 1993).

However, scholars have found that educational inequality persists in the form of qualitative differences at the same level of education (e.g., Byrne & McCoy, 2017; Guetto & Vergolini, 2017). The EMI hypothesis argues that educational inequality is maintained through qualitative distinctions in educational institutions even when a given education level is nearly universal (Lucas, 2001, 2009). In this context, socioeconomically advantaged students are more likely to boost their position in a qualitatively differentiated education system (Andrew, 2017). The scholars testing the EMI hypothesis found evidence of the significant role of family SES in transitioning different educational institutions from secondary to post-secondary education across countries, including the U.S., Germany, and Korea (Korea, hereafter) (e.g., Andrew, 2017; Byrne & McCoy, 2017; Byun & Park, 2017). In Korea, previous literature has also found evidence of significant socioeconomic differences in high school transition between academic versus vocational high school (Byun & Park, 2017; Choi, 2020).

Moreover, previous studies testing the EMI hypothesis in the context of Korea have limitations. For instance, Byun & Park (2017) only focused on high school tracks, academic versus vocational, which does not reflect Korea's recently reformed high school system. This is because the study investigated students in the 2000s when high school types had not been diversified. Since the 2010s, the Ministry of Education (MoE) in Korea has diversified high school institutions and stipulated four high school types since the 2010s: vocational, general, autonomous, and special-purpose. Previous studies also note that EMI research should consider

diversified qualitative differentials in line with the evolving school system (e.g., Andrew, 2017). Thus, it is worth revisiting socioeconomic differences in the transition to different high school types from the EMI perspective (Byrne & McCoy, 2017).

Previous studies have also found a strong relation of high school types in academic achievement and postsecondary careers (Byrne & McCoy, 2017; Byun & Park, 2017). For instance, the meta-analysis by Jang (2017) concludes that the diversified school type has widened the disparity in academic achievement. Compared to vocational and general high schools, students who entered special-purpose and autonomous high schools showed higher academic achievement after controlling initial academic ability and parental SES, which would affect the transition to postsecondary education. It suggests that students' transition to different high school type increasingly became a function of higher academic achievement.

In addition, the transition to different high school types has an effect on college admission and future earnings (Shim and Kim, 2014; Byun and Park, 2017). About 77% of students on academic tracks (general, autonomous, and special-purpose high schools) attend colleges, while only 58% of vocational high school graduates do (MoE, 2020). In addition, Korean workers with a bachelor's degree expect 56% higher income than those without a degree, which is higher than the average of OECD countries (38%) (OECD 2019). Moreover, about 39% of new students at the top universities[2] in Korea were from special-purpose high schools (20%) and autonomous high schools (19%), which only accounted for 11% of the total high school graduates in 2020 (MoE, 2021).

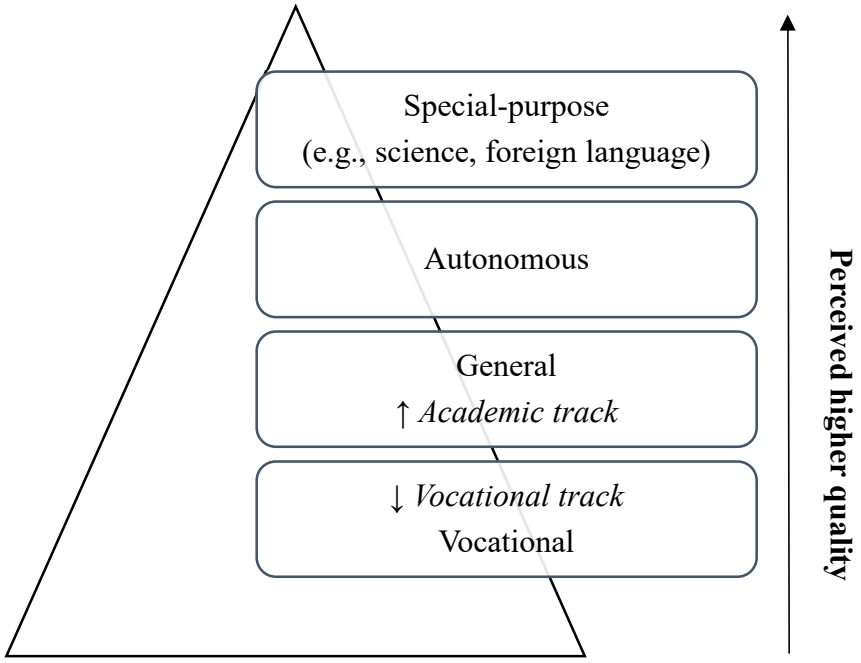
In short, the qualitative differentials among high school types are salient in Korea (e.g., Jang, 2015). In this respect, this study proposes that the high school types in Korea are perceived as hierarchically arranged (Lucas & Byrne, 2017), and these institutional and contextual backgrounds may shape the way adolescents allocate their resources to career

[2] Top universities are Seoul National University, Yonsei University, and Korea University (MoE, 2021)

development in the face of transitioning to high school (Flores et al., 2017). In this educational context, students from high socioeconomic backgrounds are able to leverage their resources to progress upwardly in the high school hierarchy (e.g. Hur, 2018).

This hierarchically arranged high school system in Korea is illustrated in *Figure 4.1*, which presents the perceived qualitative distinctions among high school types (Andrew, 2017). Specifically, this study proposes that parents and students perceive four high school types are hierarchically arranged in the order of vocational, general, autonomous, and special-purpose high school.

Figure 2.1.Hierarchically structured high school type in Korea.



Note: Reproduced from Chapter 1, Figure.1.1.

Source: Created by the author based on the model of Andrew (2017)

Under this stratified high school system, students from different socioeconomic backgrounds are able or unable to maintain their advantage to progress. For instance, students from high SES are likely to transition to autonomous or special-purpose high school.

Moreover, previous studies find that the effect of family SES disparity passes through students' cognitive outcomes (Wiederkehr et al., 2015). In this context, socioeconomically

advantaged students are likely to progress upwardly in an institutional hierarchy through a greater career interest in prestige education and higher educational aspiration (Hui & Lent, 2018). In contrast, socioeconomically disadvantaged students are placed lower in the high school hierarchy by lowering outcome expectations in education and investing more in career exploration to satisfy current fulfilment (e.g., obtaining a job quickly). Similarly, this study expects that students from low SES are more likely to choose the least selective institutions at a similar or even higher level of academic achievement, compared to students from high socioeconomic backgrounds.

2.2. Social Cognitive Career Theory

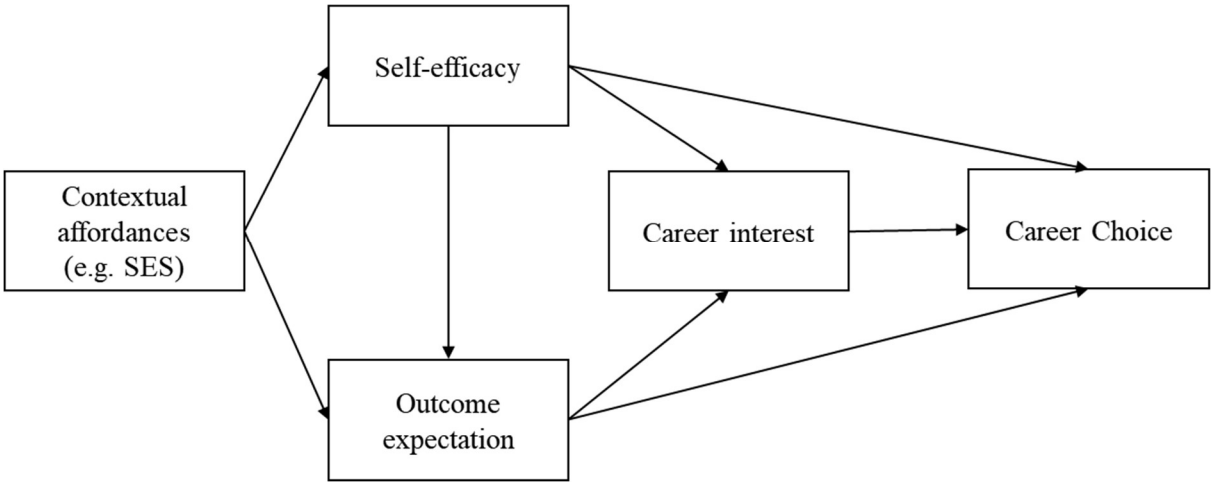
2.2.1. Social cognitive career theory

Bandura's social cognitive theory posits that human learning occurs in a social context with a dynamic and reciprocal interaction of the person, environment, and behaviours (Bandura, 2002). The theory postulates that people, as active agents, influence and are influenced by their environment (Bandura, 1999). A key construct of the theory is the idea of observational learning, which asserts that people can witness and observe others' behaviours in the learning process (Bandura, 2014). In this view, social cognitive theory highlights the reciprocal relationship between external (e.g., family, friends, schools) and internal (cognitive factors such as self-efficacy and outcome expectations) reinforcement in human achievement (Laranjo, 2016).

Derived from social cognitive theory, social cognitive career theory (SCCT) seeks to explain the career development process (e.g., Lent et al., 2000; 2010). SCCT rests on three primary social cognitive factors of career development that regulate individual career choice: self-efficacy, outcome expectations, and personal career goals or intentions (Kanny et al., 2014). Specifically, the SCCT models anticipate that enhancing self-efficacy and fostering outcome expectations lead to career interests. This, in turn, leads to career goals and decisions

(e.g., university major, occupations) (Fouad & Santana, 2017). These cognitive constructs are influenced by a border social context, including ethnicity, culture, gender, and socioeconomic status (SES). This emphasizes the complex interplay between the personal aspirations of youths in their career development and external influences which act upon them (*See. Figure 2.1*).

Figure 2.2.The SCCT model of career-related interest development and choice-making



Note: Reproduced from Chapter 1, Figure.1.2.

Source: Adapted from Lent & Brown (2019)

As illustrated in *Figure 2.1.*, SCCT postulates that self-efficacy, which refers to the belief that individuals have in their capabilities (e.g., I am good at mathematics) (Bandura, 2000), is a determinant factor of outcome expectations as people expect to receive favourable outcomes when pursuing action at which they feel efficacious. The theory further posits that people develop career interests mainly on the basis of their beliefs in their capability (self-efficacy) and the outcomes to which their efforts could lead (outcome expectation) (Lent et al., 2010). Career interests, along with self-efficacy and outcome expectations, lead people to choose or pursue their goals.

For instance, a hypothesized student receiving a good grade in mathematics is likely to have higher academic self-efficacy in math. This improved math self-efficacy reinforces the

student's expected outcome for a math-related jobs or career. This improved self-efficacy and outcome expectation lead students to invest career interests in math-related activities, consequently choosing science, technology, engineering, and mathematics (STEM)-related majors or taking related academic curricular.

On the whole, the SCCT's choice model proposes that career interests, self-efficacy, and outcome expectations are major contributors to individuals' educational and career choice (e.g., individuals' goals to pursue a particular occupational path), interacting with broader contextual backgrounds (e.g., socioeconomic backgrounds, race, gender). Thus, primary variables of interest in the current study represent SCCT variables, which collectively embody students' high school career decision-making process. Such variables include academic self-efficacy, career self-efficacy, educational aspiration, and career maturity consisting of career plans and self-regulation.

As this study examines students' high school transition, this study utilizes educational aspiration as an alternative variable of outcome expectation. Educational aspiration reflects the educational goals individuals set for himself/herself (Fraser, 2011), and thus this study postulates that educational aspiration reflects outcome expectations in education. For example, suppose students have higher outcome expectations in education. In that case, they are more likely to have higher educational aspirations, resulting in an upward transition to high school in a stratified school system. In addition, this study utilizes career maturity, comprising of students' subjective perception of career plans and career self-awareness, as career cognitive outcomes.

2.2.2. Relationship between family SES and social career cognitive factors

Pursuing career goals in SCCT is also responsive to broader social contexts such as SES and cultural backgrounds (e.g., Fouad & Santana, 2017). That is, students are prone to be influenced by contextual backgrounds in their educational and career development (Lent et al., 2010).

Previous studies show the impact of contextual affordances (e.g., socioeconomic backgrounds, gender) on students' self-efficacy and, subsequently, the influence of self-efficacy on students' academic choices and outcomes (e.g., 4-year university graduation, college major) (Brown & Lent, 2019; Honicke & Broadbent, 2016). These environmental factors vary from personal characteristics (e.g., gender, race) and school environments to family backgrounds. In short, SCCT posits that individuals react to their environment, which influences their educational outcomes such as academic performance, and career selection (Bolkan et al., 2021).

Previous studies have found significant relations between SES and social cognitive factors, including self-efficacy (e.g., Callander & Schofield, 2016), career interest (Hui & Lent, 2018), and educational and occupational goals (Flores et al., 2017). For example, the advantages provided by higher SES families can interpret as greater interests in higher prestige jobs and more access to learning. Previous studies have also found evidence that supports socioeconomic backgrounds being associated with academic performance and persistence (Wright et al., 2013), students' well-being (Ojeda & Piña-Watson, 2013), career interest and aspiration (Ali & McWhirter, 2006; R. W. Lent et al., 2010). From this perspective, young people with higher socioeconomic families are more likely to have career interests that can provide them with career exploration activities (e.g., gathering more information about schools and what jobs or education are compatible with their personal qualities and ability). This career exploration facilitates young people with career-related knowledge, skills, and resources that are likely to bring long-term, positive career consequences (Praskova et al., 2015). In this view, students with high SES have higher self-awareness of career interests and career plans. In addition, when making career selections, higher SES individuals are likely to persist with their desired goals and pursue a long-term goal.

However, Flores et al. (2017) note that family SES is still underrepresented in career development research and call for more research to understand the relationships between SES and career development processes and outcomes.

In particular, previous SCCT research has presupposed a positive association between family SES and social cognitive factors in their empirical methods despite the possibility that low-SES students are likely to invest their resources to improve career interests when making career decisions. Previous literature also suggests that adolescents from different SES are likely to invest in different career interests and activities to meet their respective needs (Hu, 2020). The psychology of working theory emphasizes that family SES shapes students' self-perceptions (e.g., self-efficacy, educational aspiration) and thereby influences career attainment (Autin et al., 2017; Duffy et al., 2016).

In this view, students who grow up in impoverished environments (e.g., lower SES families) are more likely to allocate resources to meet their immediate needs, such as obtaining a job quickly (Hu et al., 2020). When facing an impoverished environment, students may alter resource allocation decisions (Mittal & Griskevicius, 2014). This suggests that adolescents in different social strata have developed their career interests and their career choice in a different manner. In the context of perceived educational inequality in high school transition, students respond to their socioeconomic backgrounds to allocate resources for career development, which consequently influences their high school decision. For instance, socioeconomically disadvantaged students are likely to allocate their resources to career activities in a way of fulfilling their current shortages (e.g., obtaining a job quickly) (Hu et al., 2020).

In the Korean educational context, where there is significant association between parental socioeconomic background and academic achievement (e.g., Bae & Wickrama, 2015), socioeconomically disadvantaged students are unfavourable in improving academic achievement and self-efficacy, which may make them allocate their resources to career activities rather than pursuing higher educational goals during the high school transition period. In addition, scholars find that family socioeconomic disparity leads students to choose specific educational institutions based on their understanding of social class (Andrew, 2017; Guetto & Vergolini, 2017; Lucas & Byrne, 2017). In this context, low SES students are prone to accept their position in the hierarchy and develop their sense of efficacy and educational aspiration

congruent with their status (e.g., Callander & Schofield, 2016). Moreover, students in need are more likely to be interested in meeting their current needs (e.g., entering the job market earlier), which can lead them to choose vocational education by improving career maturity.

Less investigation has been conducted on the role of SES, whether and how the relationships in SCCT models might differ for young people from different SES backgrounds. Specifically, little attention has been devoted to this non-linear relationship between family SES and students' career maturity, suggesting that students from both high- and low-SES are likely to develop their career interests when facing career decisions. In this respect, this study seeks to address the gap regarding how different family socioeconomic backgrounds shape students' career cognitive elements during the high school education transition. In particular, this study proposes that students from low SES as active agents are likely to have higher career plans and career self-awareness in response to high school transition.

2.3. Transition to High School from the SCCT Perspective

Students' high school choice in Korea is the first career choice for adolescents. In addition, this choice type plays a critical role in individual and societal advances in Korea (e.g., Byun & Kim, 2010; Byun & Park, 2017; Choi, 2020). For instance, students graduating from academic high schools (e.g., general, autonomous, special-purpose high schools) have a higher probability of entering four-year universities (e.g., Byun & Park, 2017; Choi, 2020), receiving higher earnings (OECD, 2020), and taking a shorter period to search for a job (Gu, 2019) than vocational high school graduates in Korea. In addition, Jang (2017) finds a disparity in academic achievement among high school types after controlling initial academic ability and parental SES.

Such qualitative distinctions in high school types have stratified a high school system and produced socioeconomic inequality in the transition to high school. It remains in the

question how the educational disparity in high school type, owing to socioeconomic backgrounds, has affected students' career development process.

However, few empirical studies examine the role of career-related activities and social career cognitive variables in predicting high school transition in Korea. For instance, Lee and Kim (2015) argue that students in vocational high schools have a lower level of career exploration experiences than students attending general high schools. Similarly, Im (2013) suggests that students with more career counselling with teachers are more likely to attend academic high schools. However, the studies focusing on career-related programs have some limitations. They overlooked students' cognitive aspects, such as career interests and goals. According to SCCT, career interventions indirectly influence career choice through students' social cognitive career factors, including self-efficacy, outcome expectations, and career interests, which influence individuals' career decisions (e.g., college majors, occupations). In this regard, capturing social cognitive factors explains the educational transition from lower to upper secondary education.

Previous literature utilizing career cognitive variables (e.g., career maturity level, career preparation level) has found mixed results. Shim (2014) found that career maturity is not associated with high school transition, whereas Im (2013) found a significant difference in subjective career preparation between general and vocational high school entrants.

Previous studies note that adolescents recognize high school choice as a future career decision, and this decision-making process is influenced by their family SES (e.g., Byun & Jun, 2012). For instance, Kim (2012) investigates students' motives for choosing high school types and finds that students choosing a vocational high school are more likely to take into account their family financial circumstances and career choices after graduation, while students prioritize their academic interest and aptitude in high school choice are more likely to attend a special-purpose high school. It suggests that adolescents have developed their career interests and educational plan in alignment with cognizance of their socioeconomic backgrounds. From this perspective, students from higher socioeconomic backgrounds are more likely to invest in

that which can provide them with career exploration activities for higher educational attainment (Lee & Kim, 2015). This career exploration provides students with career-related knowledge, skills, and resources that will bring long-term outcomes.

In this view, students with high SES are likely to have a higher level of career interests, interacting with higher academic self-efficacy and higher expected outcomes in education. In order words, when making a high school decision, higher SES individuals are likely to persist with their desired goals in positioning themselves to progress upwardly in the high school hierarchy (e.g., special-purpose and autonomous high schools). In contrast, students with low SES allocate their resources to career exploration and pursue more short-term outcomes to satisfy their current fulfilments. Moreover, students with low SES are prone to accept their position in the high school hierarchy in Korea. In other words, the stratified high school system in Korea hinders low-SES students from progressing upwardly in the high school hierarchy. In this context, students from disadvantaged socioeconomic backgrounds seek career exploration for immediate results (e.g., obtaining a job quickly) in cognizance of their economic constraints, which may influence their high school transition.

However, previous studies have not fully applied the SCCT perspective to students' high school transition. In particular, previous studies presuppose a linear relationship between family SES and career cognitive factors in their empirical methods despite the possibility that students from low SES are likely to improve career cognitive factors in a high school career decision. In this respect, this study aims at students' choice of high school types in Korea from the SCCT perspective. This study examines how socioeconomic backgrounds have influenced the students' career cognitive constructs, including academic self-efficacy, educational aspiration, and career maturity during lower secondary education. Specifically, the relationship between family SES and each SCCT factors will be examined. In addition, the association between the developed SCCT factors and students' high school choices will be investigated.

CHAPTER III: LITERATURE REVIEW

The effectively maintained inequality (EMI) theory claims that educational inequality persists in the form of qualitative distinctions in educational institutions even when a given education level is nearly universal (Lucas, 2001, 2009). Previous studies have found significant socioeconomic differences in transitioning different educational institutions from secondary to post-secondary education across countries, including the U.S., Germany, and Korea (e.g., Andrew, 2017; Byrne & McCoy, 2017; Byun & Park, 2017). However, previous studies testing the EMI hypothesis in the high school transition have limitations. For instance, Byun and Park (2017) only focused on a high school track, academic versus vocational, which does not reflect Korea's recently reformed high school system. It remains a question whether the educational disparity in high school transition owing to socioeconomic backgrounds has persisted or diminished since the high school diversification in Korea.

In addition, researchers have called for more studies to understand the role of socioeconomic backgrounds in the career development process from an SCCT perspective (Brown & Lent, 2019). Specifically, SCCT requires a more precise articulation of how SES operates within the broader contextual affordances and how this functions within an individual's career development (Flores et al., 2017). Furthermore, researchers note that SCCT can test the educational setting as a background contextual variable to examine its effects on career development. It allows room for investigating how higher or lower SES have influenced social career cognitive predictors in high school transition in the educational context where the high school system is hierarchically structured.

With this aim, this chapter outlines the literature on students' career decision-making (high school choice) and highlights gaps in the previous literature. The chapter begins by reviewing the extant literature on the determinants in the transition to high schools in Korea from the EMI perspective. It postulates the research gaps and conceptualizes the EMI model in high school transition in Korea. Then, this study discusses the previous SCCT research and finds rooms to be filled with this study.

3.1. The Role of Family SES in Students' High School Transition in Korea

The maximally maintained inequality (MMI) hypothesis claims that educational inequality persists if a certain level of education is not universal across different socioeconomic groups, and thus educational expansion to the level of saturation would lead to a decline in socioeconomic inequality (Hout, 2006; Raftery & Hout, 1993).

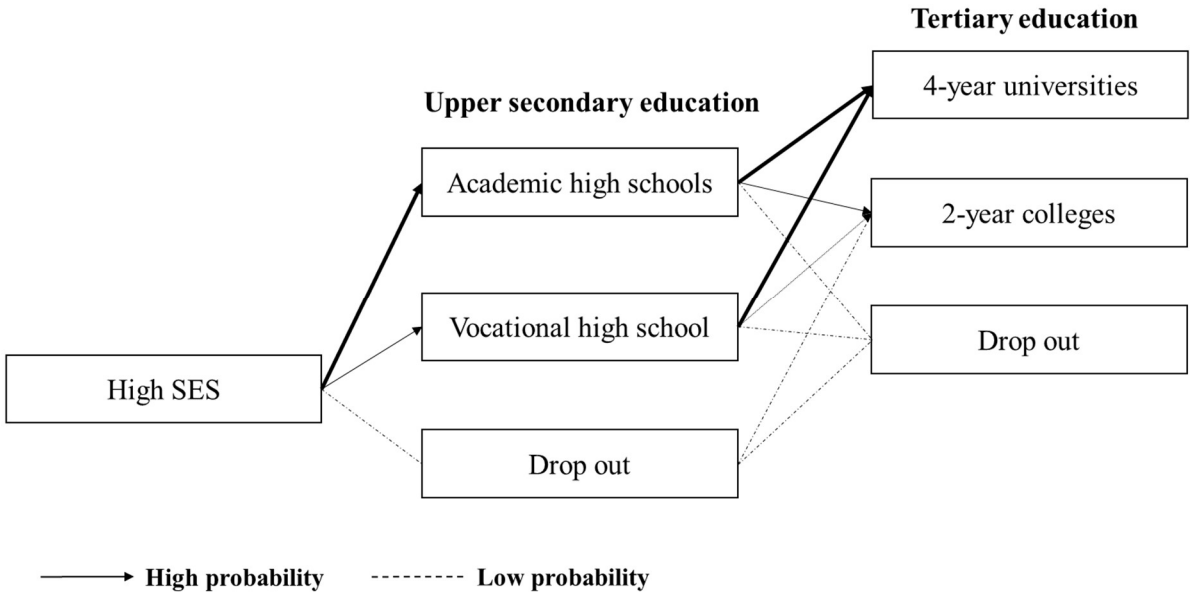
However, scholars have found that educational inequality persists in qualitative differences at the same level of education (e.g., Byrne & McCoy, 2017; Guetto & Vergolini, 2017). The effectively maintained inequality (EMI) hypothesis claims that educational inequality is maintained in the form of qualitative distinctions in educational institutions even when a given education level is nearly universal (Lucas, 2001, 2009). In this context, socioeconomically advantaged students are more likely to boost their position in a qualitatively differentiated education system (Andrew, 2017). The scholars testing the EMI hypothesis found evidence of the significant role of family SES in transitioning different educational institutions from secondary to post-secondary education across countries, including the U.S., Germany, and the Republic of Korea (Korea, hereafter) (e.g., Andrew, 2017; Byrne & McCoy, 2017; Byun & Park, 2017).

In Korea, the empirical evidence shows that socioeconomic status is transmitted from parents to children in key education transitions in the form of school types from lower to upper secondary education and upper secondary education to higher education (Byun & Kim, 2017; Choi, 2020). For instance, Choi finds that higher parental socioeconomic backgrounds and an increase in spending on private education positively correlate with entering academic high school rather than vocational high schools. Byun and Park (2016) also find that high-SES students are more likely to transition to academic high schools and enter 4-year universities in Korea.

Previous studies testing the EMI hypothesis in Korea confirm that parental SES is a major determinant of the high school track between an academic high school and a vocational

high school. Specifically, socioeconomically advantaged students are more likely to attend academic high schools, rather than vocational high schools, and enter 4-year universities (*see Figure 3.1.*) These studies highlight the significance of socioeconomic status on the key education transition and show the statistically significant socioeconomic differences among educational institutions (Byun & Kim, 2010; Byun & Park, 2017; Kim & Byun, 2007). As *Figure 3.1*. presents, students from high SES maintain their advantages by transitioning academic high schools and 4-year universities.

Figure 3.1. Flowchart showing educational pathways by family SES



Source: Created by the author based on the flowchart by Byun and Park (2017)

However, previous studies testing the EMI hypothesis in the context of Korea have limitations. For instance, Byun and Park (2017) only investigated high school track between academic and vocational tracks, which does not align with Korea's recently reformed high school system. This is because the study investigated high school transition in the 2000s when high school types had not been diversified. Since the 2010s, the Ministry of Education (MoE) in Korea has diversified high schools and has stipulated four high school types since 2010: vocational, general, autonomous, and special-purpose high schools. Such changes in high

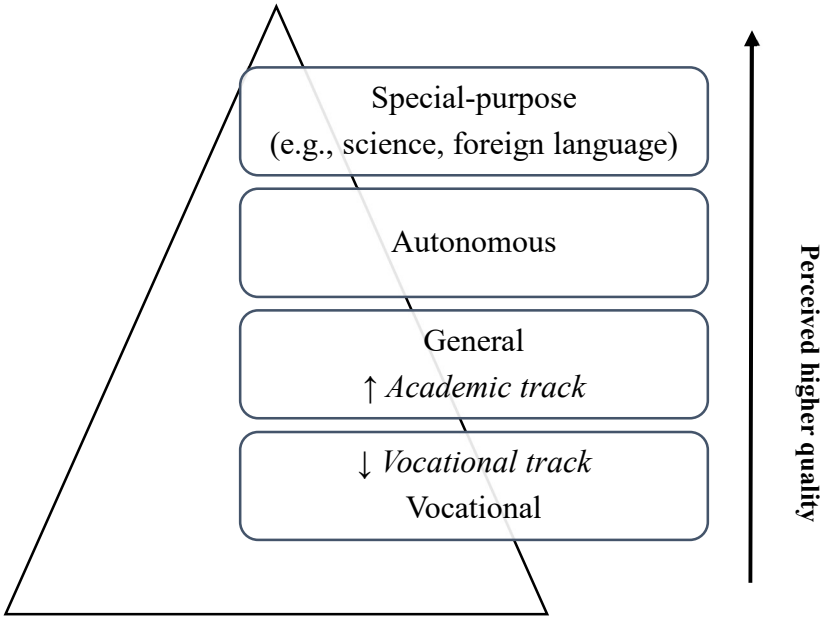
school structure could affect students' transitions, given the strong relationship between high school type and postsecondary careers (Byrne & McCoy, 2017; Byun & Park, 2017). It remains in question whether the educational disparity in high school transition, owing to socioeconomic backgrounds, has persisted or diminished since the high school diversification in Korea. Thus, it is worth revisiting socioeconomic differences in the transition to different high school types, especially in terms of EMI (Byrne & McCoy, 2017).

After the institutional change in the high school system in 2010, Hur (2019) investigated the significant changes in the role of family socioeconomic backgrounds in high school transition before and after the policy intervention of school admission and found evidence that the policy intervention shows an insignificant effect. On the contrary, the qualitative study by Back (2015) argues that the reform contributed to decreasing familial influence in the transition to high school. The mixed findings on the effect of the new high school reforms in 2010, whether the effect of family SES on students' high school choice has been diminished or intensified, leave room for further investigation in this study.

To summarize the literature on determinants in high school transition in Korea, few studies examine the changes in the role of SES in students' high school transition in alignment with educational reforms in Korea. It remains in question whether the educational disparity in high school transition, owing to socioeconomic backgrounds, have persisted or diminished since high school diversification in Korea. Such changes in high school structure could affect students' transitions given the strong relation of high school type in postsecondary career (Byrne & McCoy, 2017; Byun & Park, 2017). Previous studies also note that EMI research should consider diversified qualitative differentials in line with the evolving school system (e.g., Andrew, 2017). Thus, it is worth revisiting socioeconomic differences in the transition to different high school types (Byrne & McCoy, 2017).

Figure 3.2. presents the institutional quality hierarchy in Korea, which suggests the perceived qualitative differentials among high school types (Andrew, 2017). Under this hierarchy, students from different socioeconomic backgrounds are able or unable to maintain their advantage to progress to higher institutions. From the EMI theory, this study seeks to explore socioeconomic disparity in the transition to different high school types in the reformed institutional context of Korea. The results provide the social and institutional backgrounds for understanding students' career development in Korea.

Figure 3.2. Hierarchically structured high school system in Korea



Note: Reproduced from Chapter 1, Figure.1.1.

Source: Created by the author based on the model of Andrew (2017)

More importantly, few studies have examined the determinants of students' high school transition from a theory-driven approach in Korea. In addition, little attention has been paid to models of career development perspective that examine how students with different SES groups decide to choose their high school types. This helps to understand the underlying mechanism between family SES and the transition to high school. In this regard, this study aims to identify the underlying mechanism of how students with different socioeconomic backgrounds transition to high school in the high school hierarchy from the SCCT perspective.

Previous studies also examine individual and social contextual affordances in high school transition in Korea (*see Table 3.1.*). On the one hand, parental and individual characteristics have been examined as significant determinants of the transition to high school in Korea (Choi, 2020; Jeon, 2015). For instance, the study by Jeon (2015) finds that the influence of family SES decreased in high school transition when parental characteristics entered (e.g., parent-child engagement, parental educational support). With respect to gender, Choi (2020) proposes that vocational education better meets females' needs than males. On the other hand, psychological and social cognitive factors also play significant roles in determining students' high school type. Students' belief in their academic ability (academic self-efficacy) and higher education goals are significantly and positively associated with the transition to academic high schools (e.g., general, autonomous, special-purpose high schools) (Kim & Byun, 2007; Im, 2013).

Table 3.1. Factors utilized in high school transition in Korea

Research	Factors	Variables
Choi (2020)	Family	- Father's Income - Father's education level - Private spending on education - Number of siblings - Academic achievement
	Individuals	- Gender
Hur (2018)	Family	- Household income - Parental education level
	Individuals	- Gender - Study hours - Academic achievement
	School	- School satisfaction
Jeon (2015)	Family	- Household income - Parental education level - Dual-earner households - Private investment - Parental educational expectation - Parent-child engagement level
	Individuals	- Gender - Academic achievement - Educational aspiration
	School	- School location
Lee and Kim (2015)	Family	- Household income - Parental education level - Parental educational expectation - Parent-child engagement level
	Individuals	- Academic achievement

	School	- Career exploration experience
Shim (2014)	Family	- Household income - Parental education level
	Individuals	- Gender - Academic achievement - Learning Effort Behaviour - Career maturity level - Studying hours per week
	School	- School SES - Career education
Kim (2013)	Family	- Household income - Parental education level - Parental occupation - Parental educational expectation - Parental educational support - Parental emotional support - Private investment in education - Parental educational expectation
	Individuals	- Gender - Academic achievement - Study time per week
	School	- School location - Career counseling programs
Im (2013)	Family	- Household income - Parental education level - Parental occupation - Parental education support - Parental educational expectation
	Individuals	- Gender - Academic achievement

		- Studying hours per week - Educational aspiration - Learning motivation - Academic Self-concept - Career preparation level
	School	- School location - Teacher Career Counselling - Number of career programs
Kim (2012)	Family	- Household income - Father's education level - Single-parent family status
	Individuals	- Gender - Academic achievement - Learning attitude
	School	- School location - Career counseling programs

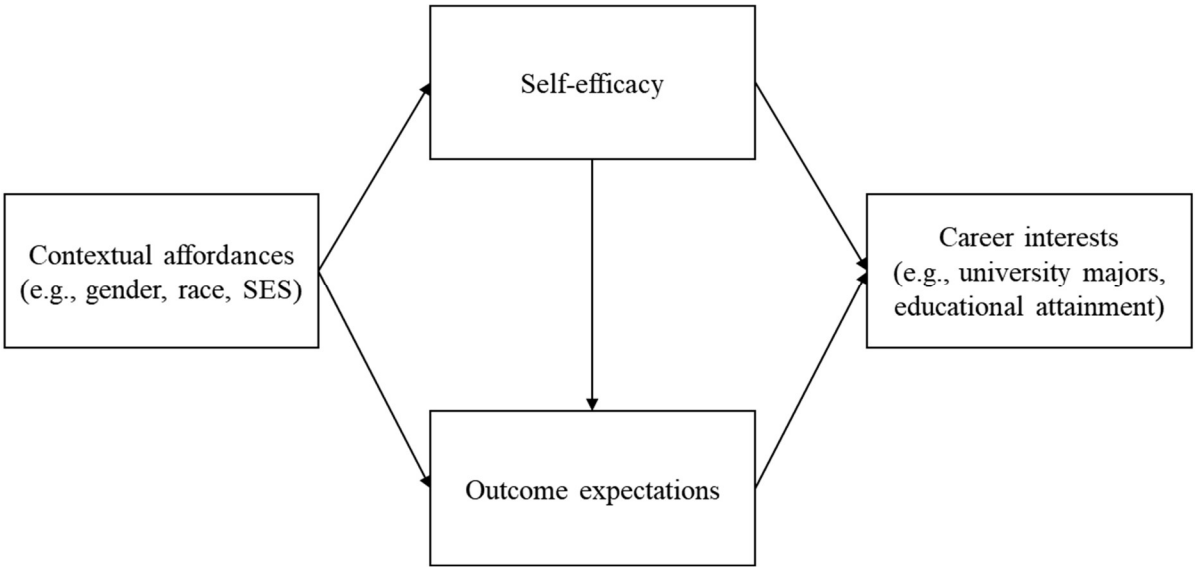
Source: Created by the author based on literature

3.2. The Relationship between Family SES and the SCCT factors

SCCT describes individuals' career development progress through three key cognitive variables (e.g., self-efficacy, outcome expectations, and goals), and these interact with broader contextual backgrounds (e.g., gender, family socioeconomic backgrounds) to shape the course of the career decision process (Lent et al., 2000).

Early work on SCCT begins with determining the association among SCCT's personal cognitive factors, including self-efficacy, outcome expectation, and career interests (Lent et al., 1994). For instance, previous literature has found that self-efficacy is a significant predictor of outcome expectations and interests (e.g., Hackett & Byars, 1996). It suggests that an individual's belief in one's ability leads to educational and occupational interests (Brown & Lent, 2019). Further research also supports the overall correlation of self-efficacy, outcome expectation, and interests (Sheu et al., 2010) (*See. Figure 3.2. below*).

Figure 3.3. The SCCT′s model of career-related interest development



Source: Created by the author based on Lent (2019)

In extending theoretical and empirical work based on SCCT's model, previous research examined the relationship between personal cognitive factors and career goals and choices (Lent et al., 2018; Lent & Brown, 2019). Lent et al. (2018) report that choice goals are related

to career interests, self-efficacy, and outcome expectations. Later, more comprehensive meta-analyses have continued to find substantial correlations. For example, correlations of interest to goals were reported in their educational goals, such as in STEM fields and 4-year university graduation (Bolkan et al., 2021; Fouad & Santana, 2017; Lent et al., 2018).

Furthermore, previous literature on SCCT seeks to identify the functions of broader contextual influences on career behavior (Lent et al., 2000) and to consider applications to diverse groups, such as women of color (Hackett & Byars, 1996) and persons with disabilities (Fabian, 2000). This focus on diversity has extended over time to encompass first-generation college students (Garriott et al., 2017), persons from lower-income backgrounds (Flores et al., 2017), underrepresented groups in science and engineering (Fouad & Santana, 2017), racial and ethnic minority groups (Fouad & Kantanmeni, 2013; Sheu et al., 2016), and students and workers from different cultures and countries around the world (Lent & Sheu, 2010; Sheu & Bordon, 2017).

The family socioeconomic background is a critical contextual affordance influencing children's educational and career development. These studies suggest that the associations of social class with various SCCT-related variables are mixed. For instance, family SES shows a positive relation with college self-efficacy (Aguayo et al., 2011) (Aguayo, Herman, Ojeda, & Flores, 2011), grade point average in colleges (GPA; DeFreitas, 2012), educational goals (McWhirter et al., 2007), and persistence in teaching career aspirations (Mau et al., 2021)(Mau & Mau, 2006).

For example, the advantages provided by higher SES families can translate into greater career interest and higher educational aspirations. For instance, Hu et al. (2020) find a significant relationship between family SES and career outcomes. This study finds that higher SES is related to more career exploration and goal persistence via lower perceived scarcity and that exploration and persistence are related to better career outcomes (perceived person-job fit). In contrast, students from lower SES are more likely to report lower person-job fit via perceiving greater resource scarcity and more likely to focus their interests and efforts on more

urgent and immediate needs (i.e., obtaining a job quickly). This study suggests the possible path of how family SES is associated with students' career cognitive variables.

On the other hand, despite the significant association between SES and the SCCT variables presented above, other research found no associations between measures of social class and SCCT variables. Specifically, SES was not significantly related to self-efficacy (Ali et al., 2005), outcome expectations (Ali et al., 2005), career interests (Tang et al., 1999), career representation (Lease, 2006), educational goals (Ali & Saunders, 2006; Gonzalez et al., 2012; Ojeda & Flores, 2008), or college persistence (Wright, Jenkins-Guarnieri, & Murdock, 2012).

In Korea, empirical studies have found a relationship between contextual affordances and SCCT variables. A systematic review by Akosah-Twumasi et al. (2018) notes that family plays a significant contextual affordance in determining adolescents' career decision-making process in Korea, given its collectivist social culture. Kim et al. (2016) aim at investigating family influence on career development in Korea, and find family support, such as family informational support and family financial support, is significantly associated with career preparation satisfaction. However, this study is constrained by data characteristics using a cross-sectional approach and an outcome variable measured by students' subjective perceptions. Lee et al. (2014) also found positive correlations among self-efficacy, interest, and academic performance in four subjects (Korean, English, science, and math). Huang and Hsieh (2011) linked family SES to SCCT factors. The results indicate that SES is significantly associated with career decision self-efficacy, but the relationship between SES and career decision-making outcome expectations was insignificant. In addition, the findings revealed that career decision self-efficacy has a direct effect as well as an indirect effect on career exploratory intentions.

Moreover, scholars find that family socioeconomic disparity leads students to choose specific types of educational institutions based on their understanding of social class (Andrew, 2017; Guetto & Vergolini, 2017; Lucas & Byrne, 2017). Specifically, empirical studies have found that low SES students are more likely to attend vocational tracks across countries, even

after controlling for academic performance (e.g., Guetto & Vergolini, 2017; Lucas & Byrne, 2017). The result suggests that the stratified education system serves to justify social inequality by transforming social class differences into personal differences. In this context, low SES students are prone to accept their position in their society's hierarchy and develop their sense of efficacy congruent with their status (e.g., Callander & Schofield, 2016).

Thus, socioeconomically disadvantaged students are more likely to have low self-efficacy, which leads to adjusting their educational goals when faced with their career choice (Hu et al., 2020). In addition, students in impoverished environments are more likely to allocate their resources to meet current needs (e.g., entering the job market) rather than long-term gains (e.g., entering a university) (Griskevicius et al., 2013; Laran & Salerno, 2013). This means that low SES students are likely to invest their resources in career interests to meet their immediate fulfillment (e.g., obtaining a job quickly), which results in transitioning to vocational high schools.

The SCCT studies posit that there is a positive and linear relationship between SES and career interests and plans (Lent, 2017), suggesting that high-SES students are likely to have higher career interests. However, previous studies suggest that even students in impoverished environments are likely to understand their career interests and occupational plans to meet their needs (Hu, 2020). Socioeconomically disadvantaged students are unfavorable in improving academic achievement and self-efficacy, which may make them invest in career activities rather than pursuing higher education in the high school transition period (Byun & Park, 2017). Moreover, students in need are more likely to be interested in meeting their current needs (e.g., entering the job market earlier), which can lead them to choose vocational high schools through improving career maturity. In this regard, this study aims at filling the aforementioned research gap by investigating the non-linear relationship between socioeconomic backgrounds and career cognitive variables.

3.3. Social Cognitive Career Theory on Career Cognitive Outcomes

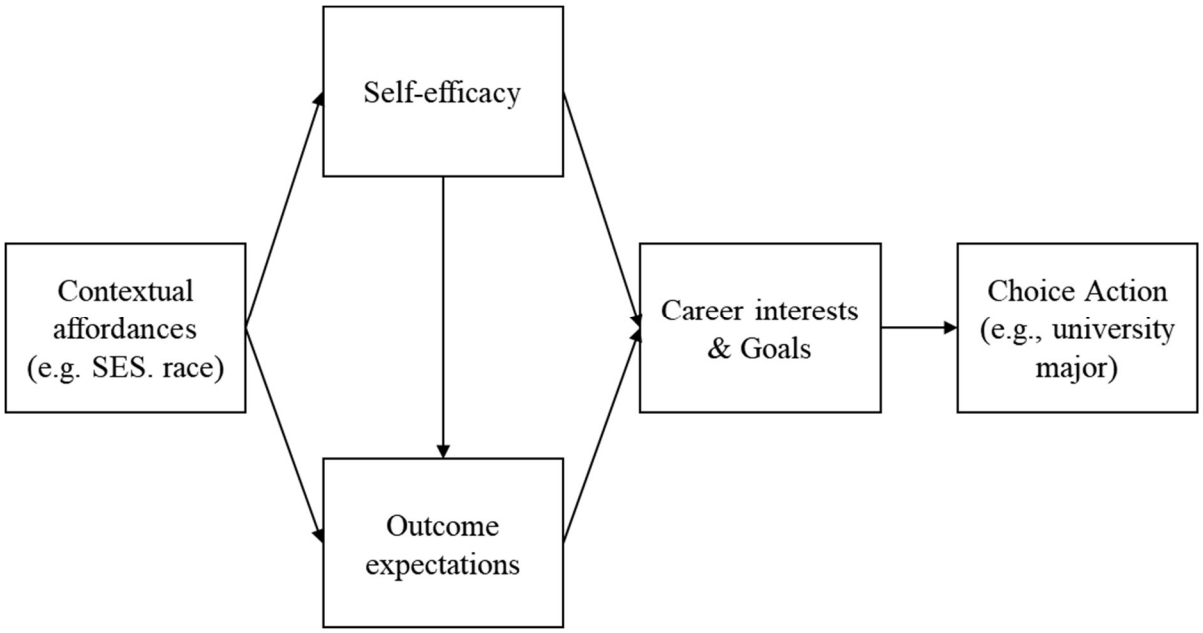
SCCT seeks to understand an individual's career decision-making process. SCCT's choice model argues that career interests, self-efficacy, and outcome expectations are major contributors to the choice goals, interacting with broader contextual affordances (Brown & Lent, 2019).

For instance, results from Bolkan et al. (2021) generally support the SCCT model in predicting students' graduation from a 4-year university. It argues that institutional support, such as academic advising, has an effect on students' 4-year graduation rates through its impact on students' self-efficacy. The limitation of this study is the reliance on institutional factors in predicting educational attainment; thus, it was not able to assess the influence of family socioeconomic backgrounds. In addition, a recent study examining the factors of STEM career interest and goals shows that both personal inputs and contextual factors have a significant direct effect on STEM career interest (Mau et al., 2021). In other words, the findings demonstrate that personal inputs and contextual factors lead to an increase in self-efficacy of Taiwanese college students, in turn developing their positive attitudes toward STEM careers. Fouad and Santana (2017) review factors explaining STEM choice among underrepresented adolescents (e.g., female, racial-ethnic minorities) from an SCCT perspective. The study linking parental support in adolescents' career development generally shows that even underrepresented students receiving parental support are associated with higher math/science interests and self-efficacy and outcome expectations (Alliman-Brissett & Turner, 2010; Garriott et al., 2013).

Figure 3.4. illustrates the notions of students' career decision-making process from the SCCT's choice framework. For instance, socioeconomically advantaged students are likely to receive more resources to improve academic achievement. This high-SES student receiving a good grade in mathematics is likely to have higher academic self-efficacy in math. This improved math self-efficacy reinforces the student's expected outcome for a math-related academic job or career. This improved self-efficacy and outcome expectation lead students to

invest career interests in math-related activities, and consequently results in choosing science, technology, engineering, and mathematics (STEM)-related majors.

Figure 3.4. The SCCT′s career choice model



Note: Reproduced from Chapter 1, Figure.1.2. by Lent & Brown (2019)

In Korea, Kim et al. (2016) investigate the family influence on career development and find that family support, such as family informational support and family financial support, with other social cognitive factors, are significantly associated with career preparation satisfaction. Psychological and cognitive factors also play important roles in the transition to high school. In general, students' belief in their academic ability (academic self-concept) and the educational goals individuals set for themselves are significantly associated with the transition to high school (Kim & Byun, 2007; Im, 2013). In addition, Shim (2014) utilized career education to explain the high school transition and found that students with a higher number of career exploration experiences and high school admission information are more likely to attend academic high schools.

The SCCT study by Lent et al. (2000) has become a major theoretical model examining factors that have contributed to the underrepresentation of women, racial-ethnic minorities, and low SES in STEM fields (Fouad & Santana, 2017; Garriott et al., 2013). Fouad and Santana (2017) review factors explaining STEM choice in underrepresented adolescents (e.g., female, racial-ethnic minorities) from an SCCT perspective. The study suggests that research on adolescents consistently finds evidence that family SES helps to promote the development of self-efficacy and outcome expectations. Within the SCCT framework, family SES is a significant contextual factor that may affect a person's career trajectory as a facilitator or hindrance.

In addition, socioeconomic advantages for students can translate into greater career interest in prestigious jobs and more education aspirations. In contrast, children who grow up in lower SES will be more alert to the threat and tend to seek immediate outcomes (e.g., obtain a job quickly; Mittal & Griskevicius, 2014). In this setting, wealthier students are more likely to progress in the high school hierarchy upwardly (e.g., autonomous, special-purpose high schools) through higher academic self-efficacy and educational aspiration. In contrast, students with low socioeconomic backgrounds are more likely to be on a vocational track to meet immediate outcomes (e.g., vocational high schools). This means that students from low SES can have higher career interests and more career plans to confront current shortages. It emphasizes the complex interplay between the personal aspirations of youths in their career choice and socioeconomic backgrounds.

However, the previous SCCT literature is limited to explaining this complexity in explaining the relationship between family SES and career cognitive factors. This is because the previous studies utilize binary (e.g., Bolkan et al., 2021) or continuous outcomes variables (Garriott et al., 2013) and estimate them with linear empirical methodologies, such as linear ordinary least square model and structural equation modeling (e.g., Fouad & Santana, 2017; Mau et al., 2021). In this respect, this study aims to fill the research mentioned above gap by investigating the non-linear relationship between socioeconomic backgrounds and career

cognitive outcomes, such as career interests and career plans. In order words, this study proposes that students from both high and low socioeconomic backgrounds are likely to have higher career interests, which affects transitioning to high school.

In a review of SCCT, Flores, Navarro, and Ali (2017) called for more research on the role of family socioeconomic backgrounds in career development and career decision. In this regard, this study seeks to address the gaps in the literature in exploring socioeconomic differences in students' career development, which influences students' high school transition. This study postulates that students' high school transition as a career choice is influenced by SCCT elements, which are academic self-efficacy, educational aspiration (outcome expectations), and career maturity. In addition, this study presumes that family SES positively or negatively influences adolescents' academic, cognitive, and career development, which influences students' high school decisions.

CHAPTER IV: KOREAN HIGH SCHOOL SYSTEM AND SCCT

From the SCCT perspective, contextual affordances, such as family socioeconomic status and institutional backgrounds, are critical factors that influence the career development process (Flores et al., 2017). On the one hand, family socioeconomic backgrounds have long been proposed as a critical contextual affordance influencing children's education and career development (Brown & Lent, 2017; Diemer & Ali, 2009). On the other hand, institutional interventions have a direct effect on career cognitive variables outcomes such as self-efficacy and academic goals (Bolkan et al., 2021).

In Korea, there were major institutional reforms in the high school system. Since the 2010s, the Korean MoE implemented the *High School Diversification Policy* with the aim of meeting the demands of educational diversification from parents and adolescents, which articulated four high school types and administered the high school admission process. Such institutional changes in the high school structure could affect students' choice given the strong relation of high school type in postsecondary careers (Byrne & McCoy, 2017; Byun & Park, 2017). In addition, previous literature finds significant socioeconomic and academic achievement differences among the reformed high school types in school admission (Byun & Park, 2017; Hur, 2018; Jang, 2015). The stratified high school institutions, owing to academic achievement and socioeconomic backgrounds, may influence students' career cognitive development during middle school. That is, students may invest their resources in different social cognitive career constructs congruent with their socioeconomic class in the high school hierarchy.

In this regard, this chapter explores the current high school system in Korea. First, it describes the major reforms in the Korean high school education system and discusses the school admission procedures for each high school type. It then presents the historical changes in the high school system in Korea and examines the educational and socioeconomic inequality among high school types. In addition, it explores how students attending different high school types are associated with prospective educational outcomes and occupational paths. Lastly, it

outlines the literature on cultural and educational backgrounds in Korea and contextualizes the SCCT constructs included in the research model for this study.

4.1. Korean High School System

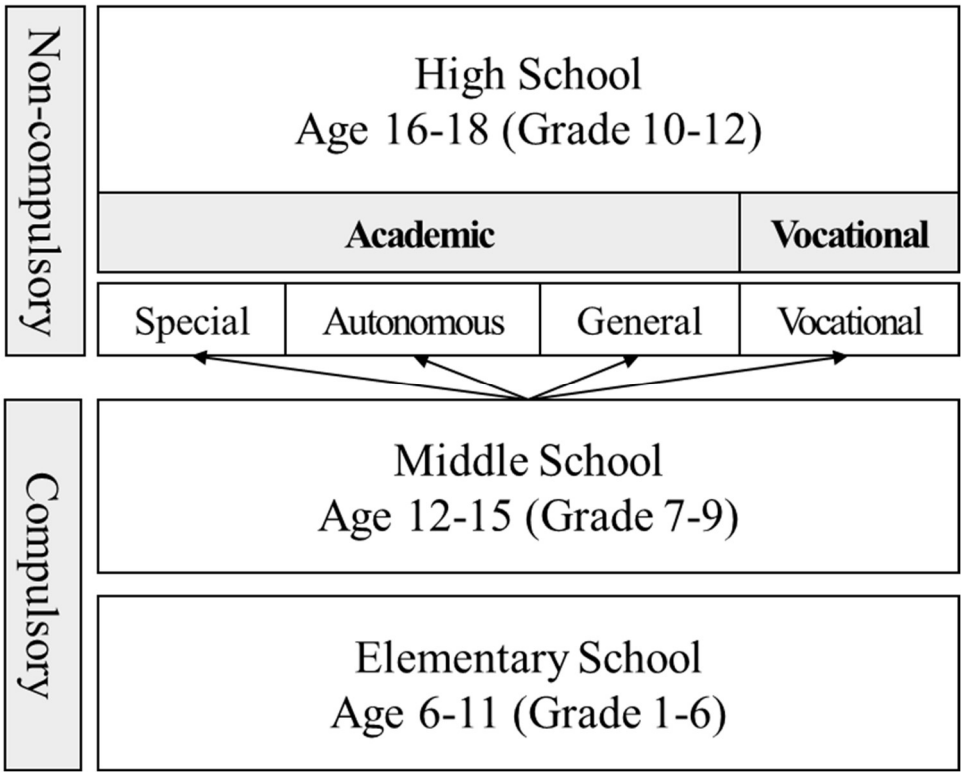
4.1.1. Korean K-12 education system

Korea follows the K-12 education system, which comprises six years of primary school (elementary education, Grades 1-6), three years of middle school (lower secondary education, Grades 7-9), and three years of high school (upper secondary education, Grades 10-12) (*see Figure 4.1. below*).

Primary and middle schools in Korea are free and compulsory, and students are automatically promoted from primary schools to middle schools. On the whole, primary school graduates are enrolled in middle schools based on their place of residence and receive uniform education (Korea Educational Development Institute (KEDI), 2010). Almost all children complete primary and middle school, with enrolment rates rising to about 95% since the 1990s (Korean National Statistical Office, 2021). In addition, the educational transition from elementary to middle schools is closely universal, with the transition rate reaching 99% since the 2000s.

On the other hand, high school is not compulsory, and small tuition is charged. Korea has shown a nearly universal transition from lower to upper secondary education since the 1990s (*see Appendix 1*). Less than 0.3 % of students did not transition to high school from middle school (MoE, 2021).

Figure 4.1. Korean K-12 education system



Source: Created by the author based on the Korean Ministry of Education (2010)

4.1.2. High school system in Korea

High school types after the reform in 2010

Before the reform in the late 2000s, students were generally selected from two types of high schools: vocational and academic high schools. The Korean MoE implemented the '*high school diversification policy*' with the aim of meeting the demands of educational diversification from parents and adolescents beginning in the 2010s (MoE, 2010). Accordingly, a new type of high school, autonomous high school, was introduced and more special-purpose high schools have been established to satisfy students' aptitudes and career interests (Choi & Kim, 2017).

In line with this, the MoE categorized high schools into four types: vocational, general, autonomous, and special-purpose high schools (*see Table 4.1*). Accordingly, the MoE regulated the admission process by high school type. Vocational high schools develop

vocational skills (e.g., agriculture, engineering, cosmetology), while the latter three are generally classified as academic high schools to prepare for entering college.

Table 4.1. Korean high school type after the reform in 2010

Type	Special-purpose	Autonomous	General	Vocational
Track	Academic			Vocational
Subtype	Science, foreign languages, international	Private or public high school	General	Engineering, agriculture, design, fisheries, etc

Source: Created by the author based on the Korean Ministry of Education (2010)

First, vocational high schools develop specific occupational skills, including engineering, agriculture, and animation. About 16 percent of high school students were enrolled in 2020 (about 490 high schools, 0.2 million students attended) (*see Table 4.2*).

General high schools offer an advanced education with elective courses and are perceived as college preparatory schools, which account for 72% of high school students in 2020 (about 1,573 general high schools attended by 1.3 million students) (Korean Ministry of Education 2020).

Third, autonomous high schools consisting of autonomous private high schools and autonomous public high schools are granted a certain level of autonomy in school management and academic curricula, which follow the Charter School System in the United States (8% of the total high school students enrolled) (Park 2016).

Finally, special-purpose high schools were originally established for gifted students in the field of math & science, foreign language, and art. About 5% of high school students attended special-purpose high schools in 2020 (160 institutions nationwide attended by approximately sixty-five thousand students).

Table 4.2. The number of high school and students by type in 2020

Type	Number of schools	Ratio	Number of students	Ratio
Vocational	489	21%	212,294	16%
General	1,573	66%	958,108	72%
Autonomous	145	6%	102,417	8%
Special-purpose	160	7%	64,493	5%
Total	2367	100%	1,337,312	100%

Source: Korea Educational Development Institute (2020), Educational Statistical Yearbook

In the last year of middle school, students can choose high schools, but school admission differs by high school type. Students are able to choose their high school tracks between academic high schools (e.g., general, autonomous, special-purpose high schools) and vocational high schools, but admission to autonomous and special-purpose high schools is primarily determined by middle school academic performance.

Autonomous and special-purpose high schools require students' academic records, such as academic transcripts and cover letters, to select students, while general high schools generally assign students based on their place of residence and their preferences. Vocational high schools also require students' academic performance, but six out of ten vocational high schools have failed to recruit their quota. The details of the school admission process will be discussed in the following section.

4.2. Historical Changes of High School System in Korea

4.2.1. Three major historical changes in high school education in Korea

In Korea, high school education has received great attention from policymakers and parents as it is an initial career decision for adolescents (Gil & Yun, 2015). Historically, high school type has been perceived as a critical pathway for determining higher education and job prospects in the future (OECD, 2021; Choi, 2020).

The MoE of Korea has reformed high school types and their admission procedures according to the demands of parents and students for high school education. There have been three major structural reforms in the high school system in Korea (Back et al., 2015).

Before the 1970s, there were two types of high schools, academic and vocational high schools, and each high school had separate admission procedures and requirements (Ryu, 2015). During this period, students could apply for any high school regardless of their residential areas. However, such high school admission procedures led to intensifying competition for high school entrance and increasing household spending on private education, which raised criticism that the school admission process encouraged inequality of educational opportunities given the strong relation of family SES on students' academic achievement.

To address the challenges, the Korean government implemented high school reform in the mid-1970s, the so-called *High School Equalization Policy*, which assigned students based on their residential area and abolished school entrance examinations from Seoul to other regions. In general, there were two types of high schools: vocational and academic high schools. In this period, students who wished to attend academic high schools were assigned based on their residential area, while students who desired to attend a vocational track were able to apply for vocational schools regardless of their residential area.

The final high school structural reform, *High School Diversification Policy*, initiated in the late 2000s, aimed to satisfy parents' and adolescents' diversified educational demands (MoE, 2010). The reform of high schools aimed to revamp the uniformly standardized high school

system to a deregulated and diversified system emphasizing school choice and competition (Oh, 2011). In addition, it allows schools to have a certain level of autonomy in academic auricular and school management to improve institutional diversity and school effectiveness. In doing so, the diversified high schools provide an educational service based on consumers' (e.g., parents, students) demands.

Accordingly, a new type of high school, autonomous high school, was introduced and more special-purpose high schools have been established to satisfy students' aptitudes and career interests (Choi & Kim, 2017). In line with this, the MoE categorized high schools into four types: vocational, general, autonomous, and special-purpose high schools, and administered the admission process.

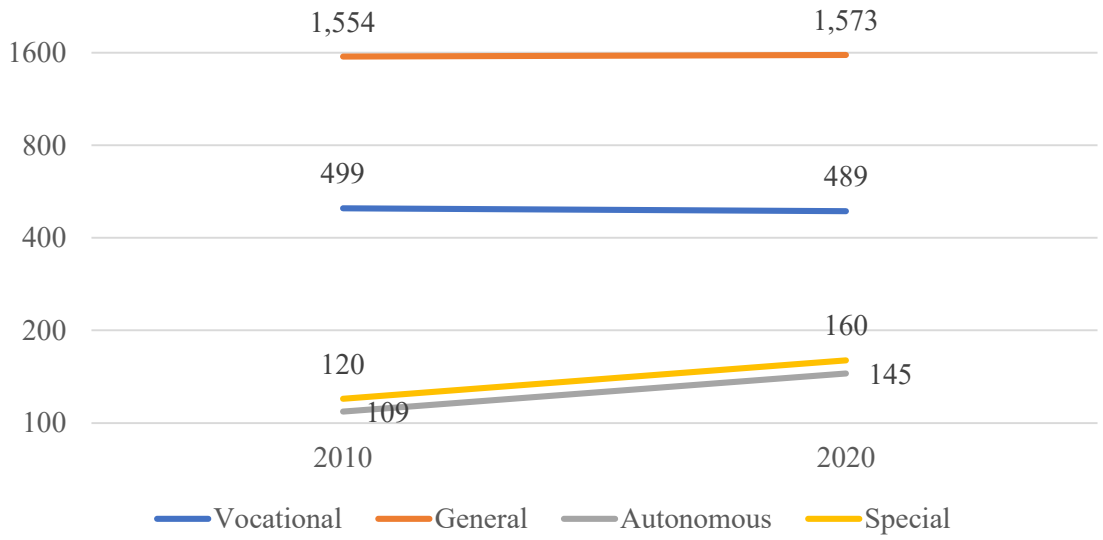
Autonomous high schools, consisting of autonomous private high schools and autonomous public high schools, allow a certain level of autonomy in academic curricula. The nature of autonomous high schools is similar to the Charter School System in the U.S, which are privately owned and managed schools funded with public funding.

In addition, more special-purpose high schools have been established for gifted students in sciences, languages, and arts. Special-purpose high schools are perceived as usually highly selective and prestigious educational institutions and has better quality of academically oriented programs and higher educational prospect (Kim & Shin, 2012; Oh, 2011).

High school supply and demand after the *High School Diversification Policy*

As *Figure 4.2.* below shows, more autonomous- and special-purpose high schools have been introduced, while some vocational high schools have been closed. As a result of the high school diversification policy, the proportion of vocational high schools and general high schools has dropped by about two percentage points while the number of autonomous high schools and special-purpose high schools has been increased.

Figure 4.2. Changes in the number of high schools by school type.



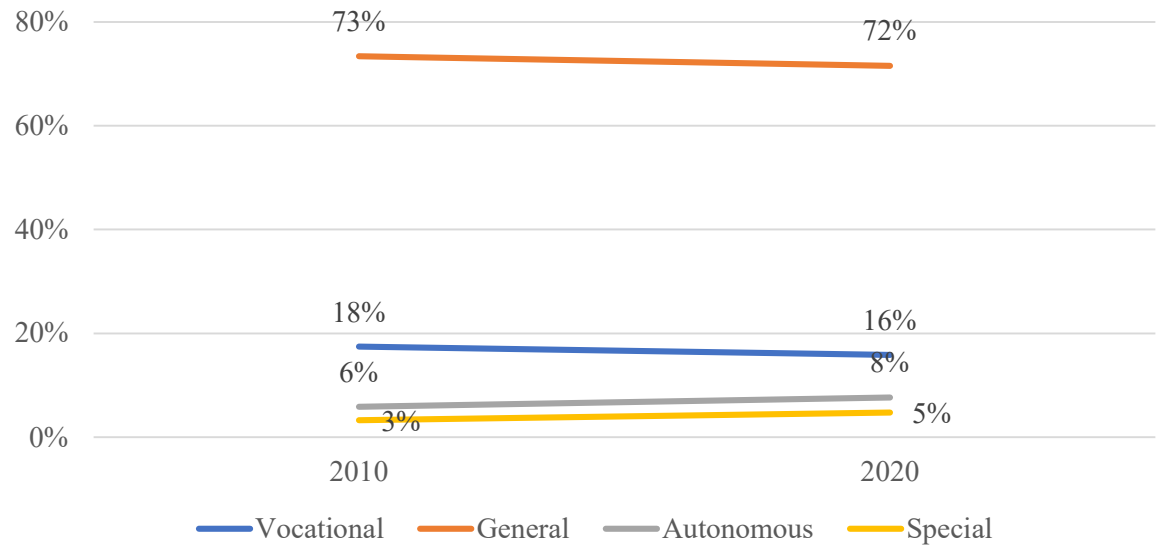
Type/year	2010 (a)		2020 (b)		Change (b-a)	
	Freq	%	Freq	%	Freq	%P
Vocational	499	21.9	489	20.7	-10	-1.2
General	1,554	68.1	1,573	66.5	19	-1.6
Autonomous	109	4.8	145	6.1	36	1.3
Special	120	5.3	160	6.8	40	1.5

Source: Korea Educational Development Institute (2020), Educational Statistical Yearbook

From the demand side, the proportion of students attending general high school and vocational high school has declined, while the proportion of autonomous high school and special-purpose high school has been increased (*see Figure 4.3*). In line with the high school diversification reform, more autonomous and special purpose high schools have been established since 2000s.

In addition, the proportion of general high school students has declined, although more general high schools were introduced in 2020. In contrast to enrolment growth in autonomous and special-purpose high schools, general and vocational high schools have declined.

Figure 4.3. Changes in the number of students by high school type



Type/year	2010 (a)		2020 (b)		Change (b-a)	
	Freq	%	Freq	%	Freq	%P
Vocational	340,227	17.5	212,294	15.9	-127,933	-1.6
General	1,425,882	73.4	958,108	71.6	-467,774	-1.7
Autonomous	113,962	5.9	102,417	7.7	-11,545	1.8
Special	63,727	3.3	64,493	4.8	766	1.5

Source: Korea Educational Development Institute (2020), Educational Statistical Yearbook

Moreover, the recruitment rate for vocational high schools has plunged by 88 percent in 2020 (Seoul Metropolitan Office of Education, 2021). According to the statistics from the Seoul Metropolitan Office of Education (2021), six out of ten vocational high schools failed to recruit their quota.

Similarly, the application rate for new students has also continuously fallen in recent years. If applicants are not accepted to a high school they have applied to, they are assigned to general high schools according to their place of residence. Overall, it indicates that parents and students prioritize autonomous high schools and special-purpose high schools in high school transition in Korea (*see Figure 4.3.*).

4.2.2. High School Admission Reform in 2010 'Self-regulated Learning Admission'

Along with high school reforms in Korea, the MoE has regulated the school admission process. Autonomous and special-purpose high schools are allowed to select applicants based on students' academic performance during middle school, school entrance examinations, and contest awards.

However, this school diversification policy has faced criticism for increasing private education spending and excessive competition with entering autonomous and special-purpose high schools (e.g., Byun & Kim, 2010). In particular, students who would like to choose autonomous and special-purpose high schools compete for the limited high school admission quota. Special-purpose high schools and autonomous high schools require applicants to submit grade point averages (GPA), contest awards, and test awards, and also need to take a separate entrance examination prepared by each school (*see Table 4.2.*). Moreover, the entrance examination at each autonomous and special-purpose school exceeds the level of lower secondary education, which has provoked criticism intensifying the reliance on private education and exacerbating high school stratification in school admission according to parents' socioeconomic resources (Hur, 2018).

To relieve the intense competition and heavy reliance on private education to enter autonomous and special-purpose high schools, the Korean MoE introduced the school admission reform in 2011, "*Self-regulated Learning Admission (SLA)*" (KEDI, 2015). This reform abolished several admission requirements to reduce private spending on education and to relieve the stratified high school system owing to socioeconomic status and academic achievement (MoE, 2011).

As *Table 4.2.* shows, the key reform in 2010 abolished the entrance exams in special-purpose high schools and autonomous high schools. Autonomous high schools in Seoul randomly select applicants, while autonomous high schools outside of Seoul require academic

performance during middle school for school admission. This reform focuses on achieving equal opportunities in school choice rather than reducing educational inequality.

Previous studies have found mixed results in analyzing the outcomes of the reform. Back et al. (2015) found that the reform has contributed to reducing the reliance on private spending on education with the focus group interview, but the empirical result by Hur (2018) found an insignificant effect of the SLA on reducing private spending.

Table 4.3. High school admission requirements before and after the reform in 2010

School Type	Before 2010	After 2010
Special-purpose	• Contest awards • Entrance examination • GPA • Interview	• GPA + Cover letter • Interview
Autonomous		• Seoul: Lottery + Interview • The rest: GPA + Interview
General	• GPA • Residential areas	• GPA • Residential areas
Vocational	• GPA	• GPA

Source: Created by the author based on Back et al. (2015)

High school admission process since the 2010s

To summarize the high school admission process, high school admission is held twice a year during the first and second semesters of the third year of middle school. In the first period, students are allowed to apply to one high school among special-purpose high schools, autonomous private high schools, and vocational high schools. If students are not accepted to a special purpose school in the first semester, they are eligible to apply to high schools in the second semester.

In the second half, students are able to choose general, autonomous high schools and international and foreign language high schools (special-purpose high schools). In the second

period, students submit their applications based on their preferences for schools, and if they are not accepted, they are assigned to general high schools according to their region.

As noted, vocational high schools also have admission procedures such as requiring academic performance, but students can enter most vocational high schools due to the low competition rate. Thus, this study posits that attending vocational, autonomous, and special-purpose high schools reflects students' career interests, goals, and choices.

4.3. Persistent Educational Inequality in High School System in Korea

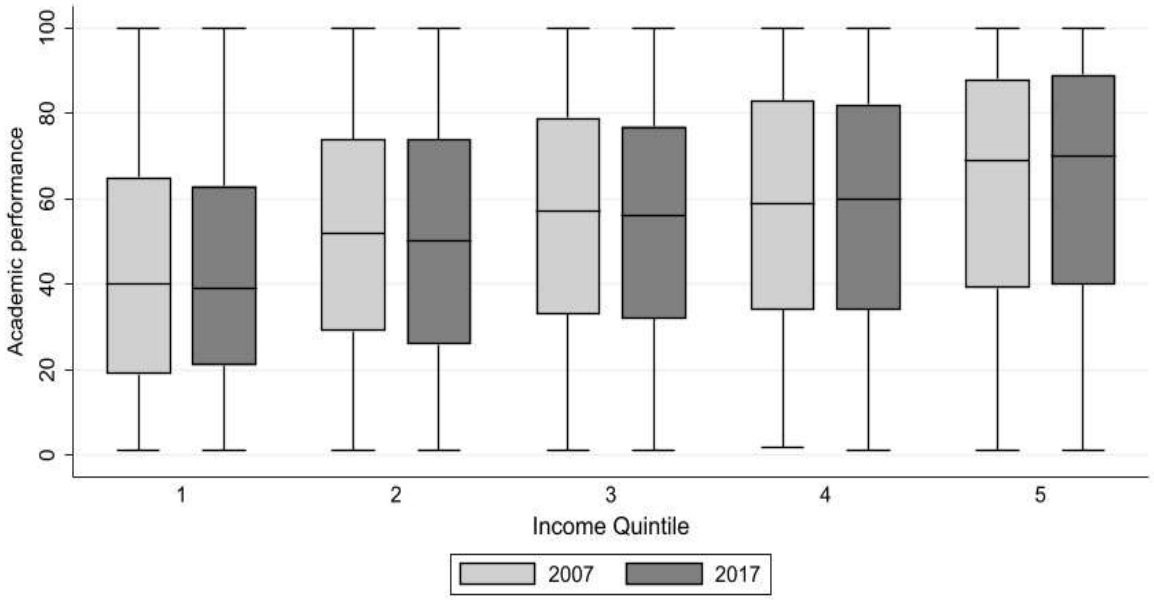
The primary aim of this study is to examine the suitability of SCCT in explaining the underlying mechanism of how students with different socioeconomic backgrounds transition to different high school types within the high school hierarchy in Korea. This study postulates persistent socioeconomic differences among high school types (Lucas & Byrne, 2017), and these institutional and contextual backgrounds may shape the way adolescents allocate their resources to career development in transitioning to high school (Flores et al., 2017). This part depicts the strong relation of socioeconomic disparity in academic achievement as well as in the high school system in Korea.

4.3.1. Persistent disparity in academic achievement in Korea

Scholars have found evidence that academic performance is strongly associated with family SES (e.g., Byun and Kim, 2010; Chang and Sohn, 2000; Park, 2007). The empirical studies also provide the support that familial influences, such as parental socioeconomic status and parental support, have a significant influence on students' academic performance and their career choices in Korea (e.g., Choi & Kim, 2013; S. Kim et al., 2016a; K. H. Lee, 2001; Rodríguez-Hernández et al., 2020). For instance, a cross-national study by Lee and Kang (2010) finds that the influence of family support on students' academic achievement in Korea is higher than in China and Japan.

Figure 4.4. utilizes the parents' and students' information from the survey of two waves of KEL from the 2000s and 2010s. It presents that students with higher income levels are more likely to have higher academic achievement levels, and this association is persistent and consistent from the 2000s to 2010s. The result shows that academic achievement is likely to increase with a higher income quintile.

Figure 4.4. Academic achievement by income quintile.



Source: the author created by Korean Education Longitudinal Study (2019)
Note: The 1st is the lowest income quintile and the 5th income quintile is the highest. Academic achievement between each cohort was separately converted into a percentile.

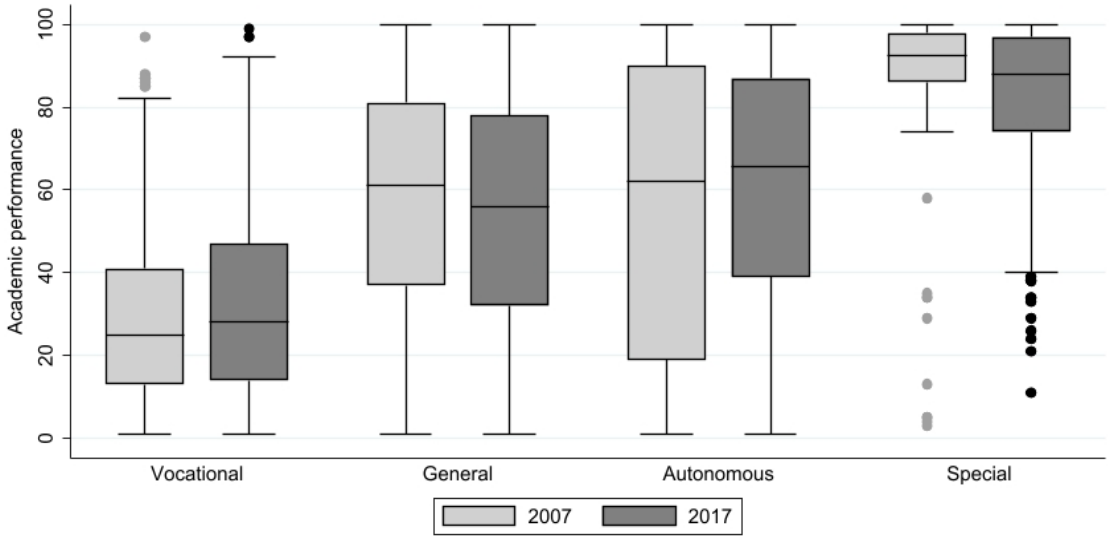
Considering the strong relation of socioeconomic background to academic achievement (see Park, 2007), this study expects that a socioeconomic disparity is also evident among high school types as school admission to autonomous and special-purpose high schools is mainly determined by students' academic performance during middle schools (e.g., Bae & Wickrama, 2015; Byun & Kim, 2010).

4.3.2. Academic achievement gap and socioeconomic differences in high school type

Concerning the educational transition to high school, high school admission is largely determined by academic achievement during middle school (e.g., Byun & Kim, 2012). As a result, there is a significant achievement gap between academic and vocational high schools. Previous studies also argue that requiring academic performance for admitting autonomous and special-purpose high schools has resulted in significant academic achievement disparity among school types (Im, 2013; Byun & Park, 2017)

Using two waves of the Korean Education Longitudinal Study (KELS) in 2007 and 2017, *Figure 4.5.* shows academic achievement in the third year of middle school among high school types, and it shows the academic achievement gap in four high school types. The average academic achievement was in the order of vocational high school, general high school, autonomous high school, and special-purpose high school in both cohorts. This figure shows that the academic achievement gap among high school types is consistent from the 2000s to the 2010s.

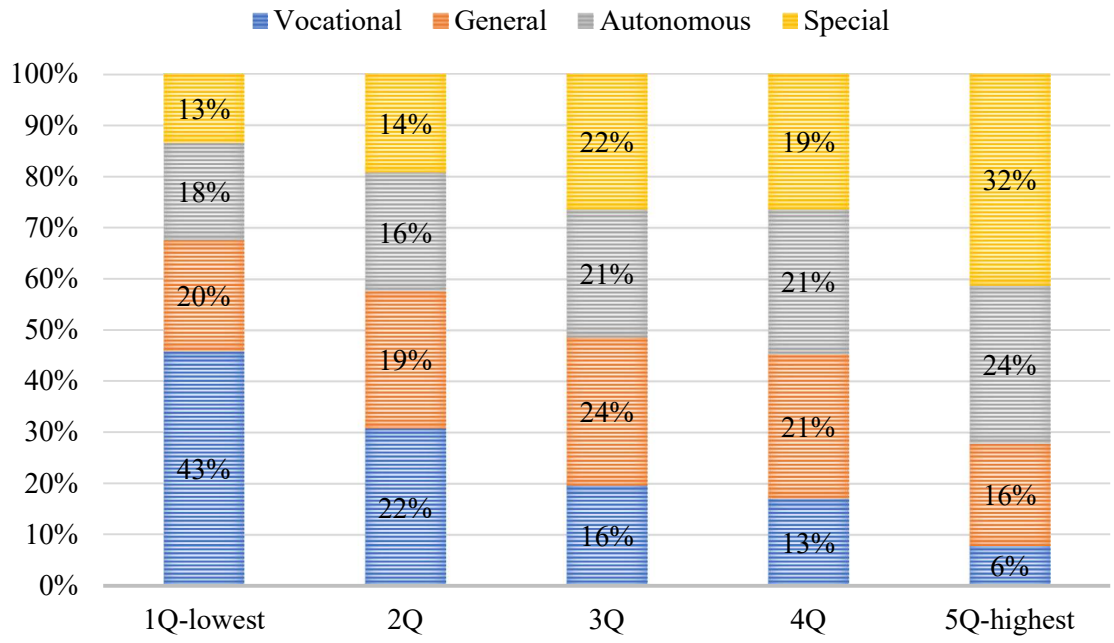
Figure 4.5. High school type by academic achievement in the 3rd year of middle schools



Source: Created by the author based on Korean Education Longitudinal Study (2019)
Note: The 1st is the lowest income quintile, and the 5th income quintile is the highest. Academic achievement between each cohort was separately converted into a percentile.

Given the strong relation of socioeconomic background to academic achievement (see Park, 2007a), a socioeconomic gap is also evident among high school types in Korea (Byun & Kim, 2010; Choi, 2020). Using the second wave of KELS, *Figure 4.6* shows that about forty-three percent of students in the bottom income quintile attend vocational high schools, while one-third of students in the top income quintile enroll in special-purpose high schools. It shows that students with higher SES have a better academic outcomes and show better upward mobility in the high school institutional hierarchy (Andrew, 2017).

Figure 4.6. Proportion of students attending high school by income quintile



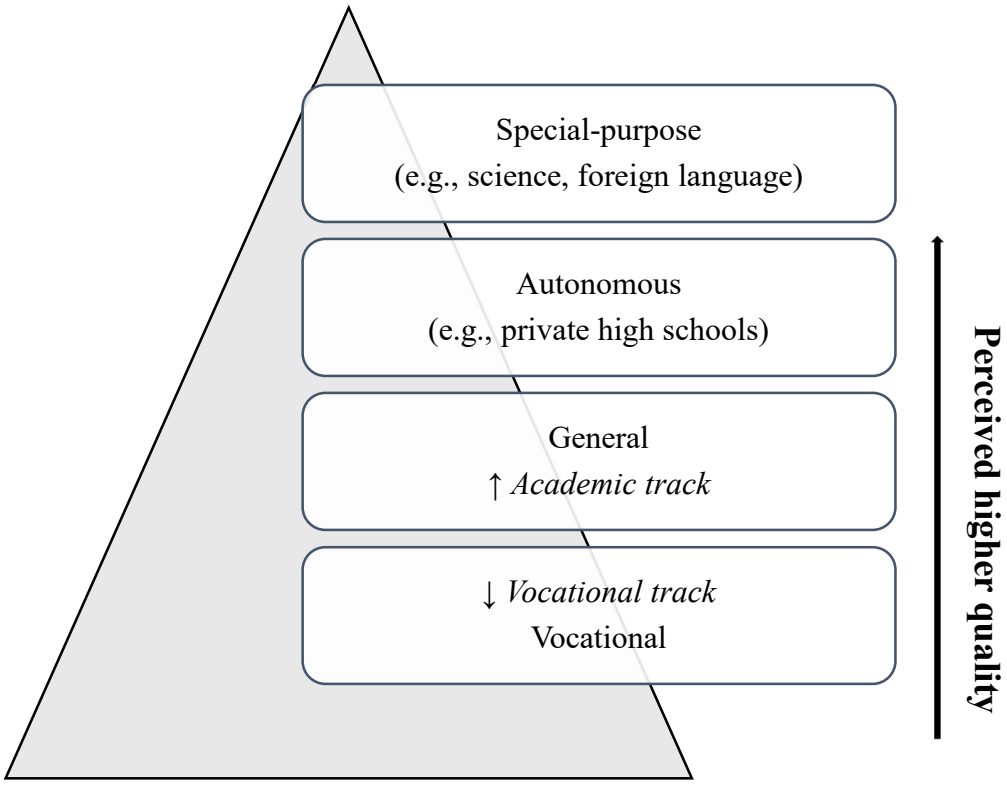
Source: Korean Education Longitudinal Study (2019)
Note: 1Q equals the lowest income quintile, 5Q equals the highest income quintile

Given socioeconomic and academic achievement disparities among high school types, this study proposes that the high school types are hierarchically arranged (*see Figure 4.7*), which presents the perceived qualitative distinctions in high school types (Andrew, 2017).

Under this stratified high school system, students from different socioeconomic backgrounds are able or unable to maintain their advantage to progress upwardly in the high

school hierarchy. For instance, students from high SES are more likely to move higher in the high school hierarchy in Korea. In addition, family SES shapes the way students invest their resources when transitioning to high school. In this stratified high school system, socioeconomic disparity influences students' social career cognitive constructs and, consequently, influences students' high school choices.

Figure 4.7. Hierarchically arranged high school type in Korea



Note: Reproduced from Chapter 1, Figure.1.1

Source: Created by the author based on the model of Andrew (2017)

4.3.3. Descriptive statistics on socioeconomic differences among high school types

This part descriptively explores differences in students' socioeconomic backgrounds in transitioning to different high school types with the population of the second wave of KELS, which includes students' 2017 and 2018 information. *Table 4.4.* presents the proportion of students transitioning to different high school types by categorizing socioeconomic variables using the 2nd wave of KELS. Of 3,598 middle school graduates, 12% of students attend vocational high schools, while 87% attend academic high schools (75% general high schools, 10% autonomous high schools, and 3% special-purpose high schools).

The transition matrix shows socioeconomic differences in the four high school types. The proportion of students attending vocational high schools increases with lower socioeconomic backgrounds, such as lower parental education levels and poorer income quintile. For instance, about 47% of vocational high school students are from low-SES groups, while only 8% of special-purpose high school students are. On the contrary, more than half of the students attending special-purpose high schools come from high-SES groups (52%).

With respect to socioeconomic variables, of the 474 vocational high school students, 40% of students are from the lowest income quintile, which is substantially higher than other high school types. The proportion of students in the lowest income quintile in transition to high school decreases in the order of vocational high school (40%), general high school (19%), autonomous high school (17%), and special-purpose high school (10%).

Similarly, 78% of vocational high school students had fathers who completed two-year colleges or less, whereas only 25% of special-purpose high school students did. Similarly, six out of ten students attending vocational high school had a mother who completed secondary education or less, while 16% of special-purpose high school students had. The proportion of attending special-purpose high schools among students whose fathers completed 4-year university or higher is three times higher than their counterparts whose fathers had secondary education or less (75%, and 22%, respectively). As illustrated, highly perceived school types,

such as autonomous and special-purpose high schools, show a higher share of socioeconomically advantaged students.

Overall, the descriptive statistics show socioeconomic differences in the transition to different high school types. A larger proportion of high-SES students attend autonomous or special-purpose high schools, while students from low SES are more likely to enter vocational high schools. An increasingly higher proportion of high-SES students from vocational high schools to special-purpose high schools supports the EMI hypothesis that socioeconomically advantaged students obtain advantages in an institutional hierarchy (e.g., Andrew, 2017; Byun & Park, 2017; S. Choi, 2020; Lucas, 2009).

Table 4.4. Transition matrix for high school transition by SES factors

		Vocational	General	Autonomous	Special-purpose	Total
SES						
Low SES	N	224	684	73	9	990
(Bottom 25th percentile)	%	(47.26)	(22.99)	(18.39)	(8.04)	(25.01)
Middle SES	N	212	1548	185	45	1990
	%	(44.73)	(52.03)	(46.6)	(40.18)	(50.28)
Top SES	N	38	743	139	58	978
(Top 25th percentile)	%	(8.02)	(24.97)	(35.01)	(51.79)	(24.71)
Income quintile						
Q1-lowest	N	190	556	67	11	824
	%	(40.08)	(18.69)	(16.88)	(9.82)	(20.82)
Q2	N	99	562	61	16	738
	%	(20.89)	(18.89)	(15.37)	(14.29)	(18.65)
Q3	N	85	716	84	25	910
	%	(17.93)	(24.07)	(21.16)	(22.32)	(22.99)
Q4	N	49	448	52	11	560
	%	(10.34)	(15.06)	(13.1)	(9.82)	(14.15)
Q5-highest	N	51	693	133	49	926
	%	(10.76)	(23.29)	(33.5)	(43.75)	(23.4)
Father's education						
Secondary or less	N	269	1015	110	13	1407
	%	(56.75)	(34.12)	(27.71)	(11.61)	(35.55)
2-year colleges	N	101	648	74	15	838
	%	(21.31)	(21.78)	(18.64)	(13.39)	(21.17)
4-year university or higher	N	104	1312	213	84	1713
	%	(21.94)	(44.1)	(53.65)	(75)	(43.28)
Mother's education						
Secondary or less	N	295	1250	144	18	1707
	%	(62.24)	(42.02)	(36.27)	(16.07)	(43.13)
2-year colleges	N	100	744	92	23	959
	%	(21.1)	(25.01)	(23.17)	(20.54)	(24.23)
4-year university or higher	N	79	981	161	71	1292
	%	(16.67)	(32.97)	(40.55)	(63.39)	(32.64)
Total	N	474	2975	397	112	3958
	%	(11.98)	(75.16)	(10.03)	(2.83)	(100)

Source: Created by the author from Korean Education Longitudinal Study (2019)

4.3.4. High School transition and postsecondary trajectories

In Korea, students' decision on the type of high school is also significantly associated with high school academic achievement and postsecondary career (Shim and Kim, 2014; Byun and Park, 2017).

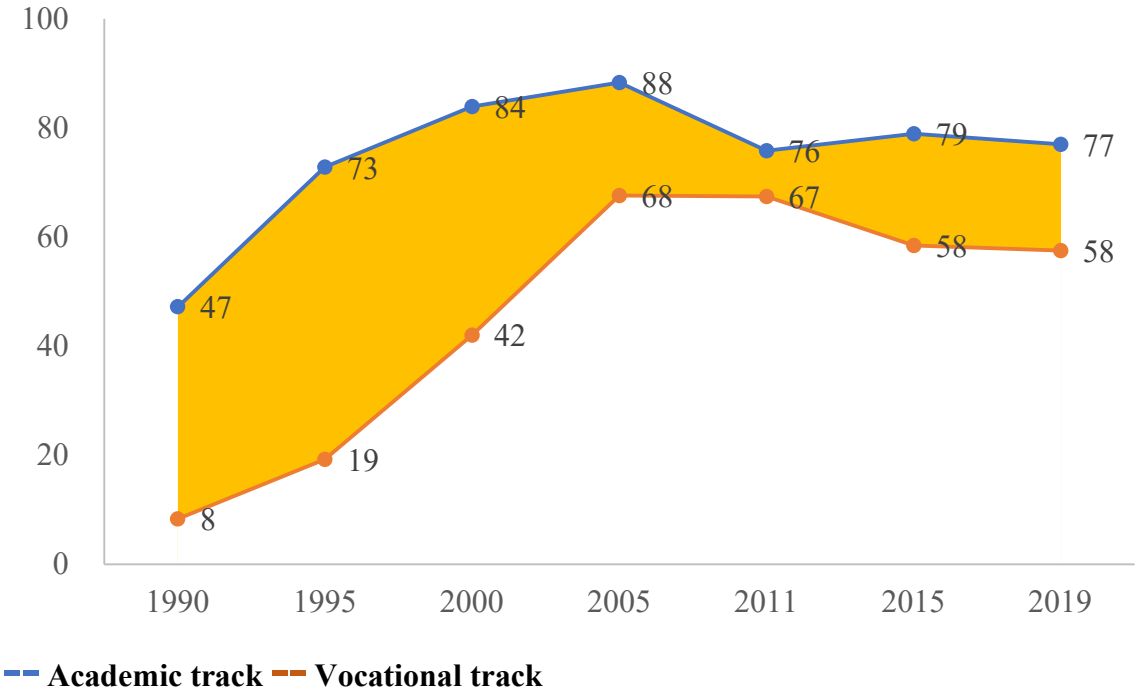
For instance, the meta-analysis by Jang (2017) concludes that the diversified school type has widened the disparity in academic achievement. Compared to general high schools, students who entered special-purpose and autonomous high schools showed a higher learning outcome in high school after controlling initial academic ability and parental SES, which consequently would affect the transition to postsecondary education. It suggests that students' transition to different high school types in a hierarchy increasingly became a function of higher academic achievement in the next education level.

In addition, students' high school type is associated with higher education. For instance, about 39% of new students of the three prestigious universities[3] in Korea were from special-purpose high schools (20%) and autonomous high schools (19%), which only accounted for 11% of the total high school graduates in 2020 (MoE, 2021). After introducing autonomous high schools and special-purpose high schools, these high schools have been popular among parents and students.

Although the gap in the college entrance rate between academic high school graduates and vocational high school graduates has decreased in recent years, students on academic tracks are more likely to enter college than vocational high school graduates (MoE, 2020) (*Figure 4.8 & 4.9*). Moreover, the labor market demands for vocational high school graduates have significantly dropped by fifty-three percent in 2020 (*Figure 4.10*).

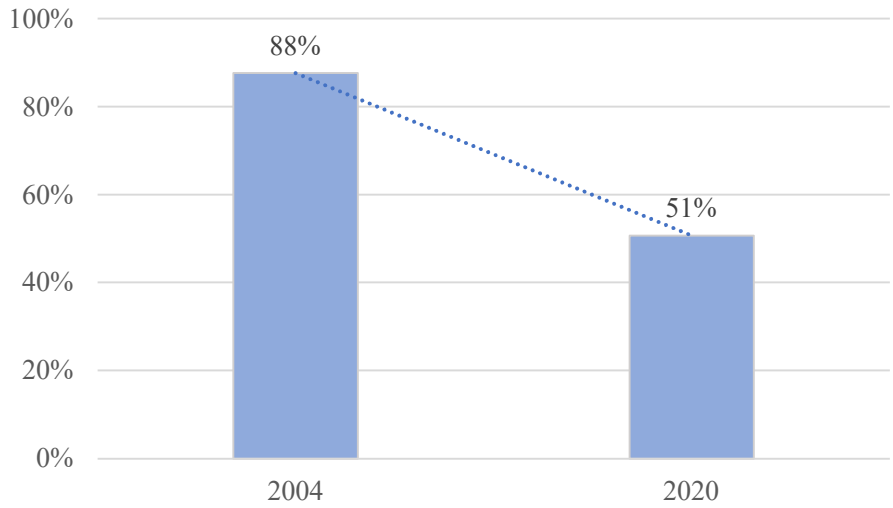
[3] Prestigious universities are Seoul National University, Yonsei University, and Korea University (MoE, 2021)

Figure 4.8. College entrance rate between academic and vocational high schools



Note: College entrance rate (%) = college entrants / Total graduates,
Source: Korean Ministry of Education (2020)

Figure 4.9. Employment rate for vocational high school graduates



Note: employment rate (%) = Employed vocational high school total graduates / (Total graduates – college entrant – military enlistment)
Source: Korean Ministry of Education (2020)

Furthermore, Korean workers with a bachelor's degree expect 56% higher income than those without a degree. The effect of higher education on earning is higher than the OECD average (38%) (OECD 2019). Together with an educational disparity in academic achievement, the parental socioeconomic gap transmits to their children in which high school transition leads to college choices and an income gap (Alon, 2009). Moreover, about 35% of the employees who graduate from vocational high schools leave companies within a year due to low wages and harsh working environments (MoE, 2021; Lee, 2021). Consequently, vocational high schools tend to draw fewer students in recent years (18% in 2010 to 16% in 2020).

Figure 4.10. Relative earnings by educational attainment

Note: Relative earnings of students with income from employment by educational attainment. high school graduates = 100
Source: the author created based on the statistics by OECD (2021)

In sum, the linkage between socioeconomic differences and academic achievement is pronounced in the Korean context, with higher levels of family SES associated with higher academic achievement. In addition, advancing qualitatively higher high school type is also a significant predictor of socioeconomic status in the future in Korea. Such qualitative distinctions in high school types have stratified a high school system and produced socioeconomic inequality in the transition to high school. Consequently, the qualitatively different educational outcomes in high school types risk socioeconomically disadvantaged students' future trajectories and hinder upward social mobility (Alon, 2009; Andrew, 2017; Byun & Park, 2017).

4.4. Korean Contextual Backgrounds for SCCT

Based on Bandura's social cognitive theory (2002), Lent (2000) contends that individuals' belief in self-efficacy, outcome expectation, career goals and intentions are critical determinants of students' career development, which are influenced by social and cultural contexts (Blanco, 2011). The influence of social and cultural affordances on career development suggests that constructing and pursuing students' career choices is primarily embedded within contextual backgrounds (e.g., Akosah-Twumasi et al., 2018; Bandura, 2002; Lent et al., 2000).

Specifically, people do not have direct control over the social and cultural environments and institutional practices that interact with our lives (Bandura, 2002). This is more evident among children and adolescents, who are heavily dependent on their surroundings. In this respect, students can achieve their goals through socially interdependent efforts (Bandura, 2002). Previous studies have found that cultural backgrounds influence self-efficacy, academic achievement, and the career choices of youth (e.g., Honicke & Broadbent, 2016; Hui & Lent, 2018; Wambu et al., 2017). Therefore, social and cultural backgrounds need to be taken into account, which may enhance or hinder the career development of persons at different economic and social levels (Flores et al., 2017). In this respect, social, cultural, and educational backgrounds in Korea are determining factors of students' decisions on high school types.

With respect to cultural dimensions, Hofstede (2011) classifies culture as individualist and collectivist. This cultural dimension suggests that individuals are perceived as independent entities in an individual society, while individuals are perceived as interdependent entities in a collectivist society (Gudykunst et al., 1996). In an individual culture, individuals make their decisions based on their wishes or desires. In contrast, individuals in a collectivist culture make decisions with a group (e.g., family, friends). In this vein, students in collectivist culture are mainly influenced by interpersonal (e.g., family members, teachers, friends) and extrinsic opinions (e.g., job prospects) (Guan et al., 2015). This classification suggests that Western countries like the United Kingdom and the United States are individualistic. Such cultures are

oriented around independence, freedom, and individual autonomy, while most African and Asian nations align more closely with collectivism, in which people identify with societal interdependence and communal benefits (Hui & Lent, 2018). In addition, cross-cultural studies find that family is the most influential factor in their children's decision making, especially within collectivistic cultures (e.g., Flores, 2009; Fouad et al., 2010; Kim et al., 2016a). In other words, the role of family influence on students' decision-making process is more salient in collectivist culture than individualistic culture (Kim et al., 2016; Vautero et al., 2020).

Korea is highly homogeneous and strongly influenced by Confucianism, which is characterized as a collectivist culture (Akosah-Twumasi et al., 2018; K. Choi & Kim, 2013; Kim, 2009). This implies that family plays a critical role in children's academic achievement and career decision-making (Ha, 2012). In addition, a cross-national study by Lee and Kang (2010) finds that family influences Korean students' academic achievement higher than they do in China and Japan, which are also classified as collectivist cultures. Moreover, the empirical evidence supports that familial variables, such as parental socioeconomic status and parental support, have a significant influence on students' academic performance and their career choices in Korea (e.g., Choi & Kim, 2013; Kim et al., 2016; Lee, 2001; Rodríguez-Hernández et al., 2020).

Although previous studies have found that family plays a significant role in academic and physiological development on their children (e.g., Boxer et al., 2011; Callander & Schofield, 2016; Rodríguez-Hernández et al., 2020; Wiederkehr et al., 2015), the underlying mechanism of how these family SES factors affect students' choice of high school type has apparently not been investigated from a career development perspective.

As discussed, students' choice of high school type should be understood as a career decision-making process. From the SCCCT view, it is determined by self-efficacy, outcome expectation, and career interest, all of which interact with the sociocultural and educational settings.

Another cultural aspect that influences education decisions in Korea is the belief in meritocracy. Korea has achieved rapid economic development and political democratization, and education has played a vital role in this transition (Adams & Gottlieb, 2017; C. J. Lee et al., 2012). In this respect, educational achievement through individual effort is believed to be a key way to upward social mobility and success in Korean society (Garrison et al., 2017). With Korea's economic success, this meritocratic culture, in which success is achieved through individual hard work, is firmly established (Son Hing et al., 2011; Kim et al., 2019). Kim and Shim (2016) found that meritocratic values in education were also embedded in children and adolescents in Korea. For instance, Lee et al. (2012) note that students and parents in Korea perceive academic performance, assessed through test scores, is an objective and fair measure of achievement in terms of both ability and effort despite the strong linkage between family SES and children's academic achievement. An example of the influence of meritocracy is that among college admission requirements (e.g., rolling admission evaluated by high school GPA, extracurricular activities), parents believe the Korean college scholastic ability test (SAT) guarantees the highest level of fairness and objectivity (Kim et al., 2018).

This meritocratic culture may result in negative consequences (Son Hing et al., 2011). If individuals believe that all success comes from hard work and ability, then socioeconomic differences are perceived to be a result of individual ability and effort (Ledgerwood et al., 2011; O'Brien & Major, 2009; Wiederkehr et al., 2015). In this educational context, meritocracy is an important norm that students believe their academic success or failure is due to their efforts and abilities rather than the resource gap from their socioeconomic differences (Bourdieu & Passeron, 1990; Eryilmaz & Sandoval-Hernández, 2021).

As discussed, scholars have consistently found evidence of a strong causal relationship between family SES and academic achievement (e.g., Ansong, 2013; Rodríguez-Hernández et al., 2020). Thus, the meritocratic education system serves as a means to reproduce social inequalities among children based on their parental SES rather than as a means for upward social mobility (Garrison et al., 2017). For instance, the cross-national study by Schlicht-

Schmälzle and Ackermann (2012) finds that the impact of economic backgrounds on individuals' educational achievement is the second-highest in Korea. As high school admission is mainly determined by academic performance during middle school, this study expects that there are significant socioeconomic differences among high school types.

Concerning students' school choice, scholars have found that education inequality by family SES persists in the form of qualitative differences, meaning that family socioeconomic disparity shapes students to choose specific types of educational institutions based on their understanding of social class (Andrew, 2017; Guetto & Vergolini, 2017; Lucas & Byrne, 2017). Scholars have found similar results in Korea; family SES factors sort students into different types of high school (e.g., Byun & Park, 2017; Shim & Kim, 2014). Specifically, empirical studies have found that low SES students are more likely to attend vocational tracks across countries, even after controlling for academic performance (e.g., Guetto & Vergolini, 2017; Lucas & Byrne, 2017). Under this cultural and educational context, school is a system that contributes to justifying social inequalities by transforming social class differences into personal differences.

In this view, students from different SES are more likely to accept their position in the hierarchy and develop their sense of efficacy congruent with their status (e.g., Callander & Schofield, 2016). The internalized negative stereotype of their low SES affects students' development of self-efficacy and educational aspirations (Huang & Hsieh, 2011; Régner et al., 2002). Moreover, previous studies find that the effect of family SES disparity passes through a psychological effect as well as evidence for the internalization process in schools, especially in academic performance (Wiederkehr et al., 2015). On the other hand, family SES differences are expressed in their values and beliefs regarding their children's education. In other words, family significantly influences students' academic achievement gap through private investment in education, familial encouragement on education, information support, etc. (e.g. Hui & Lent, 2018). Kim et al. (2016) report that parental support, operationalized through communication,

educational expectations and family income were significant contributors to academic self-efficacy.

To summarize the cultural and educational context, Korean students live in a predominantly collectivistic and meritocratic-oriented social and educational system (Akosah-Twumasi et al., 2018; Choi & Kim, 2013; Kim & Shim, 2016). In a collectivist cultural setting, students' level of outcome expectation, self-efficacy, and career interest are congruent with their parental SES (Guan et al., 2015; Hui & Lent, 2018; Shin & Kelly, 2013). This suggests parental influences are the most significant factor in students' physiological (e.g., self-efficacy, outcome expectation) and academic development (e.g., academic performance, career choice) (Ansong, 2013; Eryilmaz & Sandoval-Hernández, 2021; Rodríguez-Hernández et al., 2020; Wiederkehr et al., 2015). Disadvantaged students are more likely to have low self-efficacy, which leads to adjusting their educational goals when faced with their career choice (Hu et al., 2020). Flores et al. (2017) note that family SES indirectly influences career interest via access to learning opportunities, which directly affects students' self-efficacy and outcome expectation.

On the other hand, the meritocratic ideology results in the internalization process in which both high and low-status students develop self-perceptions according to their parental SES. In this context, low academic achievement (e.g., low academic performance) is perceived as an individual's lack of hard work or ability despite its strong linkage between family SES and academic achievement. There are long-term downward negative messages (e.g., poor academic performance, lack of information) that are internalized in students' beliefs (Flores et al., 2017). In this context, socioeconomically disadvantaged students are more likely to allocate their resources to meet current needs (e.g., entering job markets), rather than long-term gains (e.g., entering a university) (Griskevicius et al., 2013; Laran & Salerno, 2013).

For instance, a hypothetical student in the last year of middle school with low family SES is more likely to enter vocational high school to get a job after graduation, which may yield long-term detrimental prospects. Previous studies support that low SES students have a

higher probability of entering vocational high school and a two-year college rather than a general high school and a four-year university (Byun & Park, 2017; Guetto & Vergolini, 2017).

However, much of this research has been conducted without attention to how social class is internalized in students' beliefs (e.g., self-efficacy, outcome expectation, career interest) and behaviors (e.g., school choices and major choices).

CHAPTER V: METHODS

5.1. Theoretical Framework

This study incorporates two theoretical backgrounds. First, this study adopts the key concept of the effectively maintained inequality (EMI) theory, which argues that socioeconomic differences persist in the form of qualitative distinctions in educational institutions. Using the EMI theory, this study hypothesizes the qualitatively stratified high school system in Korea and examines socioeconomic differences among high school types in high school transition (Andrew, 2017).

As noted earlier, students' high school choice is a key career choice, and thus it should be understood as a career development process. Previous literature ignores the role of students' cognitive and psychological aspects, which has a more substantial impact than family SES on students' education transitions (Mark, 2018).

According to SCCT′s choice model, family socioeconomic status as a critical contextual background influences the career development process of young people, such as self-efficacy and career exploration (Flores et al., 2017). That is, students from different SES backgrounds are likely to invest in different career activities and make career decisions to meet their respective needs (Hu et al., 2019). In the context where there are qualitative differentials in high school types, the advantages were provided for high-SES students for upward progress in an institutional hierarchy through a greater interest in prestige education and more access to learning (Hui & Lent, 2018). In contrast, socioeconomically disadvantaged students are placed lower in the high school hierarchy by lowering educational aspirations and investing more in career exploration in recognition of their economic constraints.

This study investigates the underlying mechanism for explaining how students from different SES backgrounds transition to different high school types from an SCCT perspective.

5.1.1. Effectively Maintained Inequality theory

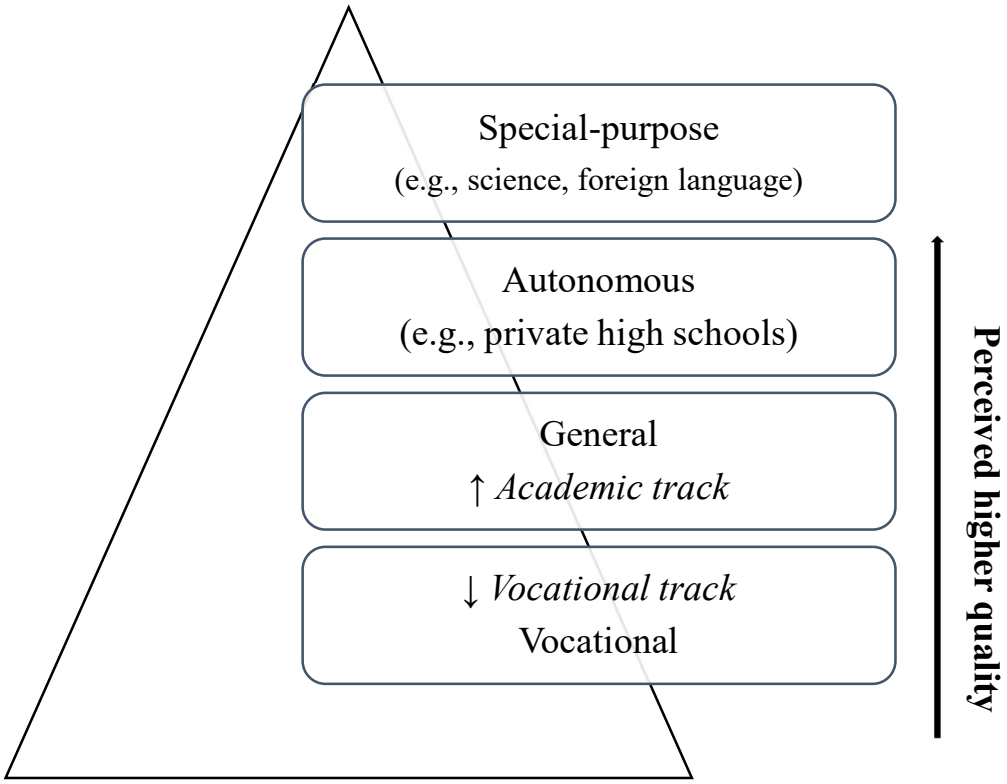
Socioeconomic differences in educational attainments are well-documented (e.g., years of schooling), but less attention has been paid to the study of qualitative distinctions at the same level of education. The EMI hypothesis claims that educational inequality is maintained in the form of qualitative distinctions in educational institutions even when a given education level is universal (Lucas, 2001, 2009). In this context, socioeconomically advantaged students are more likely to boost their position in qualitatively higher educational institutions (Andrew, 2017). The scholars testing the EMI hypothesis have found evidence of the significant role of family SES in transitioning different educational institutions from secondary to post-secondary education across countries, including the U.S., Germany, and the Republic of Korea (Korea, hereafter) (e.g., Andrew, 2017; Byrne & McCoy, 2017; Byun & Park, 2017).

The primary assumptions of the EMI theory are i) perceived qualitative distinctions among school types and ii) students with different SES are able to leverage their resources for transitioning in an institutional hierarchy. As noted, the Korean MoE has diversified high school types since the 2010s. Such changes in high school structure could affect students' transitions given the strong relation of high school type in a postsecondary trajectories (Byrne & McCoy, 2017; Byun & Park, 2017). This remains in question whether the educational disparity in high school transition owing to socioeconomic backgrounds has persisted or diminished since high school diversification in Korea. Thus, it is worth revisiting socioeconomic differences in the transition to different high school types, especially in terms of EMI (Byrne & McCoy, 2017).

This study seeks to address the gaps in the literature in exploring socioeconomic differences in the transition to different high schools that can be made in institutional change. Using the EMI theory, this study examines the qualitatively stratified high school system in Korea and how students from different socioeconomic backgrounds are able or unable to upwardly transition in an institutional hierarchy (Andrew, 2017).

This institutional quality hierarchy among high school types in Korea is illustrated in *Figure 5.1*, which presents the perceived qualitative distinctions in high school types (Andrew, 2017). Specifically, this study pertains to the four Korean high school types that are hierarchically arranged in the order of vocational, general, autonomous, and special-purpose high school according to family socioeconomic status and students' academic achievement.

Figure 5.1. Hierarchically arranged high school system in Korea



Note: Reproduced from Chapter 1, Figure.1.1.
Source: Created by the author based on Andrew (2017)

Under this high school hierarchy, students from different socioeconomic backgrounds are able or unable to progress upwardly. This article seeks to explore socioeconomic disparity in high school transition in the institutional context where high school type is hierarchically arranged. This study hypothesizes socioeconomically advantageous students can have higher institutional advantages to progress upwardly in high school transition.

5.1.2. Social Cognitive Career Theory

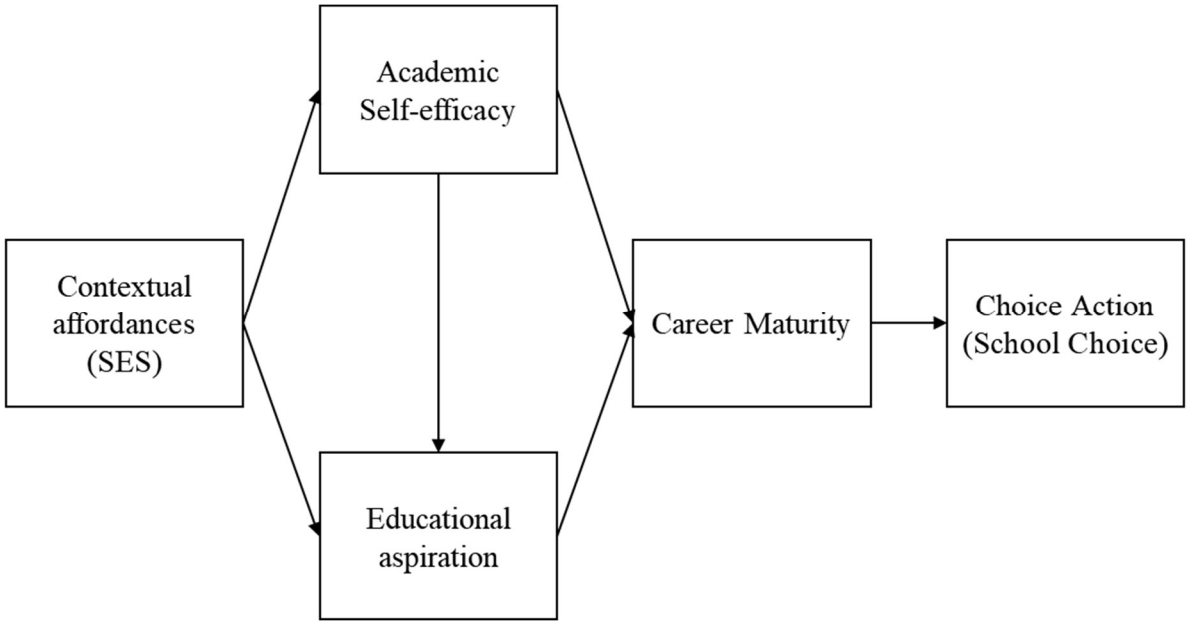
The EMI theory provides grounds for a relationship between family SES and students' transition to different high school types, but it is limited in specifying the underlying mechanism of how family SES influences students' transition to different high school types. Previous research suggests that social cognitive career theory may provide the most relevant framework for understanding career decision-making of education outcomes (e.g., Bolkan et al., 2021).

Derived from social cognitive theory, social cognitive career theory (SCCT) postulates that people develop career interests and career decisions through the interaction of personal and environmental factors (e.g., Lent et al., 2000; 2010). According to SCCT, career development behaviors are mainly influenced by three social cognitive processes – self-efficacy belief, outcome expectations, and career goals and intentions (Lent et al., 1994). These cognitive variables interact within a broader social context, such as culture and race (Lent et al., 2000). Family socioeconomic backgrounds have long been proposed as a critical contextual affordance influencing the education and career development of children (Brown & Lent, 2017; Diemer & Ali, 2009).

For instance, socioeconomic advantages for students provide resources for having greater career interest in prestigious jobs and more education aspirations. In contrast, children who grow up in lower SES will be more alert to the threat and tend to seek immediate outcomes (e.g., obtain a job quickly; Mittal & Griskevicius, 2014). In this setting, wealthier students are more likely to progress in the high school hierarchy upwardly (e.g., autonomous, special-purpose high schools) through higher academic self-efficacy and aspiring higher educational attainment, while students with low socioeconomic backgrounds are more likely to be on a vocational track to satisfy immediate economic needs. In addition, low-SES students are inclined to accept their position in the high school hierarchy congruent with their social strata and academic achievement level. This emphasizes the complex interplay between the personal aspirations of youths in their career choice and socioeconomic backgrounds.

In their recent review of SCCT, Flores, Navarro, and Ali (2017) called for more research on the role of SES in career development and career decision. In this respect, this study postulates that students' high school transition as a career choice are influenced by SCCT elements which are academic self-efficacy, educational aspiration (outcome expectations), career maturity, including career self-awareness, and career plan. In addition, this study presumes that family SES positively or negatively influences adolescents' academic, cognitive, and career development, which consequently influences students' high school transition.

Figure 5.2. SCCT's model of career-related interest development and choice-making



Source: Created by the author based on Brown and Lent (2019)

5.2. Conceptual Framework

The previous literature on SCCT and the EMI theory provides the foundation for the conceptual framework for this study outlined in *Figure 5.3*. This research seeks to explore the influence of socioeconomic backgrounds on the high school transition using the SCCT model

As illustrated in the figure below, a direct pathway from family SES to the transition to high school is firstly investigated (RQ1). Using the EMI hypothesis, this study seeks to explore socioeconomic disparity in high school transition in the reformed educational context of Korea in 2007-8 and 2017-8. The result shows the validity of the EMI hypothesis in high school transition in Korea, suggesting socioeconomic differences among high school types in transition to high school. In addition, the results on the persistent educational inequality in high school transition provides the social and institutional backgrounds in Korea that shape students' career development.

The second pathway describes how family SES has influenced students' academic and cognitive development during lower secondary education (RQ2), which are the key determinants of students' career decision-making (high school transition). The family socioeconomic background is a critical contextual affordance influencing children's educational and career development. From an SCCT perspective, academic self-efficacy is a determinant of educational aspiration since people expect to receive favorable outcomes when pursuing an action that they feel is efficacious (e.g., Brown & Lent, 2019). The theory further posits that people develop career interests mainly on the basis of their beliefs about self-efficacy and the outcomes to which their efforts could lead (Blanco, 2011).

Thus, central to these assumptions is the interplay between family socioeconomic backgrounds and three key social cognitive variables: self-efficacy beliefs, educational aspiration, and career maturity. Family SES is an important contextual affordance that can influence career development processes such as career interests, self-efficacy, outcome expectations, goal choice, and educational and occupational attainments (Brown & Lent, 2017;

Diemer & Ali, 2009; Flores et al., 2017). This suggests that adolescents in different social strata have developed their career interests and make career choices in different manners. For instance, a hypothesized student with higher SES is more likely to receive good grades, which leads to higher academic self-efficacy. This improved academic self-efficacy reinforces the student's career interest in academic activities and results in choosing a special-purpose high school, such as a science or foreign language high school (Brown & Lent, 2019).

In addition, this study explores the non-linear association between family SES and career maturity, suggesting that students from both high- and low- SES are likely to have a career cognitive factors, consisting of career plans and career self-awareness. Adolescents who grow up in impoverished environments are more likely to receive lower academic performance, and they allocate their resources to career exploration, such as entering the job market and parenting earlier (Hu et al., 2020). This occurs because personal growth and saving resources are less meaningful when the future is beyond the individual's control (Griskevicius et al., 2013; Laran & Salerno, 2013). In this context, low-SES students are likely to take into account their family financial circumstances and seek for educational choices to meet current needs. This suggests that even students with a similar degree of career maturity have different developmental trajectories.

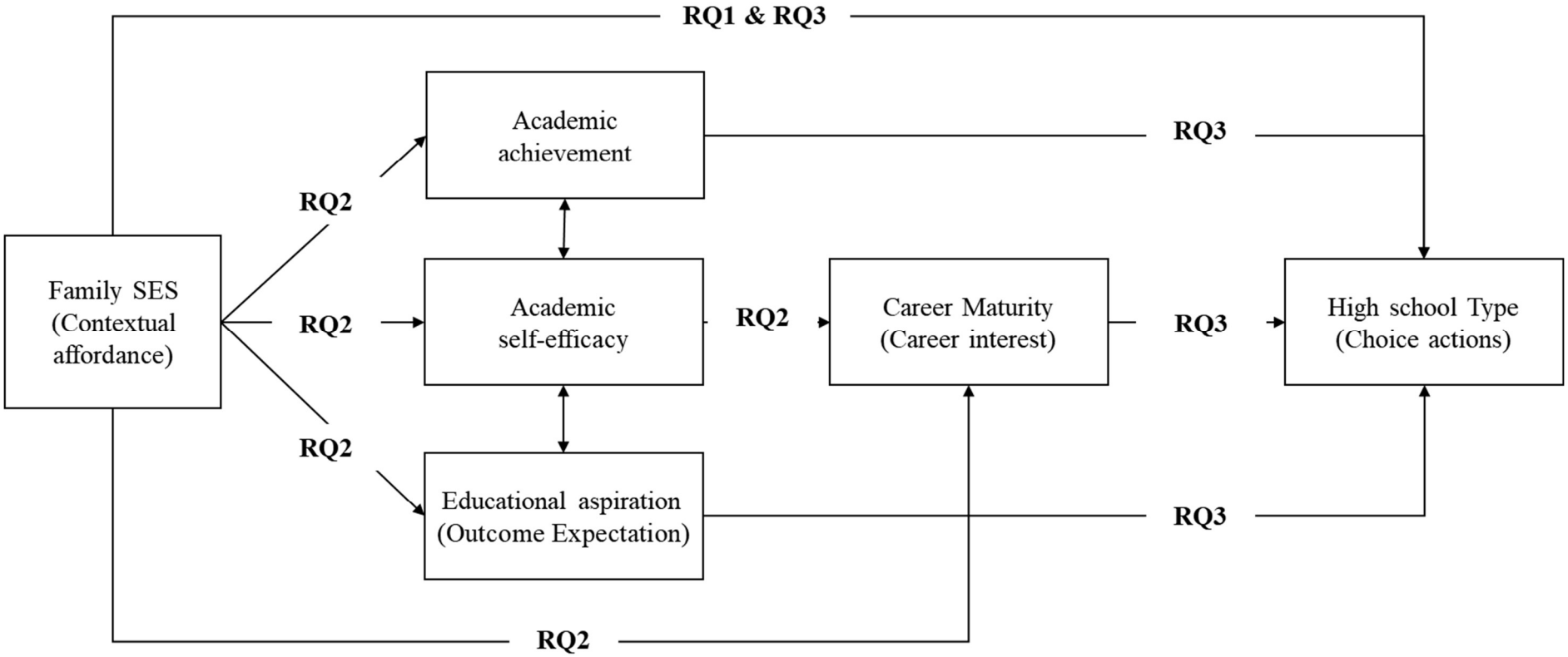
In this respect, this study proposes that students with higher and lower SES have different trajectories in developing their career maturity, which results in attending different high school types. This study hypothesizes even socioeconomically disadvantaged students have a higher career cognitive outcome by allocating their resources to career exploration in high school transition where the high school system is hierarchically structured by socioeconomic status and academic achievement (Hu et al., 2019).

Finally, this study investigates the role of students' cognitive and career factors on the relationship between family socioeconomic backgrounds and students' high school transition in Korea (RQ3). In particular, this study assesses the role of career maturity, including career self-awareness and career plans, in students' educational transition to high school. Previous

SCCT studies have hypothesized a linear relationship between family SES and career maturity, but this study explores the distinctive role of high career maturity to students from high and low socioeconomic status in students' high school decision-making process. This specification could answer the dynamics in high school stratifications and an understanding of student's career decision-making process in Korea.

To the best of my knowledge, no studies have utilized SCCT frameworks to apply the high school transition in Korean students. It is crucial for advancing the understanding of factors influencing the transition to high school for practical policy implications, especially for students with economically challenged environments.

Figure 5.3. Conceptual framework of the SCCT's model in predicting students' high school transition



Source: Created by the author based on Lent (2019)'s SCCT model

5.3. Hypotheses

Hypothesis 1. Inequality of educational opportunities by family SES on the high school transition has persisted despite reforming the high school admission procedure in Korea.

1.1. Relative inequality persists, assuming socioeconomic differences among high school types in high school transition, grow over time.

1.2. The policy intervention of the revised high school admission in 2010 showed an insignificant role in relieving educational inequality in high school transition

Hypothesis 2. Family socioeconomic backgrounds play a crucial role in students' academic and cognitive development

2.1.Socioeconomic differences influence students' academic achievement through their impact on students' academic self-efficacy and educational aspiration. In order words, the reciprocal relationship among academic self-efficacy, educational aspiration, and academic achievement is valid through its impact of family SES.

2.2. Students from low SES or high SES are likely to improve their career maturity in response to the transition to high school. That is, both high- and low-SES students are likely to have a higher career maturity level.

Hypothesis 3. Family SES have influenced high school transition through its impact on student's social cognitive factors, which are academic self-efficacy, educational aspiration, and career maturity

3.1. Socioeconomically advantaged students are more likely to progress in the high school hierarchy upwardly, interplaying with higher academic self-efficacy and higher educational aspiration.

3.2. Higher career maturity students with socioeconomically advantaged backgrounds are more likely to progress upwardly, such as autonomous and special-purpose high schools, interacting with belief in academic ability and aspiring higher education

3.3.Higher career maturity students with socioeconomically disadvantaged backgrounds are likely to place lower in the high school hierarchy, such as vocational and general high schools, interacting with belief in academic ability and aspiring higher education

5.4. Analytic Models

This study employs two analytical models to examine predictions of students' high school transition. Two primary categories of empirical approaches are applied to investigate the research questions: a multinomial logistic regression model (RQ1 & RQ3), and panel regression models (OLS) (RQ2).

5.4.1. Trends in educational inequality in high school transition (RQ 1)

First, a multinomial logistic regression (MLM) method is used to estimate the probability of high school choices from increases or decreases in independent variables in line with the majority of prior research (Byun & Park, 2017; Guetto & Panichella, 2019; Lucas & Byrne, 2017). The multinomial logistic model assumes that a student's choice has a multinomial distribution (a student chooses a particular type of high school). The MLM estimation implies independence from irrelevant alternatives (IIA) assumption (McFadden, 1974). IIA means, all else being equal, that an individual's choice among alternative outcomes is not affected by what other probabilities are available. A student's choice probability is independent from the error term in estimating $Highschoolit+1$. For multinomial logistic regression analysis, this study presents the marginal effect of the results.

$$1) \quad Highschool_{,\,t+1} = \beta_0 + B_1 SES_{i,t} + B_2 Control_{i,t} + e_1$$

First, a logistic regression method is used to estimate the probability of high school transition between academic (general, autonomous, special-purpose high schools) and vocational high schools from increases or decreases in predictor (independent) variables, family SES factors, in line with the majority of prior research (Byun & Park, 2017; Guetto & Panichella, 2019; Lucas & Byrne, 2017). It is used to predict categorical placement in or the probability of category membership on a dependent variable ($Highschool_{i,t+1}$) based on multiple independent variables ($SES_{i,t}$) and control variables ($gender_{i,t}$, academic achievement

$_{i,t}$, region $_{i,t}$). $SES_{i,t}$ presents family SES factors, including monthly household income, father's education level, and mother's education level. Following previous literature, this study includes students' social cognitive factors, such as academic self-efficacy (Bolkan et al., 2021) and educational aspiration (Lent et al., 2010), academic achievement, gender, and school location (city or rural areas). In addition, the MLM model is used to estimate the probability of high school choices in four types of high school

$$2) \quad Highschool_{i,t+1} = \beta_0 + B_1 SES_{i,t} + B_2 SES*Year_{i,t} + B_3 Control_{i,t} + e_1$$

In addition, B_2 is the interaction between SES and dummy year. $Year_{i,t}$ is equal to 1 for cohorts of the 2nd wave of the dataset and interacted with family socioeconomic status $SES_{i,t}$. The interaction variables between independent variables and year explore whether there are significant changes in the relationship between family SES and high school transition between cohorts in 2007 and 2017.

5.4.2. The development of SCCT factors interacting with family SES (RQ 2)

This study estimates the ordinary least square (OLS) model with random-effects repressions as robustness checks. In panel data analysis, sets are time invariant, e.g. race, sex, regional location. In a fixed effects model, time invariant variables (e.g., race, sex, region location) are swept away by the within estimator of the coefficients on the time varying covariates (Oaxaca & Geisler, 2003). This study utilizes multiple time-invariant variables, gender, school location, and parental education level. In addition, this study hypothesizes that past academic achievement and social cognitive factors influence the following year's outcome.

This study defines the independent variable, $SCCT_{i,t+1}$ as a student's cognitive and career development i in year t.

$$i)\ SCCT_{i,t} = \beta_0 + \beta_1 SES_{i,t-1} + \beta_2 SCCT_{i,t-1}\ B_3 Control_{i,t} + e_{i,t}$$

where, i indexes students, t indexes year from six years of elementary school to the third year of middle school. β_1 and β_2 are key estimators that explains the development of students' academic and social cognitive factors. *SES* denotes socioeconomic backgrounds that are monthly household income and parental education levels. In addition, monthly household spending on private education on respondent students is included. *SCCT* presents students' academic and career development that is academic achievement as a percentile, an averaged score of three academic self-efficacies, educational aspiration, and an averaged score of career maturity. Gender and region are included to control individual characteristics.

$$ii)\ Career\ Maturity_{i,t} = B_0 + B_1 SES_{i,t} + B_2 SES{*}SES_{i,t} + + B_3 SCCT_{i,t-1} + B_5 Control_{i,t-1} + e_1$$

The second model tests the relationship between SES and career maturity in line with the research questions. Specifically, a non-linear association of parental SES and private education spending on career maturity will be examined. The typical examples of non-linear relationships are income and age. As an individual gets older, the expected income rises. In general, income growth slows at a certain age. On the other hand, this study proposes that there is a U-shape relationship between SES and career maturity, which is a function with weighted average derivative negative until a point, and weighted average derivative positive after that point (Schervish & Havens, 1995). *SES*SES* denotes that nonlinear regression is a curved function of an X variable (or variables) and is used to predict a Y variable (Smyth, 2002). It then defines household income with decile to estimate which students have improved or declined career maturity according to their socioeconomic background. This study further focuses on a comparison between low and high career maturity students in the discussion.

5.4.3. Students' high school choice from the SCCT Perspective (RQ 3)

This primary purpose of study is to understand students' high school transition to different high school types using the SCCT's choice model. In this respect, the MLM models used to predict categorical placement in or the probability of category membership on a dependent variable ($Highschool_{i,t+1}$) based on multiple independent variables ($SES_{i,t}$), SCCT variables (academic self-efficacy, educational aspiration, and career maturity), and control variables ($gender_{i,t}$, $academic\ achievement_{i,t}$, $region_{i,t}$). The equation is straightforward and is as follows:

$$Highschool_{i,t+1} = \beta_0 + B_1 SES_{i,t} + B_2 SCCT_{i,t} + B_3 Control_{i,t} + e_1$$

It is used to predict categorical placement in or the probability of category membership on a dependent variable ($Highschool_{i,t+1}$) based on multiple independent variables ($SES_{i,t}$, $SCCT_{t,t}$) and control variables ($gender_{i,t}$, $academic\ achievement_{i,t}$, $region_{i,t}$). This study begins with a model of students' socioeconomic background describing the effect of each parental education and household income. It includes each SCCT variable, averaged score of academic self-efficacy, educational aspiration, and averaged score of career maturity. Students' academic achievement as a percentile score, gender, and the location of middle schools are held in line with previous studies.

This study also estimates the predicted probability of attending different school types for students. Following Andrew (2017), this study holds academic achievement at the 25th and 75th percentile for low, middle, and high academic achievement. This study defines low SES as parent education and family income at the 25th percentile of the sample distribution. It defines high SES as parent education and family income at the 75th percentile. This estimation allows for measuring how students with different socioeconomic backgrounds at similar academic achievement levels attend high school types. Finally, this study categorized career maturity into low, middle, and high career maturity groups. This informs how students with higher or lower career maturity at similar levels of socioeconomic backgrounds transition to different high school types.

5.5. Data

5.5.1. Data

This study utilizes two panel datasets of the Korean Educational Longitudinal Study (KELS), which collects surveys starting from 2005 and 2013, respectively. The two wave of KELS are national representative datasets conducted by the Korean Educational Development Institute (KEDI), a government-funded educational research institute. Both surveys consist of information about students' cognitive and non-cognitive achievement and development, family socioeconomic background, school life, middle and high school academic tracks and curricula, and major education programs and policies. Students, along with parents and school administrators, are subject to the survey.

The first wave of KELS randomly selected 6,908 first-year middle school students and annually collected surveys until 2020. The second wave of KELS picked a total of 7,324 fifth-grade students in 242 elementary schools from 2013, and the survey is expected to complete collecting data in 2030. The main difference between the 1st and 2nd waves of KELS for this study is that only the 2nd wave of KELS collects information on students' career maturity, including career self-awareness and career plan.

For this analysis, this study restricts the respondents who completed both surveys in 2017-2018 and whose information about their educational pathways was available (See the sample selection process in *Appendix 2*). To respond to the first research question regarding the changes in educational inequality in the high school transition, this study utilizes both datasets of KELS: the third and fourth surveys of the first wave of KELS (*N=4,051*) and the fifth and sixth surveys of the 2nd wave of KELS (*N=4,775*), which collects data in 2007-8 and 2017-8. The result provides the social and institutional backgrounds for the second objective of this study which aims to investigate students' career development.

Secondly, this study uses the 2nd wave of KELS (*N=4,261*) (*see Table 5.1.*) to analyse the academic and cognitive development of students, starting from the second (sixth grade) to fifth surveys (the third year of middle school) for the second research questions. As career maturity was biannually collected in the 2nd wave of KELS, this study collects respondents' information on the sixth year of elementary school and the first and third year of middle schools

Lastly, the determinants of students' high school transition will be examined from the perspective of SCCT using the fifth (3rd year of middle school) and sixth surveys (1st year of high school) of 2nd wave of KELS (*N=3,958*). The samples for the second and third research questions are subsamples of the first research question after restricting the respondents who completed both surveys during 2017-2018 and whose information about their educational pathways was available (*Table 5.1. present KELS' surveys used for this study)*

Table 5.1. Data used for the respective research question

Data	Year	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	Total N
The sample collection of KELS																		
KELS	1st Wave	M1	M2	M3	H1	H2	H3											6,908
	2nd Wave									E5	E6	M1	M2	M3	H1	H2	H3	7,324
The data used for this study																		
RQ1	1st Wave			**M3**	**H1**													4,051
	2nd Wave													**M3**	**H1**			4,775
RQ2	2nd Wave										**E6**	**M1**		**M3**				4,261
RQ3	2nd Wave													**M3**	**H1**			3,958

Note: Colored cells indicate the data used for each research question, RQ: Research question N: Sample size /E: Elementary school grade / M: middle school year / H: high school year
Source: the author created two waves of Korean Education Longitudinal Study (2019)

5.5.2. Measures

The main objective of this study is to investigate the mechanisms of how students choose their high school type within the SCCT framework.

(1) Dependent variables: High School Types in Korea

The main interest in this study is the transition from middle school to high school in Korea. Students' dropping out during high school transition is extremely low in this sample and in Korea (less than 1%). Thus, the scope of this study is respondents transitioning to high school. The transition from middle school to high school is specified by four high school types, which are vocational (vocational track), general (academic track), autonomous (academic track), and special-purpose high schools (academic track) according to the classification from the MoE in Korea. In addition, this study also utilizes a binary high school decision, high school track between academic- and vocational track, in line with previous studies (Byun & Park, 2017; Choi, 2020). In our sample, 13% of students attend vocational high schools, 73% to general high schools, 10% to autonomous high schools, and 4% to special-purpose high schools (*see Appendix 3*).

(2) Independent variables I: family indirect and direct influence

Monthly household income: The KELS datasets collect information on monthly family income. Parents self-reported their household income on a monthly basis. Given this study's first research question comparing two-time frames, this study utilizes standardized and normalized income using income distribution (income quintile).

Parental education level: Parental educational level is a critical factor in children's cognitive and academic development. The KELS reports respondents' parental educational level from the lowest (one is equal to below elementary degree) to the highest level (7 is equal to a doctoral degree). Both father's and mother's education levels of a respondent student are reported.

Socioeconomic status (SES): This study aggregates socioeconomic variables with three indicators to estimate socioeconomic status: household income quintile, father's education level, and mother's education level.

Household spending on private education: This study also includes household spending on private education for a respondent student. Korea shows one of the highest levels of private expenditure on education, and it is significantly associated with students' academic achievement (Garrison et al., 2017). The KELS asks parents to report their monthly spending on private education. This study adjusts the change in the price for private expenditure on education using the consumer price indicator (CPI) by the Korean National Statistical Office to compare two datasets of KELS. The CPI rose by about 25% in 2017 from 2007, meaning that one thousand Korean won in 2007 is equivalent to one-thousand two-hundred fifty Korean won in 2017. In this respect, this study adjusted private spending on education in 2007 using the CPI index (1.252 points). This study also standardizes private spending on education on the percentile scale,

(3) Independent variables II: SCCT variables

This study also controls for students' cognitive and psychological measures. Specifically, this study utilizes the key constructs of SCCT, which are self-efficacy, educational aspiration, and career maturity.

Academic self-efficacy: This study controls for academic self-efficacy, which is a significant determinant of students' high school transition (Kim & Back, 2010). The KELS reports students' academic self-efficacy at the subject level. This study selects three major subjects, math, Korean (Verbal), and English, in Korea and their academic self-efficacy. The following questions measure each variable: *(1) I am confident that I can understand math/Korean/English contents that are presented by a teacher, (2) I am confident that I can do well on my math/Korean/English assignments, (3) I am confident that I can do an excellent job on my math/Korean/English test (4) I am certain that I can master the skills being taught in*

math/Korean/English class. In one academic subject, four questions are arrayed. Students indicate their feelings described in the items on a four-point scale (*strongly agree, agree, disagree, strongly disagree*). This study uses the averaged academic self-efficacy score of three academic subjects.

Educational aspiration: According to SCCT, a person's self-efficacy and outcome expectancy play a direct role in their future behaviors and goals. Outcome expectations refer to beliefs about the consequences of acting on certain behaviors (Flores et al., 2017). In the application of SCCT in the high school transition, this study selects educational aspiration, which presents the expectation of continuing education. Adolescents tend to set higher educational goals that are consistent with their perception of personal capabilities. The datasets provide a variable of educational aspiration, which reflects students' educational goals students set for themselves. It asks students to what extent they plan to complete schooling: *(1) Middle school or I don't know. (2) high school, (3) two-year college, (4) Four-year university or higher*.

Career maturity: The 2nd wave of KELS biennially asks two-dimensional career-related cognitive questions, comprising of students' career self-awareness and career plan from six-grade elementary students. Basically, students having a higher confidence level in their career plans report a higher score of career maturity. This study utilizes the questionnaire from the sixth year of elementary school, the first year of middle school, and the third year of middle to examine the relationship between family SES and SCCT factors.

The following questions measure career self-awareness and career plan: questions on career self-awareness are *(1) I understand what I am good at, (2) I understand what my strengths are, (3) I understand what I can do joyfully, (4) I understand what I like to do in the future, and (5) I have values to cherish,* and questions on career plan are *(1) I try to have various career experiences for my future, (2) I try to have various experiences for my future, (3) Some academic subjects in school is important for my career, (4) I often think what I really would like to do and (5) I often think what is important in my life.* Students indicate their feelings

described in the items on a five-point scale (*5 Definitely, 4 Probably, 3 Possibly, 2 Probably not, Definitely not*).

In addition, this study uses Cronbach's alpha test to test a measure of internal consistency of academic self-efficacy and career maturity for the reliability of the survey questions, and the internal consistencies are over 0.9 (*see Appendix 6*).

(3) Control variables

This study also controls students' demographic characteristics, such as gender (female and male) and residential area (rural versus urban). As noted, admission to high schools is largely determined by academic achievement during middle school. As the KELS conducts a composite achievement test at the subject level among students in the last year of middle school, this study controls for a student's academic achievement in three main subjects on the percentile scale.

Table 5.2. Description of data

Type	Variable	Description
Dependent (Types of high school)	High school type	4 Special-purposed high school 3 Private high school 2 Academic high school 1 Vocational high school
	Academic track	1 equals to academic high schools (general, autonomous, special-purpose), otherwise 0 (vocational)
Independent (SES)	Income Quintile	5 equals to the highest 1 equals to the lowest
	(log) Income	Logged family monthly income (KRW 10,000)
	Father's Education	7 Doctor degree / 6 master degree / 5 4-year university / 4 2-year college / 3 high school / 2 middle school / 1 Below elementary school
	Mother's education	
	(log) Private education spending	Monthly private spending on a responded student (KRW 10,000)[4]
	SES	Summed scores of income quintile and father's education and mothers' education
Mediators (SCCT)	Academic Self-efficacy	Summed and averaged score of Korean (verbal), math, and English academic self-efficacy *Q1. I am confident that I can understand Math/English/Korean contents presented by a teacher* *Q2. I am confident that I can do well on my Math/English/Korean assignments* *Q3. I am certain that I can do an excellent job on my Math/English/Korean test* *Q4. I am certain that I can master the skills being taught in Math/English/Korean class*

[4] Consumer price indicator by the Korean National Statistical Office is used to adjust the changes in the price paid for private expenditure on education (1.252 points increased from 2007 to 2017)

	Educational Aspiration	*Q: What education level do you wish to complete?* 4 above 4-year university 3 2-year college 2 high school 1 middle school equivalent or I don't know
	Career maturity	5 Definitely / 4 Probably / 3 Possibly / 2 Probably not 1 Definitely not *Q1. (Self-awareness) I understand what I am good at* *Q2. (Self-awareness) I understand my strengths are* *Q3. (Self-awareness) I understand what I can do joyfully* *Q4. (Self-awareness) I understand what I like to do* *Q5. (Self-awareness) I have values to cherish* *Q6. (Career plan) I often think about what I should I do to achieve my future dream* *Q7. (Career plan) I try to have various experiences for my future* *Q8. (Career plan) Some academic subjects in school is important for my career* *Q9. (Career plan) I often think what I really would like to do* *Q10. (Career plan) I often think what is important in my life*
Control	Female	Female = 1, male = 0
	Academic achievement	100^{th} quantiles of summed academic achievement scores of Korean, English, and Math
	Rural	Rural = 1, Urban = 0
	Cohorts	Cohort I (2017-8) = 1, Cohort II (2007-8) = 0

Source: created by the author based on two waves of KELS (*see more details on Appendix 4 and descriptive statistics for each research question presented on Appendix 5)*

CHAPTER VI. RESULTS

6.1. Persistent Socioeconomic Disparity in the High School Transition

6.1.1. Family SES influence on students' high school choice between vocational and academic tracks

Table 6.1.1 presents a logistic regression model of the transition to high school between the academic and vocational tracks with a marginal effect. An academic track is when students attend general, autonomous, or special-purpose high schools (coded as one). In contrast, a vocational track is defined when students attend a vocational high school (coded as zero). In addition, it compares the students of 1st and 2nd cohorts of the KELS datasets, which include information on students' high school transition in 2007-8 and 2017-8. The model I utilizes each SES factor respectively, while Model II uses the aggregated score of SES factors and standardizes it to SES decile to control multicollinearity.

First, the effect of family SES on students' attending academic track is statistically significant in both cohorts, spanning from the late 2000s to the 2010s. Students with a higher income level are more likely to choose an academic track than a vocational track in both cohorts. Specifically, when one income quintile rises, the chance to select an academic track increases by 1.9 percentage points in 2007 and 1.7 percentage points in 2017, respectively. In addition, a higher father's educational level is also positively and significantly associated with students' attending an academic track in both cohorts. In Model II, which utilizes summed and standardized score SES factors, there is a slight decrease in a coefficient compared to the 1st wave of cohorts, but both are significantly and positively associated with attending academic high schools. The results show that the relative disadvantage of students from low SES continued as they are less likely to attend academic high schools in both cohorts.

Similarly, higher private education spending, as a robust proxy for household welfare and direct household support to a responding student, is significantly and positively associated with attending academic tracks. It shows that students receiving less parental support, private

education spending, are more likely to be on a vocational track. Overall, the study supports the hypothesis that educational disparity persists even after the school admission reform in 2010 (Hur, 2018).

With regard to individual characteristics, female students were less likely to attend an academic track in 2007, but this relationship is not statistically significant in the 2017 cohorts. The result is consistent with the previous finding (Choi, 2020), stating that vocational high schools better meet females' needs in the 2000s, especially those less supported by their parents. However, this trend has changed since the late 2010s. It aligns with the higher maker demands for engineering and agriculture sectors in the last 2010s, which is the predominant sector for males. Concerning the regional difference, students residing in rural areas are more likely to enter an academic track in 2017, which is the outcomes of the high school diversification policy that has established more academic high schools in rural areas.

Regarding students' social cognitive factors, as expected, students with academic higher self-efficacy are more likely to attend an academic track, but there is a slight decrease in the coefficient from 2007 to 2017. In contrast to the result of self-efficacy, students attending an academic track report a higher level of educational aspiration in 2017 compared to 2007. Given education aspiration reflecting the level of educational attainments students aspire to achieve, it implies that vocational high schools are less likely to be perceived as a way to attend higher education in recent years. The significant association of students' cognitive variables, such as academic self-efficacy and educational aspiration, in determining high school track provides the grounds for understanding high school transition as students' career decision-making process.

Table 6.1.1. Logistic model for predicting high school track between academic and vocational track

	Model I (each SES factor)				Model II (SES)			
	(1) Cohort I 2007-8		(2) Cohort II 2017-8		(1) Cohort I 2007-8		(2) Cohort II 2017-8	
Income quintile	0.019***	[0.010,0.028]	0.017***	[0.010,0.024]				
Father's education	0.023**	[0.009,0.037]	0.023***	[0.012,0.034]				
Mother's education	0.013	[-0.005,0.031]	0.006	[-0.007,0.018]				
SES					0.016***	[0.012,0.020]	0.013***	[0.010,0.017]
Private education spending (log)	0.021***	[0.010,0.033]	0.017***	[0.010,0.025]	0.022***	[0.011,0.033]	0.019***	[0.012,0.026]
Academic Self-efficacy	0.087***	[0.065,0.109]	0.056***	[0.041,0.071]	0.089***	[0.066,0.111]	0.057***	[0.041,0.072]
Educational aspiration	0.023***	[0.015,0.032]	0.036***	[0.030,0.043]	0.023***	[0.015,0.032]	0.037***	[0.030,0.043]
Female (1=female, 0=male)	-0.026*	[-0.047,-0.005]	0.010	[-0.008,0.027]	-0.028**	[-0.049,-0.007]	0.010	[-0.008,0.027]
Academic achievement (100-quantiles)	0.004***	[0.004,0.004]	0.002***	[0.002,0.002]	0.004***	[0.004,0.004]	0.002***	[0.002,0.002]
Rural (1=rural, 0=urban)	-0.002	[-0.034,0.031]	0.054***	[0.030,0.078]	-0.003	[-0.036,0.030]	0.053***	[0.029,0.077]
Pseudo R^2	0.264		0.220		0.262		0.217	
N	4051		4775		4051		4775	

Note. Results are marginal effects (the percentage point change in the likelihood attending academic high school), 95% confidence intervals in bracket, * p<0.05, ** p<0.01, *** p<0.001, one is the lowest and 5 is the highest in income quintile. Adapted from the first and second wave of KELS in2007-2008 and 2017-2018.

Table 6.1.2 recalls the key research question, whether there is a significant change in the influence of family SES on students' educational transition from lower secondary to upper secondary education. After pooling two datasets, this study adds year dummies in independent variables to the 2nd wave of cohorts to estimate significant changes between 2007 and 2017. The table below includes only interaction year dummies for conciseness. The full results are indicated in *Appendix 12*. Once again, Model I utilizes each SES factor separately, while Model II uses SES only.

There are no significant changes of family SES or private education spending in predicting students' high school tracks between 2007 and 2007, which indicates the negligible role of the school admission intervention in 2010.

In addition, the regional disparity in choosing an academic track has improved at a statistically significant level. In order words, students in rural areas are more likely to attend an academic track in 2017 compared to 2007. This is a result of the high school diversification policy establishing more academic high schools in rural areas (MoE, 2021). Students' academic achievement shows a significant decrease in determining high school tracks (-0.001, $p<0.001$).

In 2017 cohorts, female students are more likely to choose an academic track than a vocational high school at a statistically significant level. The result in the late 2000's cohorts is consistent with the previous finding of Choi (2020), which utilizes the late 2000s data, but this gender difference in the high school track changed in 2017.

On the other hand, a substantial increase in educational aspiration for students attending academic high schools in 2017 implies that entering a vocational high school is less likely to be perceived as a way to prepare for higher education given the nature of the variable that reflect students' educational level wishing to complete. .

Table 6.1.2. Logistic model for predicting high school tracks between academic and vocational tracks with interaction dummies

	Model I (each SES factor)		Model II (SES)	
Year (Dummy)	0.038	[-0.051,0.126]	0.048	[-0.026,0.122]
Income Quintile*Year	0.001	[-0.011,0.013]		
Father's education level*Year	0.006	[-0.011,0.023]		
Mother's education level*Year	-0.004	[-0.024,0.015]		
SES*Year			-0.001	[-0.006,0.005]
Private education spending*Year (log)	0.000	[-0.001,0.001]	0.000	[-0.001,0.001]
Academic self-efficacy*Year	-0.018	[-0.044,0.009]	-0.018	[-0.045,0.008]
Educational aspiration*Year	0.018**	[0.007,0.029]	0.018***	[0.007,0.029]
Female*Year	0.036**	[0.009,0.063]	0.037**	[0.010,0.064]
Academic achievement*Year	-0.001***	[-0.002,-0.001]	-0.001***	[-0.002,-0.001]
Rural*Year	0.059**	[0.019,0.098]	0.059**	[0.019,0.098]
Pseudo R^2	0.246		0.244	
N	8,826		8,826	

Note. Results are marginal effects (the percentage point change in the likelihood attending academic high school), one is the lowest and 5 is the highest in income quintile, 95% confidence intervals in bracket, * p<0.05, ** p<0.01, *** p<0.001. Adapted from the first and second wave of KELS in 2007-2008 and 2017-2018.

Overall, the results confirm the EMI hypothesis that educational inequality owing to socioeconomic differences persists in high school transition between academic and vocational tracks, which is consistent with previous findings (Byun & Park, 2017; Choi, 2020). This study demonstrates that socioeconomic backgrounds consistently and persistently play a significant role in determining students' high school track in the reformed Korean high school system. Specifically, socioeconomically wealthier students and those receiving more private education have a higher likelihood of attending academic high schools, while students from low socioeconomic backgrounds are more likely to attend vocational high schools. This is important since attending vocational high schools is voluntary, students choose vocation high schools despite the qualitative differentials among high school tracks. Overall, the result of educational inequality in high school track due to socioeconomic backgrounds indicates how family socioeconomic disparity transmits to their children in the form of different high school types in Korea.

In addition, this study concludes that policy intervention shows an insignificant influence on relieving educational disparity among high schools, contrary to the finding by Ryu et al. (2015). The evidence shows that family socioeconomic backgrounds play a significant role in predicting a high school track in both cohorts, and there are no significant changes.

Regarding individual backgrounds, female students and students in rural areas are more likely to be on an academic track. The decline in regional disparity may be associated with the school diversification reform establishing more general high schools in rural areas. Moreover, in recent years, the decline in gender disparity in an academic track is engaged in supply and demand factors. Market demands have increased majors such as engineering and ICT, which are predominantly male sectors.

6.1.2. Family SES and the transition to different high school types

Table 6.1.3 uses the multinomial logistic regression model to estimate all four high school types that compare two cohorts between 2007-8 and 2017-8, and also utilizes an SES variable, the summed and standardized decile score of income and parental education levels.

First, the results show significant socioeconomic differences among high school types, except for autonomous high schools. Without controlling private education spending, students from higher SES are more likely to attend autonomous high schools (*see Appendix 22*). Socioeconomically wealthier students have a lower likelihood of attending vocational high schools in both cohorts (*Cohort I=-0.016, Cohort II=- 0.013, p<0.001*). Similarly, more private education spending, as a proxy of parental direct support to a student, is negatively and significantly associated with students attending vocational high schools in both cohorts. Concerning special-purpose high schools, higher parental SES and more private education spending are significantly associated with attending special-purpose high schools in both cohorts, which is not the expected outcome of the MoE of Korea to relieve the influences of private educational spending and family SES on attending special-purpose high schools.

With respect to individual backgrounds, female students are more likely to attend vocational high school in 2007 by 2.8 percentage points, but this association has been changed. In 2017, female students are more likely to enter general high schools in 2017 at the statistically significant level (*0.046, p<0.001*).

In addition, a significant change is seen in students residing in rural areas, who are more likely to enter general high schools. However, rural area students are still less likely to choose autonomous high schools. This may associate with the high school diversification policy that have established more general high schools in rural areas.

Regarding students' intrinsic factors, students having higher educational aspirations and beliefs in their academic capability were more likely to attend academic tracks. When higher academic self-efficacy is significantly and negatively associated with vocational high schools in both cohorts, students choosing autonomous high schools and special-purpose high schools show higher levels of academic self-efficacy in 2017.

The results on students' social cognitive factors, such as academic self-efficacy and educational aspiration, emphasize that the importance of cognitive and psychological aspects in students' high school decisions (Mark, 2017). It provides rooms for investigating students' high choice as an individual's career decision-making process.

Table 6.1.3. Multinomial logistic model for predicting students' high school transition with all school types

	(1) Vocational		(2) General		(3) Autonomous		(4) Special	
	Cohort I 2007-8	Cohort II 2017-8	Cohort I 2007-8	Cohort II 2017-8	Cohort I 2007-8	Cohort II 2017-8	Cohort I 2007-8	Cohort II 2017-8
SES	-0.016***	-0.013***	0.014***	0.008***	0.001	0.002	0.001	0.003**
	[-0.020,-0.012]	[-0.017,-0.010]	[0.010,0.019]	[0.004,0.013]	[-0.000,0.002]	[-0.001,0.005]	[-0.001,0.003]	[0.001,0.005]
Private education spending (log)	-0.022***	-0.019***	0.016*	0.001	-0.002	0.005	0.008*	0.013**
	[-0.033,-0.011]	[-0.027,-0.012]	[0.003,0.030]	[-0.013,0.015]	[-0.006,0.003]	[-0.005,0.016]	[0.001,0.014]	[0.004,0.022]
Academic self-efficacy	-0.089***	-0.057***	0.076***	0.005	-0.007*	0.022**	0.020***	0.029***
	[-0.111,-0.067]	[-0.072,-0.041]	[0.052,0.100]	[-0.017,0.027]	[-0.014,-0.001]	[0.006,0.037]	[0.011,0.029]	[0.020,0.038]
Educational aspiration	-0.023***	-0.037***	0.018***	0.028***	0.001	0.007	0.005	0.002
	[-0.032,-0.015]	[-0.043,-0.031]	[0.007,0.028]	[0.016,0.040]	[-0.002,0.005]	[-0.002,0.016]	[-0.001,0.010]	[-0.004,0.009]
Female (1=female, 0=male)	0.028**	-0.01	-0.026*	0.046***	-0.007	-0.050***	0.005	0.013**
	[0.007,0.049]	[-0.027,0.008]	[-0.049,-0.003]	[0.022,0.071]	[-0.014,0.000]	[-0.067,-0.032]	[-0.002,0.013]	[0.004,0.022]
Academic achievement (100-quantiles)	-0.004***	-0.002***	0.004***	0.001***	0	0.001***	0.000*	0.001***
	[-0.004,-0.004]	[-0.002,-0.002]	[0.003,0.004]	[0.000,0.001]	[-0.000,0.000]	[0.000,0.001]	[0.000,0.001]	[0.000,0.001]
Rural (1=rural, 0=urban)	0.009	-0.052***	0.189***	0.088***	-0.005	-0.040**	-0.192***	0.004
	[-0.024,0.042]	[-0.076,-0.028]	[0.131,0.247]	[0.052,0.125]	[-0.020,0.010]	[-0.069,-0.011]	[-0.241,-0.144]	[-0.011,0.019]
Pseudo R^2	0.231	0.143	0.231	0.143	0.231	0.143	0.231	0.143
N	4051	4775	4051	4775	4051	4775	4051	4775

Note. Results are marginal effects (the percentage point change in the likelihood attending academic high school), 95% confidence intervals in bracket,
* p<0.05, ** p<0.01, *** p<0.001. Adapted from the first and second wave of KELS in 2007-2008 and 2017-2018.

Table 6.1.4. presents the multinomial logistic regression result with all four high school types that compare two cohorts between 2007-8 and 2017-8. The result assesses each SES factor, including household income and parental education levels.

As expected, students with a lower income quintile and a lower parental educational level are more likely to choose vocational high schools in both cohorts at the statistically significant level. A higher level of SES factors is more likely to enter general high schools in both timeframes. However, the income quintile is only significantly associated with the probability of choosing an autonomous high school in 2007 but not in 2017. It is related to the school diversification policy, which financially supports autonomous high schools to have a similar level of tuition as other schools.

Students choosing special-purpose high schools are more likely to receive a high level of private education in the 2017 cohorts, suggesting that the new admission policy in 2010 shows an insignificant effect on decreasing household education expenditure.

Female students in 2007 were more likely to choose vocational high schools, but it is not significant in 2017. In line with this, female students were less likely to enter general high school in 2007 but more likely to attend general high schools in 2017 at a statistically significant level. However, male students are more likely to attend autonomous high schools in both cohorts. In 2017, female students are more likely to attend special-purpose high schools. As discussed, students in rural areas are more likely to choose general high schools in 2017. However, autonomous high schools are less likely to receive students from rural areas in both cohorts.

Concerning students' social cognitive factors, students with a lower level of academic self-efficacy are more likely to choose vocational high schools. Interestingly, academic self-efficacy is significantly associated with students entering general high school in 2007 but not in 2017. Instead, students attending autonomous high schools are likely to show a higher level of academic self-efficacy. Together with a higher academic achievement level in entering autonomous high schools in 2017, it suggests that 2017 cohorts perceive autonomous high schools as an alternative to general high schools in pursuing higher education. The consistent significant role of personal cognitive factors in predicting students' high school type suggests that students' high school choice is a cognitive and career decision-making process.

Table 6.1.4. Multinomial logistic model for predicting students' high school transition with all school types (each SES factor)

	Vocational		General		Autonomous		Special-purpose	
	(1) Cohort I 2007-8	(2) Cohort II 2017-8	(1) Cohort I 2007-8	(2) Cohort II 2017-8	(1) Cohort I 2007-8	(2) Cohort II 2017-8	(1) Cohort I 2007-8	(2) Cohort II 2017-8
Income quintile	-0.019***	-0.017***	0.016**	0.015**	0.004**	0.005	-0.001	-0.003
	[-0.028,-0.010]	[-0.024,-0.010]	[0.007,0.026]	[0.005,0.025]	[0.001,0.006]	[-0.002,0.012]	[-0.004,0.003]	[-0.007,0.001]
Father's education	-0.023**	-0.023***	0.020**	0.014	0.001	0.005	0.002	0.004
	[-0.037,-0.009]	[-0.034,-0.012]	[0.005,0.035]	[-0.002,0.029]	[-0.002,0.005]	[-0.005,0.016]	[-0.004,0.007]	[-0.001,0.009]
Mother's education	-0.013	-0.005	0.013	0.003	-0.003	-0.002	0.002	0.005
	[-0.031,0.005]	[-0.018,0.007]	[-0.005,0.032]	[-0.015,0.020]	[-0.007,0.002]	[-0.014,0.010]	[-0.003,0.007]	[-0.001,0.010]
Private education spending (log)	-0.021***	-0.018***	0.015*	-0.002	-0.002	0.004	0.008*	0.016**
	[-0.033,-0.010]	[-0.025,-0.011]	[0.002,0.029]	[-0.017,0.012]	[-0.006,0.002]	[-0.007,0.014]	[0.001,0.016]	[0.006,0.026]
Academic Self-efficacy	-0.087***	-0.056***	0.074***	0.005	-0.008*	0.021**	0.020***	0.030***
	[-0.109,-0.065]	[-0.071,-0.041]	[0.050,0.099]	[-0.017,0.027]	[-0.014,-0.001]	[0.006,0.037]	[0.011,0.029]	[0.021,0.038]
Educational aspiration	-0.023***	-0.036***	0.017**	0.027***	0.001	0.007	0.005	0.002
	[-0.032,-0.015]	[-0.043,-0.030]	[0.007,0.028]	[0.016,0.039]	[-0.002,0.005]	[-0.003,0.016]	[-0.001,0.010]	[-0.004,0.009]
Female (1=female, 0=male)	0.026*	-0.01	-0.025*	0.046***	-0.006	-0.049***	0.005	0.013**
	[0.005,0.047]	[-0.027,0.008]	[-0.048,-0.002]	[0.022,0.071]	[-0.014,0.001]	[-0.067,-0.032]	[-0.002,0.013]	[0.004,0.022]
Academic achievement (100-quantiles)	-0.004***	-0.002***	0.004***	0.001**	0	0.001***	0.000*	0.001***
	[-0.004,-0.004]	[-0.002,-0.002]	[0.003,0.004]	[0.000,0.001]	[-0.000,0.000]	[0.000,0.001]	[0.000,0.001]	[0.000,0.001]
Rural (1=rural, 0=urban)	0.007	-0.053***	0.193***	0.089***	-0.005	-0.040**	-0.195***	0.004
	[-0.026,0.040]	[-0.077,-0.029]	[0.134,0.251]	[0.052,0.126]	[-0.020,0.010]	[-0.069,-0.011]	[-0.244,-0.146]	[-0.011,0.019]
Pseudo R^2	0.234	0.145	0.234	0.145	0.234	0.145	0.234	0.145
N	4051	4775	4051	4775	4051	4775	4051	4775

Note. Results are marginal effects (the percentage point change in the likelihood attending one type of high school), 95% confidence intervals in bracket,
* p<0.05, ** p<0.01, *** p<0.001. Adapted from the first and second wave of KELS in 2007-2008 and 2017-2018.

Table 6.1.5 responds to the key research question of whether the school admission reform in 2010 has relieved the stratified high school system and private spending on education. In order to identify the change in the effect of family SES on school choice, the interaction dummies between independent variables and a year variable are added. The year dummy equals 1 for the second cohort of KELS, which means that interaction dummies show a significant change in 2017 compared to 2007.

Regarding SES differences among high school types, students attending general high schools in 2017 show a higher income level than in 2007. In contrast, students attending autonomous high school in 2017 show a lower income level than 2007, which may relate to the government subsidizing autonomous high schools' tuition.

However, students attending special-purpose high schools do not show any significant change in family SES variables. In contrast, private educational spending in admitting special-purpose high schools increased in 2017 compared to 2007 at a statistically significant level (*0.001, $p<0.001$*) after adjusting price between cohorts. Overall, the results confirm the negligible role of the school admission reform in 2010, which aimed to reduce private educational spending and an educational disparity among high school types.

There are significant changes in academic self-efficacy between general and autonomous high schools. In 2017, students attending general high schools show a decline in their self-efficacy, while students attending autonomous high schools show a higher level of academic self-efficacy compared to 2007. Regarding regional disparity, the significant coefficient decline in gender and rural variables implies that females and students in rural areas have been less likely to attend vocational high schools in recent years. In addition, students in rural areas are more likely to attend special-purpose high schools.

Table 6.1.5.Multinomial logistic regression for high school transition with all school types with interaction dummies

	Vocational		General		Autonomous		Special	
Variables	(1)	(2)	(1)	(2)	(1)	(2)	(1)	(2)
Year (Dummy)	-0.039	-0.048	0.047	0.052	-0.03	-0.029	0.022	0.025
	[-0.13,0.05]	[-0.12,0.03]	[-0.10,0.20]	[-0.08,0.18]	[-0.16,0.10]	[-0.14,0.08]	[-0.04,0.09]	[-0.04,0.08]
Income quintile*Year	0		0.015		-0.014*		-0.001	
	[-0.01,0.01]		[-0.00,0.03]		[-0.03,-0.00]		[-0.01,0.00]	
Father's education level*Year	-0.005		0.007		-0.003		0.001	
	[-0.02,0.01]		[-0.02,0.03]		[-0.02,0.02]		[-0.01,0.01]	
Mother's education level*Year	0.004		-0.016		0.012		0.001	
	[-0.02,0.02]		[-0.04,0.01]		[-0.01,0.03]		[-0.01,0.01]	
SES*Year		0.001		0		-0.002		0.001
		[-0.01,0.01]		[-0.01,0.01]		[-0.01,0.01]		[-0.00,0.00]
Private education spending*Year (log)	0	0	0	0	0	0	0.001**	0.001*
	[-0.00,0.00]	[-0.00,0.00]	[-0.00,0.00]	[-0.00,0.00]	[-0.00,0.00]	[-0.00,0.00]	[0.00,0.00]	[0.00,0.00]
Self-efficacy*Year	0.016	0.017	-0.065**	-0.065**	0.055**	0.055**	-0.007	-0.007
	[-0.01,0.04]	[-0.01,0.04]	[-0.11,-0.02]	[-0.11,-0.02]	[0.02,0.09]	[0.02,0.09]	[-0.02,0.01]	[-0.02,0.01]
Educational aspiration*Year	-0.017**	-0.018**	0.021*	0.022*	0	-0.001	-0.004	-0.003
	[-0.03,-0.01]	[-0.03,-0.01]	[0.00,0.04]	[0.00,0.04]	[-0.02,0.02]	[-0.02,0.02]	[-0.01,0.01]	[-0.01,0.01]
Gender*Year (1=female, 0=male)	-0.040**	-0.041**	0.035	0.035	0.002	0.004	0.003	0.003
	[-0.07,-0.01]	[-0.07,-0.01]	[-0.01,0.08]	[-0.01,0.08]	[-0.03,0.04]	[-0.03,0.04]	[-0.01,0.02]	[-0.01,0.02]
Academic achievement*Year	0.001***	0.001***	-0.002***	-0.002***	0	0	0	0
	[0.00,0.00]	[0.00,0.00]	[-0.00,-0.00]	[-0.00,-0.00]	[-0.00,0.00]	[-0.00,0.00]	[-0.00,0.00]	[-0.00,0.00]
Rural*Year (1=rural, 0=urban)	-0.069***	-0.069***	-0.165***	-0.183***	-0.017	-0.021	0.251***	0.273***
	[-0.11,-0.03]	[-0.11,-0.03]	[-0.25,-0.08]	[-0.27,-0.10]	[-0.09,0.06]	[-0.10,0.06]	[0.21,0.29]	[0.23,0.31]
Pseudo R^2	0.204							
N	8826							

Note. Results are marginal effects (the percentage point change in the likelihood attending one type of high school), 95% confidence intervals in bracket,

Adapted from the first and second wave of KELS in 2007-2008 and 2017-2018. Full results presented on *Appendix 13*, * p<0.05, ** p<0.01, *** p<0.001

To conclude, the result of multinomial logistic regression, including all types of high schools, confirms that the high school transition is consistently influenced by family SES, except for autonomous high schools. Without controlling for private education spending, which is a proxy of household welfare, students from high SES are also more likely to attend autonomous high schools (*see Appendix 22*). Thus, the result supports the hypothesis that high school types are hierarchically ordered by family SES. In addition, an increased coefficient in private education spending on attending special-purpose high schools confirms the hypothesis that the high school admission reform shows a negligible effect on reducing it. However, the high school diversification policy may support students in rural areas to have better access to general and special-purpose high schools.

An increased academic self-efficacy in entering autonomous high schools suggests that students aiming at an academic track prefer to choose autonomous high schools over general high schools in recent years. It provides the grounds for the investigation of high school transition through students' cognitive aspects.

Overall, the results show that students from high SES were more likely to progress upwardly in the stratified high school type than their counterparts. Thus, higher institutional advantages were evident in high-SES students than in those from low socioeconomic backgrounds. High-SES students, therefore, have premiums or protection in transition to high school in Korea. This empirical evidence underscores remaining socioeconomic differences in Korea's educational transition to high school. It once again confirms that the high school types in Korea are highly hierarchically arranged based on parental socioeconomic backgrounds after the high school diversification reform (Byun & Park, 2017; Jeon, 2015; Hur, 2018)

6.2. Students' Social Cognitive Career Development during Middle School

The empirical results of this study confirm socioeconomic differences among high school types and also find the significant role of students' social cognitive factors, such as educational aspiration and academic self-efficacy, in determining students' high school choices. This provides the grounds for understanding students' high school transition through cognitive outcomes. In this respect, this study examines the effect of family socioeconomic backgrounds on the development of middle school students' cognitive constructs, academic self-efficacy, educational aspiration, and career maturity, which consequently influence students' high school choices.

6.2.1. Influence of Family SES on students' academic and cognitive outcomes

Table 6.2.1. reports the results of students' academic and cognitive development during middle school. Given that this study utilizes a time-invariant variable, gender, a regression model with a fixed effect has a limitation in assessing it. Thus, a random-effects model of a panel regression model is used to complement it.

Regarding students' academic achievement during middle school, higher family SES is consistently and positively associated with higher academic achievement during middle school. With a one-point increase in family SES, academic achievement rises by 3.4 percentile. In addition, private education spending, a proxy of household welfare, is also positively and significantly associated with students' academic achievement.

Regarding the role of family SES in personal cognitive factors, higher parental SES is significantly associated with higher academic self-efficacy in alignment with higher academic achievement. When students have a one-point higher SES, they are expected to have a 0.35-point higher academic self-efficacy. Students with higher educational aspirations are also likely

from higher socioeconomic backgrounds. This result confirms that family SES plays a critical contextual affordance in developing adolescents' cognitive development. The result also confirm a linear relationship of family SES on students' academic self-efficacy and educational aspiration, suggesting that students with high SES are more likely to have belief in their academic ability and aspiring more education. This study also presents a linear prediction plot of how family SES has influenced students' academic self-efficacy and educational aspiration over the years, and it also confirms a linear relationship between family SES and students' academic self-efficacy and educational aspiration (s*ee Appendix 14*).

With respect to SCCT factors, students' academic self-efficacy is positively associated with academic achievement at a statistically significant level. A one-point increase in academic self-efficacy improves students' academic achievement by 4.3 percentile. Students having higher educational aspirations also receive a 1.26 higher academic achievement percentile. In short, there is a significant inter-relationship among academic achievement, educational aspiration, and academic self-efficacy. On the contrary, students with higher career maturity are likely to have lower academic achievement. With a one-point increase in career maturity, academic achievement decreases by about 3 percentiles.

Regarding individual backgrounds, female middle school students are likely to receive 3 points higher academic achievement, which is consistent with previous literature (e.g., Honicke & Broadbent, 2016). In contrast, female students are likely to have lower academic self-efficacy, (Honicke & Broadbent, 2016). In addition, there is a significant regional disparity in academic achievement in which students in rural areas receive about two percentiles lower academic achievement. In addition, the regional disparity in academic self-efficacy is found in alignment with the result on academic achievement.

Overall, the findings of this study corroborate previous findings that family SES plays a significant role in students' academic and cognitive development in academic achievement, academic self-efficacy, and educational aspiration during middle school (Flores et al., 2017; Fouad & Santana, 2017; Sheu & Bordon, 2017). In addition, a significant reciprocal relationship is found among academic achievement, academic self-efficacy, and educational aspiration, consistent with previous findings (e.g., Talsma et al., 2018). That is, the advantages for high SES are directly and indirectly provided to the students in developing academic and cognitive outcomes.

Thus, the findings add to the body of literature insofar as the results demonstrate that family SES has influenced students' academic achievement and has shaped students' career cognitive outcomes. SCCT pertains to the notion that student achievement is influenced by the context within which students pursue their education. That is, regarding their academic outcomes, SCCT argues that students are exposed to varying environmental factors that impact their educational success (Brown & Lent, 2019). Taken together, this study finds that family SES as students' contextual background is a significant predictor of students' educational success and cognitive development during middle school.

Table 6.2.1. Panel regression results of the relationship between family and students' academic and cognitive outcomes

	(1) Academic Achievement		(2) Academic self-efficacy		(3) Educational aspiration	
Variables	Coef	(Se)	Coef	(Se)	Coef	(Se)
SES	3.439***	[3.152,3.725]	0.0346***	[0.029,0.040]	0.0245***	[0.013,0.036]
Private spending on education (log)	3.269***	[2.669,3.869]	0.0522***	[0.041,0.063]	0.0460***	[0.021,0.071]
Academic self-efficacy	4.360***	[3.452,5.267]			0.190***	[0.150,0.231]
Educational aspiration	3.145***	[2.766,3.525]	0.0317***	[0.024,0.039]		
Career maturity	-2.956***	[-3.712,-2.201]	0.324***	[0.309,0.339]	0.120***	[0.084,0.156]
Female (1=female, 0=male)	5.802***	[4.635,6.969]	-0.0881***	[-0.111,-0.065]	0.213***	[0.166,0.260]
Rural	-1.986**	[-3.527,-0.446]	-0.0344**	[-0.064,-0.005]	0.0140	[-0.054,0.082]
Academic achievement			0.00149***	[0.001,0.002]	0.00630***	[0.006,0.007]
Constant	-22.09***	[-26.730,-17.458]	0.780***	[0.684,0.876]	1.357***	[1.157,1.557]
Adjusted R^2	0.179		0.290		0.080	
N			12,783			

Note: adapted from the second wave of KELS in 2014-2017, 95% confidence intervals in brackets, * p<0.10, ** p<0.05, *** p<0.001, the second wave of KELS in 2014-2017

6.2.2. The relationship between family SES and career maturity

Table 6.2.2. presents the determinants of career maturity from the SCCT perspective. In particular, this study postulates the non-linear association between family SES and career maturity, meaning that both high-SES and low-SES students are likely to have a higher career maturity to meet their respective needs (Duflo & Banerjee, 2011). Before the regression analysis, this study conducts a U-shape test by Lind & Mehlum (2010) to examine the presence of a non-linear U-shaped relationship between family SES and career maturity. This study finds a statistically significant level of using a U-shape relationship *(see Appendix 15)*.

Accordingly, the first model estimates SES and private spending on education to examine the linear and positive association, and the second model added SES-squared and private education spending-squared to estimate the non-linear relationship. In short, Model I proposes a linear relationship between family SES and career maturity, when Model II hypothesizes a non-linear U-curved relationship between them.

Model II shows that the relationship between career maturity and family SES follows a U-shaped non-linear association at the statistically significant level, contrary to the previous findings. In addition, the overall fitness of the model when using a quadratic model is slightly higher than that of a linear model. In order words, students with low SES and high SES are likely to have higher career maturity. In addition, the result also finds the same pattern in private spending on education. Students receiving low and high private education spending are more likely to have a higher level of career maturity. It implies that even students with low SES are more likely to invest their resources in career activities (Mullainathan & Shafir, 2013). In addition, the empirical results testing the U-curved relationship between family SES and students' career maturity by each academic year also supports that students with both high SES

and low SES are likely to show a higher career maturity level in each academic year (*see Appendix 16*).

Figures 6.2.1. and *6.2.2.* present quadratic prediction plots for career maturity from a regression of career maturity on SES and SES^2, illustrating that students from the lowest SES and receiving the least private education are likely to have a higher career maturity. This non-linear U-shaped relationship of family SES and private education spending on career maturity could lead to different paths in students' decisions on high school type.

Concerning the association with other SCCT factors, career maturity is positively and significantly associated with academic self-efficacy and educational aspiration. That being said, students' belief in their academic capabilities and higher educational goals leads them to invest their time in career exploration. On the contrary, there is a negative association between career maturity and academic achievement at a statistically significant level. That is, students with lower academic achievement are more likely to devote their resources to career exploration. As high school transition in Korea is highly stratified by students' academic achievement, low academic achievement with high career maturity may be related to the transition to high school, which is a critical juncture for students to choose their high school between academic and vocational tracks.

Table 6.2.2. Panel regression results on the relationship between family SES and students' career maturity

	(1) SES		(2) SES-squared		(3) Private education spending		(4) Private education spending-squared	
SES	0.009**	[0.002,0.016]	-0.116**	[-0.189,-0.043]				
SES^2			0.004***	[0.002,0.007]				
(log) Private spending on education					-0.01	[-0.023,0.003]	-0.078**	[-0.116,-0.039]
((log) Private spending on education)^2							0.013**	[0.006,0.020]
Academic Self-efficacy	0.468***	[0.446,0.490]	0.468***	[0.446,0.490]	0.474***	[0.451,0.496]	0.473***	[0.451,0.496]
Educational aspiration	0.03***	[0.020,0.040]	0.031***	[0.021,0.040]	0.031***	[0.021,0.041]	0.031**	[0.021,0.041]
Academic achievement	-0.002**	[-0.002,-0.001]	-0.002***	[-0.002,-0.001]	-0.001*	[-0.002,-0.001]	-0.002**	[-0.002,-0.001]
Female	-0.018	[-0.046,0.010]	-0.019	[-0.047,0.009]	-0.019	[-0.048,0.009]	-0.0180	[-0.046,0.010]
Rural	-0.027	[-0.064,0.010]	-0.023	[-0.065,0.009]	-0.036*	[-0.073,0.001]	-0.033*	[-0.070,0.004]
Constant	2.480***	[2.371,2.589]	3.363***	[2.835,3.890]	2.616***	[2.532,2.700]	2.691***	[2.597,2.784]
Adjusted R^2	0.218		0.219		0.218		0.219	
N	12,783							

Note: Adapted from the second wave of KELS in 2014-2017, 95% confidence intervals in brackets, * p<0.10, ** p<0.05, *** p<0.001

Figure 6.2.1. Fitted plot on family SES and career maturity

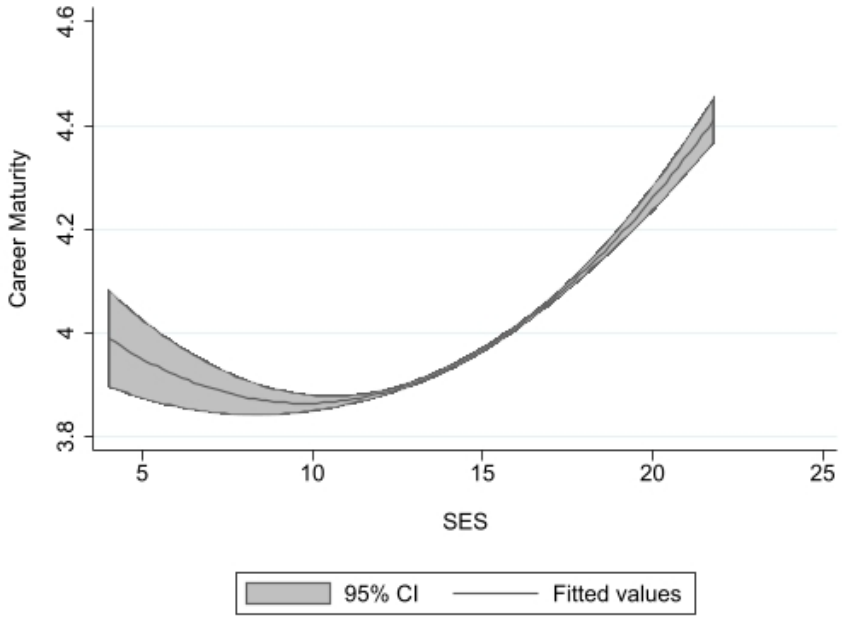
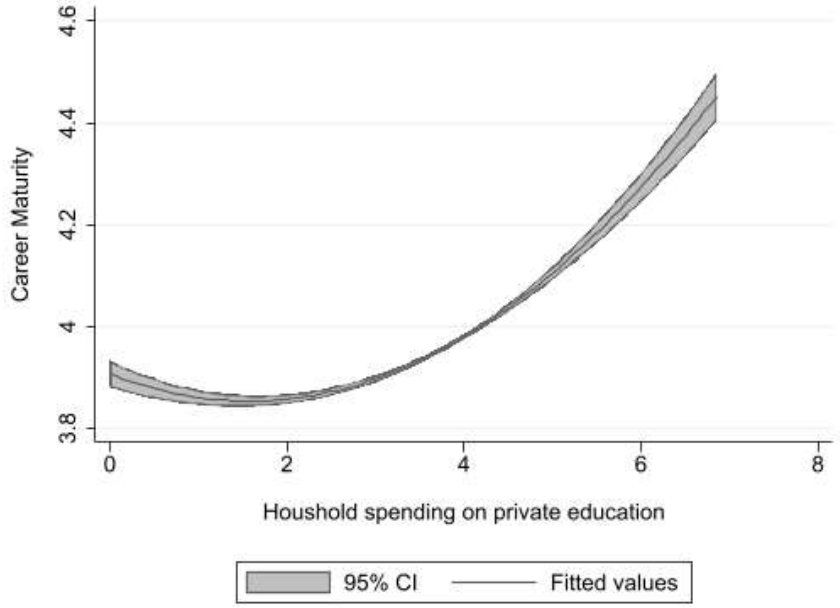


Figure 6.2.2. Fitted plot on private education spending and career maturity



Note: Adapted from the second wave of KELS, 95% confidence intervals is followed in figure

Furthermore, this study analyses the relationship between career maturity and income by categorizing family income levels into income deciles. *Table 6.2.3* shows that students at the bottom income quintile are associated with higher career maturity by 0.5 points (*P<0.05*). In addition, the predicted probability on income decile follows a similar pattern of a U-shaped relationship between family SES and career maturity *(see Annex 16*). Interestingly, students' career maturity at the bottom income decile has improved in the third year of middle school (*see. Annex 18*). This result may relate to the high school transition that socially and economically disadvantaged students have sought to explore career activities in cognizance of their economic deficit. That is, the trade-offs occur when allocating resources when students from low SES face career decision-making. In this situation, low-SES students make them allocate their resources in career activities to meet their current needs (e.g., getting a job earlier) rather than pursuing higher education, which and in turn, influences their career cognitive outcomes (Hu et al., 2019). Conversely, students in other income quintiles show a general pattern in which career maturity decreases as they get older (*see Appendix 18*).

Table 6.2.3. Relationship between family income level and students' career maturity

	Margins		Predicted margins	
1st income decile	0.053*	[0.009,0.098]	3.992***	[3.958,4.025]
2nd income decile	-0.006	[-0.051,0.039]	3.932***	[3.898,3.967]
3rd income decile	0.018	[-0.028,0.063]	3.956***	[3.918,3.994]
4th income decile		-	3.938***	[3.907,3.970]
5th income decile	0.024	[-0.022,0.070]	3.963***	[3.925,4.000]
6th income decile	0.002	[-0.037,0.040]	3.940***	[3.913,3.967]
7th income decile	0.033	[-0.024,0.089]	3.971***	[3.923,4.020]
8th income decile	0.024	[-0.018,0.066]	3.963***	[3.932,3.993]
9th income decile	0.025	[-0.027,0.078]	3.964***	[3.921,4.007]
10th income decile	0.027	[-0.023,0.077]	3.965***	[3.926,4.005]

Note. Adapted from the second wave of KELS in 2014-2017, The reference group is the 4th income quintile. 95% confidence intervals in brackets, * p < 0.05, ** p < 0.01, *** p < 0.001

Consistent with previous SCCT literature (Ahuja, 2016; Honicke & Broadbent, 2016; Marsh & Craven, 2006), this study finds a linear relationship between family SES and students' social cognitive factors, such as academic self-efficacy and educational aspiration. In other words, the evidence suggests that students had higher family SES are likely to take advantage of improving cognitive outcomes, such as academic self-efficacy and educational aspiration. With higher social career cognitive outcomes, students from high SES are likely to have higher academic achievement levels, which expects them to move upwardly in the high school hierarchy, such as autonomous and special-purpose high schools.

On the other hand, unlike the previous findings (e.g., Hui & Lent, 2018), this study finds a non-linear U-shaped relationship between family SES and career maturity, indicating that students from both high SES and low SES are likely to have a higher career maturity level. In particular, even those socioeconomically disadvantaged and receiving less parental support are likely to have a higher career maturity. It suggests that the high school transition lead students deviate from the typical structure that follows a linear relationship between family socioeconomic backgrounds and career cognitive outcomes (Hu et al., 2019; Lent, 2019). That is, students in need as an active agent to respond their environments may invest their resources in career exploration to respond to their financial constraints in facing career choice of high school transitions. This higher career maturity among high-SES and low-SES students aligns with different educational paths in high school transition.

6.3. High School Transition from the SCCT Perspective

The previous analysis of this study shows persistent socioeconomic differences among high school types in students' high school transition. In addition, this study finds that students have responded to their socioeconomic status in their career development during middle school. T The results of this study found that students from low SES are likely to have low academic self-efficacy, less aspiring higher education level, and a higher understanding of careers. In contrast, socioeconomically advantaged students are more likely to believe in their academic capability, aspire to a higher level of education, and have a higher career maturity level.

The primary aim of the study is to examines the applicability of SCCT in identifying the underlying mechanism of students' high school choice through these social cognitive factors of SCCT. Using the 2nd wave of KELS, information on students' high school transition in 2017-2018, this study investigates how students' career cognitive outcomes, influenced by family SES, are associated with students' high school transition in the high school hierarchy.

In this regard, this part begins with investigating the mediating role of SCCT variables in the relationship between family SES and students' high school transition. It seeks to explain the role of SCCT variables in the mechanism underlies the relationship between family SES and students' high school transition (Baron & Kenny, 1986). It informs the direct and indirect effects of family SES and the SCCT factors on students' high school decisions.

This study then explores the distinctive role of high career maturity in students from high and low socioeconomic status in students' high school choices in the high school hierarchy. Specifically, it investigates how high carer maturity between high-SES and low-SES shows different pathways in transitioning high school in the high school hierarchy in Korea. This specification could answer the dynamics of understanding the mechanism of students' high school decision-making process in the perceived institutional quality hierarchy in Korea

6.3.1. Mediating role of SCCT in the choice of high school type

Table 6.3.1 presents the result of the mediation analysis suggested by Baron and Kenny (1986). It finds an education pathway between academic and vocational tracks. It demonstrates how mediating variables (SCCT variables) help explain how independent variables (e.g., SES) influence a dependent variable (school choice) (Hayes & Preacher, 2014).

After controlling the SCCT factors, an SES marginal effect is decreased in Model II, but it is statistically significant (*b=0.028 to b=0.020, p<.001)*. Similarly, the effect of private spending on education, as a proxy of direct parental support and household welfare, on determining the high school track has been reduced (*b=0.031 to b=0.018, p<.001)* when controlling students' career cognitive outcomes. The result confirms that the SCCT factors partially mediate students' choice of an educational pathway. In addition, the total variance increased by ten percent after including SCCT variables (*Pseudo $R^{2=}$0.172)*. It suggests family SES's direct and indirect effect on students' high school choices.

Finally, all SCCT factors, including academic self-efficacy, educational aspiration, and career maturity, are statistically and significantly associated with students' high school choice between academic- and vocational high schools. The results from our study generally support the tenets in demonstrating that the SCCT provides the theoretical framework for students' choice of high school types.

Overall, the result partially confirms the mediating role of SCCT variables in the significant relation of family SES on the educational transition to high school. In addition, this study echoed the argument of Mark (2017) that highlight the significant role of cognitive and psychological aspects in students' educational transition. Moreover, this study finds the robustness of the SCCT by finding the significance of students' career cognitive outcomes in students' high school choices.

Table 6.3.1. Stepwise mediation analysis of predicting students' high school track between academic and vocational high schools

	Model I. SES only	Model II. Adding SCCT variables	Model III. adding control variables
SES	0.028*** [0.022,0.033]	0.020*** [0.015,0.025]	0.016*** [0.011,0.022]
Private education spending (log)	0.031*** [0.024,0.039]	0.018*** [0.010,0.025]	0.017*** [0.009,0.024]
Academic self-efficacy		0.093*** [0.075,0.111]	0.071*** [0.054,0.088]
Career maturity		-0.043*** [-0.058,-0.028]	-0.035*** [-0.049,-0.022]
Educational aspiration		0.041*** [0.034,0.048]	0.037*** [0.030,0.043]
Female (1=female, 0=male)			0.009 [-0.010,0.028]
Academic Achievement			0.002*** [0.001,0.002]
Rural (1=rural, 0=urban)			0.041** [0.016,0.067]
Pseudo R^2	0.081	0.172	0.207
N		3958	

Note: Results are marginal effects (the percentage point change in the likelihood attending academic high school), 95% confidence intervals in bracket.

Adapted from the second wave of KELS in 2017-2018. * p<0.05, ** p<0.01, *** p<0.001

6.3.2. The SCCT in students' educational choice between a vocational and academic track

Using the 2nd wave of KELS, *Table 6.3.2* reports the results of a logistic regression model predicting that middle school students' choice of high school tracks between academic and vocational tracks using SCCT. Once again, Model I tests the association of respective family SES factors on the high school transition, while Model II utilizes an aggregated score of SES factors.

First, family SES plays a significant role in the likelihood of students' high school track to high school after controlling SCCT variables. With a one-point increase in SES, the probability of attending academic high schools increases by 1.6 percentage points (Model II). In addition, students receiving more private education shows a higher probability of entering academic high schools (1.7 percentage points, $p<0.001$).

For the SCCT factors, academic self-efficacy and educational aspiration play a significant role in attending an academic track. Students with higher academic self-efficacy and wishing to complete high education levels are more likely to attend an academic track. Specifically, when academic self-efficacy increases by one point, the probability of attending academic high schools increases by 7.1 percentage points. In addition, students aspiring to higher education attainment have a higher likelihood of attending academic high school rises by 3.7 percentage points.

In contrast, higher career maturity and lower SES students are more likely to choose vocational high schools. In line with the finding on students' academic and cognitive development, students from low SES have a higher chance of having lower academic achievement and higher career maturity, which, in turn, make them more likely to choose vocational high schools (Hu et al., 2019).

Combined with the results from students' academic and cognitive development, it suggests how disadvantaged SES has shaped students' career cognitive variables, and these high and low social career cognitive outcomes are associated with attending vocational high schools. Similarly, corresponding to their lack of parental support, students receiving less private education are likely to strive for career development, which may make them more likely to attend a vocational high school.

The results explain the mechanism of how students from low SES are likely to choose a vocational high school in the social context where students perceive relatively poor educational outcomes in vocational high school. Given the fact that vocational high school graduates show a lower likelihood of attending 4-year universities and a higher likelihood of getting low-quality jobs in Korea (OECD, 2018), the result shows a higher probability of attending vocational high school among students from low SES indicates how family socioeconomic disparity transmits to their children in the form of high school type.

In contrast, students with higher SES and higher academic self-efficacy show a higher likelihood of attending academic high schools, which confirms the hypothesis that socioeconomic inequalities are maintained by students' from different socioeconomic backgrounds taking advantageous school destinations (Bolkan et al., 2021; Flores et al., 2017). In addition, this persistent inequality is mediated by students' career cognitive constructs, suggesting that family SES has shaped the course of career development of students, which directly and indirectly affects students' high school destinations.

Table 6.3.2. Logistic model for predicting high school track between academic and vocational tracks

	Model I (each SES factor)		Model II (SES)	
Variables	Coef	Margin	Coef	Margin
Income (log)	0.416*** [0.182,0.649]	0.035*** [0.016,0.055]		
Father's education level	0.213** [0.073,0.353]	0.018** [0.006,0.030]		
Mother's education level	0.090 [-0.068,0.248]	0.008 [-0.006,0.021]		
SES			0.192*** [0.128,0.256]	0.016*** [0.011,0.022]
Private education spending (log)	0.172*** [0.079,0.265]	0.015*** [0.007,0.023]	0.196*** [0.107,0.286]	0.017*** [0.009,0.024]
Academic self-efficacy	0.836*** [0.637,1.036]	0.071*** [0.054,0.088]	0.834*** [0.634,1.034]	0.071*** [0.054,0.088]
Career maturity	-0.416*** [-0.579,-0.253]	-0.035*** [-0.049,-0.022]	-0.415*** [-0.579,-0.252]	-0.035*** [-0.049,-0.022]
Educational aspiration	0.428*** [0.347,0.510]	0.036*** [0.030,0.043]	0.428*** [0.347,0.509]	0.037*** [0.030,0.043]
Female(1=female, 0=male)	0.106 [-0.116,0.328]	0.009 [-0.010,0.028]	0.103 [-0.119,0.325]	0.009 [-0.010,0.028]
Academic Achievement	0.019*** [0.015,0.023]	0.002*** [0.001,0.002]	0.019*** [0.015,0.023]	0.002*** [0.001,0.002]
Rural (1=rural, 0=urban)	0.480** [0.175,0.785]	0.041** [0.015,0.067]	0.485** [0.181,0.790]	0.041** [0.016,0.067]
Pseudo R^2	0.209		0.207	
N	3,958			

Note: Results are marginal effects (the percentage point change in the likelihood attending academic high schools), 95% confidence intervals in bracket. * p<0.05, ** p<0.01, *** p<0.001. Adapted from the second wave of KELS in 2017-2018.

6.3.3. The SCCT in students' choice of high school type with all high school type

Table 6.3.3. captures the averaged marginal effect of independent variables in the transition to different high school types. Marginal effects indicate the percentage point change in the likelihood of attending one type of high school for a 1 percent change in the independent variable.

First, family SES is statistically and significantly associated with all high school types except for autonomous high schools (*B=0.004, p=0.08*). Without controlling private education spending, family SES is positively and significantly associated with autonomous high schools (*see. Appendix 22*). In addition, private education spending is a significant predictor of entering special-purpose high schools, which is contrary to the expected outcome of the school admission reform in 2010 to relieve educational inequality in high school transition.

This study confirms the EMI hypothesis that education inequality persists in the type of education, suggesting that high-SES students move forward in an institutional hierarchy. That is, the high school diversification policy, which aimed to meet various needs of parents and students with diverse high school types, would intensify or sustain the institutional hierarchy in the Korean high school system. In addition, this revision of school admission procedures in 2010 shows a negligible role in relieving private spending on education. The results show that students receiving more private spending on education are more likely to attend special-purpose high schools (*0.015, p<0.001*).

Regarding the role of career maturity, students with a higher level of career maturity and lower SES are more likely to choose vocational high schools, consistent with the hypothesis. Combined with the results that students with low SES are likely to have lower academic and cognitive development, it suggests the mechanism of how students with disadvantaged socioeconomic backgrounds choose a vocational track. Corresponding to their lack of parental

support and economically challenged environments, students are likely to strive for career exploration, making them more likely to attend a vocational high school. Given the fact that vocational high school graduates show a lower likelihood of attending 4-year universities and a higher likelihood of getting low-quality jobs in Korea, the result showing a higher probability of attending vocational high school among students with a low SES group indicates how family socioeconomic disparity transmits to their children in the form of high school type.

On the other hand, students with higher SES and higher career maturity show a higher likelihood of attending special-purpose high schools. That is, high-SES students who believe in their academic capability are likely to progress upwardly, such as autonomous high schools or special-purpose high schools. In addition, determinants between general and autonomous high schools are likely to be academic self-efficacy and academic achievement. This confirms the hypothesis that socioeconomic inequalities are maintained by students from different socioeconomic backgrounds taking advantageous or disadvantaged school destinations through students' career cognitive development. It is also consistent with the previous SCCT literature that socioeconomically advantaged students take advantage of family SES, resulting in higher SCCT variables, which allow them to move upwardly in the high school hierarchy (Lent et al., 2018).

The results generally support the notions of SCCT that provides the mechanism of how family SES influences students' choice of high school type through students' perceptions on their academic self-efficacy, educational aspiration, and career maturity. It is consistent with previous studies in understanding that family SES influences students' career decision-making through students' cognitive constructs (Flores et al., 2017; Fouad & Santana, 2017; Marks, 2018).

Table 6.3.3. Multinomial logistic model for predicting high school transition with all high school types

	Vocational high schools		Academic high schools	
	Vocational	General	Autonomous	Special
	(1)	(2)	(3)	(4)
SES	-0.016*** [-0.022,-0.011]	0.008* [0.001,0.016]	0.0045 [-0.001,0.010]	0.003* [0.001,0.006]
Private education spending (log)	-0.017*** [-0.025,-0.010]	-0.002 [-0.018,0.014]	0.003 [-0.008,0.015]	0.016** [0.005,0.026]
Academic self-efficacy	-0.0712** [-0.088,-0.054]	0.017 [-0.010,0.043]	0.027** [0.007,0.047]	0.028*** [0.016,0.040]
Career maturity	0.036*** [0.022,0.049]	-0.041*** [-0.061,-0.020]	-0.005 [-0.020,0.010]	0.016* [0.001,0.020]
Educational aspiration	-0.037*** [-0.043,-0.030]	0.030*** [0.017,0.044]	0.002 [-0.008,0.011]	0.005 [-0.004,0.013]
Female (1=female, 0=male)	-0.009 [-0.028,0.010]	0.040** [0.013,0.066]	-0.044*** [-0.063,-0.025]	0.013* [0.003,0.024]
Academic achievement (100-quantiles)	-0.002*** [-0.002,-0.001]	0.001 [-0.000,0.001]	0.001** [0.000,0.001]	0.001*** [0.000,0.001]
Rural (1=rural, 0=urban)	-0.041** [-0.067,-0.015]	0.075*** [0.035,0.116]	-0.037* [-0.069,-0.005]	0.002 [-0.015,0.019]
Pseudo R^2	0.133			
N	3958			

Note: Results are marginal effects (the percentage point change in the likelihood attending one type of high school). * p<0.05, ** p<0.01, *** p<0.001, 95% confidence intervals in bracket. * p<0.05, ** p<0.01, *** p<0.001. Adapted from the second wave of KELS in 2017-2018.

Table 6.3.4. presents predicted transition probabilities for students from different socioeconomic levels but with a similar level of academic achievement. As discussed, previous literature finds that academic achievement is a critical factor in determining students' high schools and a way for transmitting parental socioeconomic status to their children in the transition to high school. By controlling similar academic achievement groups, this result expects to assess the influence of SES on the transition to high school.

The results begin by comparing students from varying socioeconomic statuses at the low level of academic achievement (below 25th percentile) at the transition to high school (*Result A, Table 6.3.4.*). As expected, low-SES students with low academic achievement are more likely to attend vocational high schools than their counterparts. Statistically speaking, low-achieving students from high SES are 28 percentage points less likely to attend vocational high schools than low-SES students at similar academic achievement levels (*see also Appendix 23*).

In addition, students with low socioeconomic backgrounds at all academic achievement levels show a statistically and significantly higher probability of entering vocational high schools than academic high schools. In contrast, students from high SES are less likely to attend vocational high schools than students with middle academic achievement but with middle SES. Furthermore, high-achieving students from low SES are more likely to attend general high schools rather than autonomous or special-purpose high schools despite their high academic achievement level. The probability of low-SES students with high academic achievement attending autonomous high schools (0.104, $p<0.05$) is lower than high SES students with low academic achievement levels (0.127, $p<001$). This suggests that entering autonomous high schools is highly determined by parental socioeconomic backgrounds after reforming high school admission requirement in 2010.

High-SES students notably show a higher probability of attending special-purpose high schools. Among high-achieving students, the high-SES students' average predicted probability of attending special-purpose high schools is two times higher than similar academic achievement middle groups *(High-SES=.121, Middle-SES=.062, P<0.001, Low-SES=0.026*).

A high proportion of low SES students' institutional hierarchy is likely to reach vocational or general high schools. As a result, high-achieving but low-SES students are less likely to transition to special-purpose high schools than their counterparts. Statistically, high-achieving and low-SES students show a .03 probability of attending special-purpose high school, while high-SES students at a similar level of academic achievement level show a 0.12 probability

Overall, students in affluent environments have greater institutional reach than their low counterparts. The greater institutional reach of high-SES students is also evident in contrast to high-achieving students from different socioeconomic backgrounds at upper secondary transition. Therefore, high-SES students have greater institutional advantages in Korea's hierarchically arranged school system.

The result underscores remaining socioeconomic differences in Korea's educational transition to high school after controlling for differences in academic achievement. Furthermore, it once again confirms that the high school types in Korea are highly hierarchically arranged based on parental socioeconomic backgrounds.

Table 6.3.4. Predicted probabilities by socioeconomic status and academic achievements for high school transition

	Vocational track				Academic track			
	Vocational (1)		General (2)		Autonomous (3)		Special (4)	
A. Low academic achievement *(Bottom 25 percentile, N=1000)*								
Low SES	0.344***	[0.289,0.398]	0.592***	[0.536,0.648]	0.065***	[0.037,0.093]	0.000***	[0.000,0.000]
Middle SES	0.225***	[0.192,0.258]	0.702***	[0.665,0.738]	0.068***	[0.048,0.088]	0.005	[-0.001,0.011]
High SES	0.069**	[0.020,0.118]	0.784***	[0.704,0.864]	0.127***	[0.063,0.192]	0.02	[-0.007,0.047]
B. Middle academic achievement *(N=2006)*								
Low SES	0.178***	[0.142,0.215]	0.732***	[0.689,0.774]	0.081***	[0.055,0.107]	0.010*	[0.000,0.019]
Middle SES	0.094***	[0.078,0.110]	0.797***	[0.775,0.819]	0.092***	[0.076,0.108]	0.017***	[0.010,0.024]
High SES	0.055***	[0.029,0.081]	0.824***	[0.780,0.868]	0.103***	[0.068,0.139]	0.017*	[0.002,0.032]
C. High academic achievement *(Top 25 percentile, N=952)*								
Low SES	0.052*	[0.002,0.102]	0.818***	[0.732,0.904]	0.104**	[0.036,0.172]	0.026	[-0.010,0.062]
Middle SES	0.022***	[0.010,0.034]	0.789***	[0.755,0.823]	0.127***	[0.099,0.155]	0.062***	[0.042,0.083]
High SES	0.003	[-0.003,0.009]	0.682***	[0.632,0.732]	0.194***	[0.151,0.237]	0.121***	[0.086,0.156]

Note: Low SES: Bottom 25th percentile, High SES; top 25th percentile, otherwise middle SES, 95% Confidence Interval in brackets. * p<0.05, ** p<0.01, *** p<0.001. Adapted from the second wave of KELS in 2017-2018.

In practice, identifying which students are influenced mainly by their parental socioeconomic background informs policymakers to further policy recommendations. In this respect, *Table 6.3.5* investigates the predicted transition for students by income quintiles.

First, the results show that students at the bottom income quintile are more likely to choose vocational high schools at all academic achievement levels. In particular, high-achieving students who are eligible to enter autonomous or special-purpose high schools are more likely to attend vocational high schools.

Statistically speaking, low-achieving students at the bottom income quintile are 22 percentage points more likely to enter vocational high school than low-achieving but highest-income quintile counterparts (*see also Appendix 24)*. This study suggests practical implications for policymakers and career counselors who work for high school education by measuring which students are mostly influenced by their family SES.

In contrast, students from high economic status are more likely to transition to autonomous or special-purpose high schools than other economic status groups at similar academic achievement levels. The probability of high-income students attending autonomous or special-purpose high schools is much higher than that of a low-SES student despite their relatively low academic achievements. Statistically, the top income quintile and high-achieving students are 7.1. and 4.1. probability more likely to attend autonomous and special-purpose high schools than their lowest income quintile counterparts. In addition, they are less likely to attend general high schools at a similarly high level of academic achievement.

The results confirm that the stratified high school system in Korea partly results from socioeconomic differences and also provides information on which students need support for their transition to high school to relieve educational disparity.

Table 6.3.5. Predicted probabilities by income quintile and academic achievements for the transition to high school

	Vocational track		Academic track	
	Vocational (1)	**General (2)**	**Autonomous (3)**	**Special (4)**
A. Low academic achievement (*Bottom 25th percentile, N=1,000*)				
1st income quintile – lowest	0.357*** [0.302,0.411]	0.579*** [0.523,0.635]	0.061*** [0.033,0.088]	0.003 [-0.003,0.010]
2nd income quintile	0.249*** [0.188,0.309]	0.670*** [0.604,0.736]	0.081*** [0.043,0.119]	0.000*** [0.000,0.000]
3rd income quintile	0.220*** [0.163,0.277]	0.710*** [0.647,0.773]	0.070*** [0.035,0.105]	0.000*** [0.000,0.000]
4th income quintile	0.160*** [0.094,0.226]	0.765*** [0.688,0.841]	0.067** [0.022,0.112]	0.008 [-0.008,0.025]
5th income quintile – highest	0.139*** [0.089,0.189]	0.754*** [0.692,0.816]	0.091*** [0.050,0.132]	0.016 [-0.002,0.034]
B. Middle academic achievement *(N=2,006)*				
1st income quintile – lowest	0.182*** [0.146,0.218]	0.717*** [0.674,0.759]	0.088*** [0.061,0.114]	0.014* [0.003,0.025]
2nd income quintile	0.120*** [0.088,0.152]	0.784*** [0.743,0.824]	0.081*** [0.054,0.108]	0.015* [0.003,0.027]
3rd income quintile	0.074*** [0.051,0.097]	0.822*** [0.788,0.855]	0.088*** [0.063,0.113]	0.016** [0.005,0.027]
4th income quintile	0.098*** [0.064,0.132]	0.817*** [0.773,0.861]	0.075*** [0.045,0.105]	0.01 [-0.001,0.022]
5th income quintile – highest	0.055*** [0.032,0.077]	0.803*** [0.763,0.842]	0.122*** [0.089,0.155]	0.021** [0.007,0.035]
C. High academic achievement *(Top 25th percentile, N=952)*				
1st income quintile – lowest	0.054* [0.008,0.100]	0.785*** [0.701,0.868]	0.118*** [0.053,0.184]	0.043* [0.002,0.084]
2nd income quintile	0.02 [-0.002,0.043]	0.824*** [0.763,0.886]	0.088*** [0.042,0.133]	0.068** [0.027,0.108]
3rd income quintile	0.019* [0.001,0.037]	0.777*** [0.721,0.833]	0.123*** [0.079,0.168]	0.081*** [0.044,0.117]
4th income quintile	0.007 [-0.007,0.020]	0.795*** [0.729,0.860]	0.151*** [0.093,0.209]	0.048** [0.013,0.083]
5th income quintile – highest	0.011* [0.000,0.022]	0.686*** [0.638,0.735]	0.195*** [0.154,0.236]	0.107*** [0.075,0.140]

Note: Low academic achievement: Bottom 25th percentile, high academic achievement; top 25th percentile, otherwise middle SES,95% confidence intervals in brackets, * p<0.05, ** p<0.01, *** p<0.001. Adapted from the second wave of KELS in 2017-2018.

This study tested the non-linear U-shaped relationship between family SES and career maturity during middle school, which indicates students from both high SES and low SES are likely to have a higher career maturity, especially in the third year of middle school. Statistically, this study confirms that students at the bottom income decile have a higher level of career maturity than students in the middle-income decile. It suggests that students in socioeconomically challenged environments are more likely to adjust themselves to explore their career activities toward vocational education in the face of school transition.

Table 6.3.6. and *Table 6.3.7.* investigate how high or low career maturity among students from different socioeconomic groups influences transitioning to different high school types. *Table 6.3.6* presents predicted high school transition probabilities to attend vocational high schools for students from different career maturity levels at the bottom and the highest economic status (attending vocational high school coded as one, otherwise zero). In doing so, this study can assess how career maturity distinctively functions in students' transition to different high school types at the similar level of socioeconomic backgrounds.

The result confirms the hypothesized path that the most economically disadvantaged students with a higher career maturity show a higher probability of attending vocational high schools. Statistically, students with higher career maturity at the bottom income quintile are 18 percentage points more likely to attend vocational high school than the same income group with a low career maturity level. This evidence suggests the potential mechanism of how low-SES students choose vocational high schools in Korea.

As the results show, the process of selecting vocational high schools for students with low-income quintiles is based on the belief that they understand their career aptitude and career plan. That is, students perceive that vocational high schools provide an academic curriculum meeting their needs. In addition, students in economically challenged environments show

growth of career maturity only in the third year of middle school. This suggests that career maturity is improved based on short-term career experiences and knowledge in the face of the transition to high school. Moreover, this pattern implies that poor students choose vocational high schools to meet their short-term goals (e.g., entering job markets earlier), not considering the reality of lower employment rates and wages for vocational high school graduates in Korea.

On the contrary, students with the highest income quintile do not follow this pattern of higher career maturity among low-SES groups. Although the predicted probability in the higher career maturity and top income quintile groups shows a higher chance, it is not statistically significant. It indicates that higher career maturity among advantaged students aligns with a different path to the transition to high school. In short, depending on student's socioeconomic status, high career understanding leads to different paths in high school transition.

Table 6.3.6. Prediction on students' attending vocational high schools by career maturity at the bottom and top income quintile

	(1) Margins		(2) Predicted Probability	
A. Bottom income quintile (N=824)				
Low career maturity *(Bottom 25th percentile)*		-	0.094**	[0.032,0.160]
Middle career maturity	0.097*	[0.015,0.179]	0.193***	[0.151,0.229]
High career maturity *(Top 25th percentile)*	0.194*	[0.018,0.370]	0.301***	[0.155,0.452]
B. Top income quintile (N=926)				
Low career maturity *(Bottom 25th percentile)*		-	0.015	[-0.012,0.041]
Middle career maturity	0.032	[-0.012,0.076]	0.035***	[0.019,0.053]
High career maturity *(Top 25th percentile)*	0.039	[-0.082,0.161]	0.045	[-0.018,0.100]

Note: Attending vocational high school equals to one, otherwise zero. The reference group is low career maturity at the bottom 25th percentile, 95% confidence intervals in brackets, * p<0.05, ** p<0.01, *** p<0.001 Adapted from the second wave of KELS in 2017-201

The following *Table 6.3.7* examines the transition to high school with all four high school types for students from different career maturity levels but similar levels of income level. Students at the top and bottom income quintiles are categorized into high, middle, and low career maturity groups. To do so, this study assesses the distinctive role of high career maturity on students' high school choices from varying family socioeconomic backgrounds.

As shown, students with high career maturity at the bottom income quintile are more likely to attend vocational high schools than that of the same income level but low career maturity counterparts (*Results A in Table 6.3.7*). Statistically speaking, students with high career maturity at the bottom income quintile are 12 percentage points more likely to attend vocational high schools than their similar income counterparts.

However, high-SES and high career maturity do not follow the same pattern (*Results B in Table 6.3.7*). Instead, students with high career maturity at the top income quintile shows a higher probability of attending special-purpose high schools than that of the same income level but low career maturity groups by 8 percentage points. In other words, high career maturity for affluent students is interpreted as institutional advantages to attend special-purpose high schools ($0.08, p<0.001$), rather than vocational high schools ($0.034, p>0.1$). It implies that the advantages provided for high-SES students are more likely to turn their interests to higher prestige jobs and more access to learning, embodied as higher career plans and aspiring higher levels of education, consequently progressing them upwardly in the high school hierarchy in Korea. In contrast, impoverished students are likely to allocate their resources to career activities in respond to their family economic backgrounds, and transition to high school that fulfill their needs (vocational high schools). That being said, high career maturity for impoverished students is associated with transitioning downwardly, vocational high schools, in the stratified Korean high school system.

Table 6.3.7. Prediction on the transition to high school by career maturity at the bottom and top income quintile

	Vocational high schools				Academic high schools			
	Vocational		General		Autonomous		Special	
	Margins	Predicted Probability	Margins	Predicted Probability	Margins	Predicted Probability	Margins	Predicted Probability
A. Bottom income quintile (N=824)								
Low career maturity *(Bottom 25th percentile)*		0.113***		0.830***		0.056**		0.000
		[0.068,0.159]		[0.774,0.886]		[0.020,0.093]		[-0.000,0.000]
Middle career maturity	0.083**	0.199***	-0.110**	0.731***	0.015	0.070***	0.012	0.000
	[0.025,0.142]	[0.160,0.239]	[-0.182,-0.037]	[0.687,0.775]	[-0.034,0.063]	[0.043,0.096]	[-0.002,0.026]	[-0.000,0.000]
High career maturity *(Top 25th percentile)*	0.122**	0.244***	-0.151**	0.699***	-0.002	0.057**	0.032	0.000
	[0.044,0.199]	[0.204,0.345]	[-0.247,-0.055]	[0.620,0.777]	[-0.060,0.056]	[0.022,0.092]	[-0.002,0.065]	[-0.000,0.000]
B. Top income quintile (N=926)								
Low career maturity *(Bottom 25th percentile)*		0.018*		0.842***		0.129***		0.011
		[0.000,0.036]		[0.785,0.898]		[0.076,0.182]		[-0.004,0.026]
Middle career maturity	0.033*	0.041***	-0.077*	0.781***	0.014	0.146***	0.030*	0.032**
	[0.001,0.066]	[0.024,0.059]	[-0.147,-0.007]	[0.744,0.818]	[-0.046,0.074]	[0.116,0.175]	[0.001,0.058]	[0.012,0.052]
High career maturity *(Top 25th percentile)*	0.034	0.042***	-0.119**	0.748***	0.005	0.140***	0.080***	0.071***
	[-0.005,0.073]	[0.017,0.066]	[-0.205,-0.034]	[0.687,0.809]	[-0.066,0.076]	[0.091,0.189]	[0.037,0.123]	[0.035,0.107]

Note: 95% confidence intervals in brackets, * p<0.05, ** p<0.01, *** p<0.001. Adapted from the second wave of KELS in 2017-2018.

That is, students from low SES invest their resources in career interests and occupational plans in response to their disadvantaged socioeconomic backgrounds. Ironically, an improved understanding of careers among students from low SES is more likely to place low in the high school hierarchy, vocational high schools, which can produce adverse results in the long run (e.g., academic achievement, college entrance). In particular, their career plans and self-awareness have improved in the last year of middle school, which is the high school transition period. It suggests that the cognizance of their socioeconomic backgrounds is a significant factor in determining students' social cognitive factors to influence their high school decision-making.

The results are consistent with Kim (2012)'s investigation on students' motives' choosing high school. Students choosing a vocational high school are more likely to take into account their family financial circumstances and career choices after graduation, while students prioritize their academic interest and aptitude in high school choice are more likely to attend a special-purpose high school.

In contributing to the empirical studies based on SCCT, this study assesses the patterns in progressing upwardly or being placed lower in the upper secondary educational hierarchy thorough students' career cognitive career factors. In addition, this study adds to the literature by identifying how students with different socioeconomic backgrounds transition to high school through higher or lower career maturity.

Summary of the results

In extending empirical studies of the EMI theory, this study analyses how students with different socioeconomic backgrounds transition to different high school types using two nationally representative datasets from 2007-8 and 2017-18.

First, this study demonstrates persistent educational inequality in high school transition, indicating that there are socioeconomic differences among high school types in the reformed Korean high school system (Byun & Park, 2017; Choi, 2020). The results show that socioeconomically wealthier students receive protection from or advantages to progress in the high school hierarchy (Andrew, 2017). For instance, low-achieving but high-SES students are less likely to enter vocational high school despite low academic achievement. In comparison, low-SES students are more likely to attend vocational high schools at all academic achievement levels. Moreover, the evidence also shows that socioeconomically wealthier students have a higher probability of attending special-purpose high schools than low SES students with high academic achievement, while low-SES students are placed lower in the high school hierarchy despite similar or higher academic achievement. Overall, socioeconomic differences among high school types indicate how family socioeconomic disparity is maintained to their children in the form of different high school types in Korea.

While this study finds socioeconomic inequalities in Korea's hierarchical high school system, it does not specify how students with different socioeconomic backgrounds make such transitions. In other words, the EMI theory is limited to addressing the underlying mechanism of how students from different socioeconomic backgrounds make such transitions. This mechanism for revealing how students from different SES backgrounds transition to different high school types remains obscure. For instance, it is important to identify whether high achieving but low SES students, who have a higher chance to be selected by autonomous or special-purpose high schools, voluntarily attend general and vocational high schools or fail to attend autonomous or special-purpose high schools.

In Korea, students are able to choose their high school, and thus it is an individual's decision-making involving with psychological and cognitive process. In addition, students' high school transition in Korea is the key career choice for adolescents in determining their future educational and occupational trajectories (Jang, 2015; Choi, 2020). However, there is a dearth of research investigating high school transition from the perspective of an individual's career decision-making process.

In this respect, this study aims to unravel the underlying mechanism of how students from different socioeconomic backgrounds transition to different high school types in Korea from the SCCT perspective. Using SCCT, this study begins with investigating how family SES has influenced students' cognitive and career development, which are academic self-efficacy, educational aspiration, and career maturity, during middle school to predict students' high school choice.

Corroborating with previous findings (Ahuja, 2016; Honicke & Broadbent, 2016; Marsh & Craven, 2006), students from high SES are more likely to have higher academic self-efficacy and higher educational aspirations. With higher cognitive development, students from high SES are likely to have higher academic achievement levels, which supports students from high SES progressing upwardly in the high school hierarchy, such as autonomous and special-purpose high schools.

On the other hand, unlike the previous findings (e.g., Hui & Lent, 2018), this study finds a non-linear U-shaped relationship between family SES and career maturity, indicating that students from both high SES and low SES are likely to have a higher career maturity level. In particular, even those who are socioeconomically disadvantaged or receive less private education spending are likely to have a higher career maturity. It suggests that the high school transition leads students to deviate from the typical structure that follows a linear relationship between family socioeconomic backgrounds and career cognitive outcomes (Hu et al., 2019; Lent, 2019). That is, students in need may allocate their resources to career activities to respond to their familial environment in facing career choice of high school transitions. This higher

career maturity among high-SES and low-SES students aligns with different educational paths in high school transition.

Finally, this study investigates how students' cognitive outcomes, influenced by family socioeconomic backgrounds, are associated with students' high school transition. In particular, this study assesses the role of students' social cognitive factors, especially career maturity, in students' high school transition. First, the results of this study echoed previous literature that students' educational outcomes, high school choice, are a product of students' cognitive person, including their perceptions of academic self-efficacy, educational aspiration, and career maturity (Bolkan et al., 2021). Socioeconomically advantaged students are likely to have institutional advantages in the high school transition, interacting with belief in their academic capabilities and aspirating higher education levels

In addition, the non-linear U-shaped relationship between family socioeconomic backgrounds and career maturity links the complexity of students' transitions to different high school types in Korea. Higher career maturity among students with high and low SES aligns with different paths to the transition to high school. Socioeconomically advantaged students with high career maturity progress upwardly in the institutional hierarchy (autonomous and special-purpose high schools) in Korea. In contrast, socioeconomically disadvantaged students with high career maturity move below, vocational high schools, in the high school hierarchy. It can produce adverse consequences in their postsecondary career advances in the long run. In particular, their career plans and self-awareness have improved in the last year of middle school, which is the high school transition period. It suggests that the cognizance of their socioeconomic backgrounds is a significant factor in determining low-SES students' high school decision-making process. The results are consistent with the previous finding that students choosing a vocational high school are more likely to take into account their financial constraints and career choices after graduation, while students interested in their academic

career and aptitude in high school choice are more likely to attend a special-purpose high school (Kim, 2012).

The underlying mechanisms for explaining how young people make educational transitions responding to their socioeconomic backgrounds have not been fully addressed in the previous literature (Andrew, 2017; Ghassemi et al., 2017). In this regard, this study fills the research gap by showing how family SES has influenced students' cognitive development and how students' beliefs about their academic ability and career readiness are associated with the different educational pathways of high school transition.

Thus, the findings of this study add to the body of literature by demonstrating that students' educational outcomes, in the form of high school choice, are a product of a stratified high school system, and their SES leads students to have different trajectories through their career cognitive development. In addition, this study suggests policy implications by identifying which students are mostly influenced by their family SES in high school transition. Statistically, students at the bottom income quintile are significantly associated with attending vocational high school regardless of their academic achievement. It sheds light on the need for protection for low SES students in their transition to high schools.

CHAPTER VII. DISCUSSION & CONCLUSION

7.1. Discussion

7.1.1. Persistent socioeconomic disparity among high school types in the high school transition

In broadening the EMI theory within the Korean context, this study analyses family socioeconomic differences among high school types in students' high school transition. In line with previous findings (Byun & Park, 2017; Choi, 2020), this study finds that family socioeconomic status has consistently played a significant role in determining students' transitioning to different high school types in Korea using two nationally representative datasets of 2007-8 and 2017-8. Specifically, socioeconomically wealthier students are more likely to progress upwardly in the high school hierarchy (e.g., autonomous high schools, special-purpose high schools). In contrast, socioeconomically disadvantaged students are more likely to be placed lower, such as general and vocational high schools, despite similar or higher academic achievement. The empirical evidence shows that high school institutions are hierarchically arranged to family socioeconomic status.

Contrary to Ryu (2015), who claims that the influence of private education spending has declined on attending special-purpose high schools after adopting admission reform, this study finds its' persistent and significant role in attending special-purpose high schools in recent years. In contrast, the findings show that there was a significant increase in private education expenditure on attending special-purpose high schools in 2017 from 2007 after adjusting the price (Hur, 2018). As high school institutions are perceived to have qualitative distinctions in Korea, the high demands for receiving better education are insufficient to be restrained by withdrawing the admission requirements. It implies that students with higher SES are able to mobilize their resources for advancing to higher qualitative high school institutions in a stratified high school system.

Regarding individual characteristics, gender differences are also evident in students' choosing vocational high schools in 2007, arguing that vocational education better meets female needs than male needs, especially those with low SES levels (Choi, 2020). However, the higher likelihood of attending vocational high schools among female students has changed in 2017 compared to 2007. In 2017, female students are more likely to attend academic high schools. It aligns with the higher market demands for engineering and agriculture sectors in recent years, which is the predominant sector for males.

This study also finds a significant influence of students' social cognitive factors, such as academic self-efficacy and educational aspiration, on students' high school transition (Kim et al., 2018; Oh, 2012; Im, 2013). For instance, consistent with Im (2013)'s finding, this study finds that students attending academic high school have a higher level of academic self-efficacy than students choosing vocational high schools. Furthermore, this study finds significant coefficients increase in academic self-efficacy among students attending autonomous high schools. The academic self-efficacy of students attending general schools significantly decreased while the academic self-efficacy of autonomous high school students increased from 2007 to 2017. It suggests that students with higher academic self-efficacy have chosen autonomous high schools as an alternative to general high schools in recent years (Kim, 2015). The results on academic self-efficacy and educational aspiration are consistent with previous studies emphasizing the role of students' cognitive and psychological aspects in students' educational outcomes (Marks, 2018; Talsma et al., 2018; Oh, 2012). This provides the grounds for understanding students' high school transition as a career decision-making process that involves individuals' cognitive constructs.

Overall, this study contributes to the extant research on socioeconomic disparity among high school types in alignment with the key educational reforms in Korea. The evidence shows the persistent and significant socioeconomic disparity among high school types in the reformed

Korean high school system (Byun & Park, 2017; Choi, 2020). In addition, the result of this study shows how family socioeconomic advantages have benefited their children in the form of high school types.

This study has implications for EMI in Korea and where secondary education is closely universal. First, the finding suggests that persistent socioeconomic disparities in high school transition are salient even after reforming school admission in 2010 (Hur, 2018; Byun & Park, 2017). This is especially important since students from high SES may maintain their advantage in postsecondary careers by moving up the high school hierarchy (Byun & Park, 2017; Choi, 2020). It sheds light on the need for protection for low SES students in their transition to high school.

In addition, Korea's diversified high school system may help sustain or cultivate socioeconomic differences among high school types in transitioning to high school types (Byrne & McCoy, 2017; Jang, 2017). The purpose of the high school diversification was to provide diversified academic curricula in hopes of satisfying various students' interests and aptitudes, but the findings suggest that the high school system has been stratified in which the type of school is determined by socioeconomic backgrounds (Hur, 2018).

Together with the significant influences of students' cognitive outcomes (e.g., academic self-efficacy, educational aspiration) in determining students' high school type, the persistent socioeconomic differences among high school types in Korea provide social and institutional backgrounds for students to shape the course of career development.

7.1.2. The relationship between family SES and the SCCT constructs

SCCT rests on three primary social cognitive factors of career development that regulate individual career choice, which are self-efficacy, outcome expectations, and personal career interests (Kanny et al., 2014). In line with SCCT's choice model, this study postulates that students' high school decision is dependent on three key career cognitive outcome, which are academic self-efficacy, educational aspirations, and career maturity. In this regard, this study investigates how family SES has shaped students' primary cognitive constructs during middle school.

Corroborating with previous findings (Ahuja, 2016; Honicke & Broadbent, 2016; Marsh & Craven, 2006), this study finds that higher family SES is significantly associated with higher academic self-efficacy and higher academic achievement. Moreover, a reciprocal relationship between academic self-efficacy and academic achievement was identified during middle school (Marsh & Craven, 2006; Talsma et al., 2018). In addition, students' educational aspiration is significantly associated with family SES, finding that students from high SES are more likely to long for a higher education level. Together with a consistent effect of family SES on students' cognitive outcomes, the clear reciprocal pattern among academic achievement, academic self-efficacy, and educational aspiration suggests that low socioeconomic backgrounds have aggravated students' cognitive outcomes, such as self-efficacy and educational aspiration (Demanet & Van Houtte, 2017; Marsh & Craven, 2006).

On the other hand, this study examines the relationship between family SES and career maturity, comprising of career self-awareness and career plan, with a nonlinear regression model. In contrast to the previous findings (e.g., Hui & Lent, 2018), this study confirms a non-linear U-shaped relationship between family SES and career maturity, indicating that students from both low SES and high SES are likely to have a higher career maturity level. Similarly,

students receiving less parental support, a lower level of private educational spending, are likely to have a higher career maturity level. Statistically, students at the bottom income decile are likely to have higher career maturity. In addition, students at the bottom income decile are likely to improve career maturity in the last year of middle school, which is the high school transition period (*Appendix 19*). It suggests that students from lower socioeconomic backgrounds have responded to their economic circumstances by exploring their careers in the transition to high school. In contrast, the advantages provided for high-SES students are more likely to turn their interests to higher prestige jobs and more access to learning, embodied as higher academic achievement and aspiring higher levels of education. The results suggest that low-SES students choosing a vocational high school are more likely to consider their family financial circumstances and career choices after graduation, while high-SES students are more likely to attend autonomous or special-purpose high school by prioritizing their academic interests and aptitude (Kim, 2012).

In this regard, this study contributes to the previous literature by showing that students from different SES have distinctive pathways for career development. That being said, students with different socioeconomic strata allocate their resources to career exploration to meet their respective needs and are congruent with their SES (Demanet & Van Houtte, 2017; Hu et al., 2020). Griskevicius et al. (2013) note that people who grow up in more chaotic and harsh environments are more likely to allocate their resources to meet current needs, such as entering the job market and parenting earlier. In addition, adolescents are in the process of deciding on careers, and modifying career goals may face setbacks or hardships. In this respect, students in economically challenged environments are highly adaptive at times of education transitions to respond to their social strata and institutional backgrounds, where educational inequality among high school types persists (Lent, 2019; Wrosch et al., 2003). The empirical evidence of this study suggests that students from low SES are likely to allocate their resources to career

interests in high school transition. This career development process provides the room for describing how students from low SES are likely to be placed low in the high school hierarchy despite recognizing qualitative distinctions among high school types.

First, this study is consistent with the previous SCCT literature that confirms the significant relationship between family SES and students' cognitive outcomes, such as academic self-efficacy and educational aspiration (Hu et al., 2020).

In addition, this study contributes to the previous literature on SCCT by identifying the non-linear U-shaped relationship between family SES and students' career maturity. In order words, these results show that students from both high and low socioeconomic backgrounds are likely to have higher career maturity. Statistically, students at the bottom income quintile are likely to have a higher level of career maturity, which may influence their decision to attend vocational high schools. In this respect, this study suggests practical implications for policymakers and career counselors who work for high school education by identifying which students are mostly influenced by their family SES. In addition, these findings expand that SCCT (Brown & Lent, 2017) has the potential to provide a robust theoretical framework to explain the psychological processes that underlie the relationship between family SES and career outcomes in the process of educational transitions.

7.1.3. Students' high school transition from the SCCT perspective

As previous studies emphasize the mediating role of social cognitive factors on the relationship between family SES and educational transitions (e.g., Marks, 2016), this study begins with investigating the role of students' social career outcomes on students' high school transition.

First, the finding of an education pathway between academic and vocational tracks confirms the hypothesis of the mediating role of students' social cognitive factors in the relationship between family SES and students' high school transition. It demonstrates that SCCT provides how family SES influences students' high school transition through students' cognitive factors of their academic self-efficacy, educational aspiration, and career maturity. Statistically speaking, the total variance increased about ten percent after including SCCT constructs (*Pseudo* $R^{2=}$*0.081 to 0.172)*. It is consistent with previous studies that show family SES's critical influence on students' career decision-making through students' psychological and cognitive outcomes (Flores et al., 2017; Fouad & Santana, 2017; Marks, 2018). In general, the results of this study support the extant literature on SCCT in predicting individual' high school decision-making with primary social career cognitive outcomes, interplaying with family SES (Bolkan et al., 2021).

Therefore, this study supports previous literature that students' educational outcomes, in the form of high school transition, are a product of students' cognitive person, including their perceptions of academic self-efficacy, educational aspiration, and career maturity. In general, students from high SES take advantage of developing their cognitive outcomes, such as academic self-efficacy and educational aspiration. In addition, there is a reciprocal relationship between academic self-efficacy and academic achievement in conjunction with family SES. This result of this association is that students having higher academic self-efficacy and aspiring

to higher education are likely to move forward in the high school hierarchy, which is consistent with the previous finding to predict 4-year university graduation (Bolkan et al., 2021).

This study also contributes to the SCCT literature by showing how students in economically challenged environments respond to the high school transition through career development. Contrary to the transition notion, this study finds a non-linear relationship between family SES and career cognitive factors, finding that students from both low and high SES are likely to have higher career maturity levels. It suggests that the high school transition leads students to deviate from the typical structure that follows a linear relationship between family socioeconomic backgrounds and career cognitive factors, such as career goals and career interests (Hu et al., 2019; M. van Lent, 2019). That is, students in need may invest in career exploration to respond to their economic deficits during high school transition, particularly in the stratified high school system. This study finds that low SES students, who are at the bottom income decile, show growth in their career self-awareness and plan in the third year of middle school.

Moreover, the non-linear U-shaped relationship between family socioeconomic backgrounds and career maturity links the complexity of students' transitions to different high school types in Korea. Higher career maturity among students from high SES and low SES leads students to different paths in the transition to high school in a stratified high school system. Socioeconomically advantaged students with high career maturity progress upwardly in the institutional hierarchy (autonomous- and special-purpose high schools), interplaying with higher academic self-efficacy and more educational aspiration.

In contrast, low-SES students with high career maturity are more likely to move below in the school hierarchy despite similar or higher academic achievement. Specifically, low-SES students with high career maturity are more likely to attend vocational high schools. It suggests how students respond to their socioeconomic backgrounds to make their educational decision

(Hu et al., 2019, 2020; Mullainathan & Shafir, 2013). In addition, students receiving less parental support (private educational spending) and having a higher level of career maturity are more likely to enter vocational high schools. The results suggest cognitive process of low-SES students that they perceive vocational high schools as providing education that satisfies their fulfilments and is congruent with their social strata.

The underlying mechanisms for explaining how young people make educational transitions responding to their socioeconomic backgrounds have not been fully addressed in the previous literature (Andrew, 2017; Ghassemi et al., 2017). In this regard, this study fills the research gap by showing how family SES has influenced students' career cognitive perceptions and how students' beliefs about their academic ability and career readiness are associated with the educational pathways of high school transition.

Thus, the findings of this study add to the body of literature by demonstrating that a student's educational outcome, high school transition, is a product of a stratified high school system and family SES, leading students to have different trajectories in their career cognitive perceptions.

7.2. Conclusion

The importance of educational inequality owing to socioeconomic differences in transitioning to high school has long been examined, but the mechanism between family SES and students' choice of educational transitions is less understood. Using SCCT, this study examines how family SES influences students' cognitive constructs of SCCT, and how these factors have influenced students' high school transition.

First, the results demonstrate persistent socioeconomic disparities among high school types in students' high school transition (Byun & Park, 2017). The results show that socioeconomically advantaged students are more likely to move forward in the institutional quality hierarchy. A large proportion of high-SES students are more likely to attend autonomous or special-purpose high schools, while students with low SES are more likely to place low (e.g., vocational high schools) in the high school hierarchy. This confirms the EMI theory that high-SES students maintain their advantages by moving up the high school hierarchy (Choi, 2020). That is, the Korean high school types have been stratified by family socioeconomic strata due to qualitative differentials among them. It shows transmitting family socioeconomic advantages to their children in the distance a high-SES student moves forward in such a high school hierarchy, which also provides premiums in postsecondary trajectories (e.g., 4-year universities, prestigious universities) (Jang, 2015; OECD, 2020, MoE, 2021).

This study has implications for EMI in Korea as well as in other country where secondary education is saturated. First, the finding suggests that socioeconomic disparities in high school transition are persistent (Byun & Park, 2017). The results show that greater institutional advantages of high-SES students are salient in high school transition compared to students from low socioeconomic backgrounds. In addition, qualitative distinctions in Korea's diversified high school types would help sustain or cultivate socioeconomic differences in the transition to high school types (Byrne & McCoy, 2017; Jang, 2017). The primary purpose of the high

school reform was to provide diversified academic curricula for satisfying various students' interests and aptitudes, but the findings suggest that the high school system has been stratified in which the type of school is determined according to the socioeconomic backgrounds (Hur, 2018). It sheds light on the need for protection for low SES students in their transition to high school.

This result confirms socioeconomic inequalities among high school types in Korea, but it does not address the mechanism of how students with different socioeconomic backgrounds make such transitions. Despite the perceived qualitative differential outcomes among high school types, a substantial proportion of students from low socioeconomic backgrounds attend vocational high schools. In this respect, it is important to identify whether high-achieving but low SES students, who have a higher chance to be selected by autonomous or special-purpose high schools, voluntarily attend general and vocational high schools or fail to attend autonomous or special-purpose high schools. This selectivity explains that such behaviors are practiced by institutional selectivity or students' self-limiting goal revision process (Andrew, 2017; Hu et al., 2020).

In Korea, students have a choice in which type of high school to attend. Thus, high school transition needs to be understood as an individual's career decision-making that involves students' psychological and cognitive processes. Using the SCCT's choice model, this study investigated how family SES has shaped middle school students' cognitive factors, including academic self-efficacy, educational aspiration, and career maturity, and how these cognitive outcomes are associated with high school transition in Korea.

In expanding the empirical work of SCCT in the Korean context, this study contributes to the extant SCCT literature by examining the patterns in developing students' career cognitive outcomes among different SES groups. First, corroborating with previous findings (Ahuja, 2016; Honicke & Broadbent, 2016; Marsh & Craven, 2006), this study finds that higher family

SES is associated with students' beliefs about their academic ability and aspiring higher education level, which consequently puts high-SES students in perceived higher quality high school types (e.g., autonomous, special-purpose high schools) in transition to high schools.

Contrary to the traditional assumption of a linear relationship between family SES and the SCCT's primary factors (e.g., Flores et al., 2017), this study finds a non-linear U-shape relationship of how students have responded to their socioeconomic backgrounds in exploring career plans and understanding on their career during middle school. The evidence shows that students from both low- and high-SES can have a higher career maturity level, consisting of career plan and career self-awareness. Even economically challenged students have developed their career self-awareness and career plan during middle school. Statistically speaking, students at the bottom income decile are likely to have a higher level of career maturity, and they have developed their understanding of career and career plans in the last year of middle school, which is the high school transition period. That is, students from low SES and receiving less parental support are more likely to allocate their resources to career activities in high school transition. These result aligns with previous literature that found improvised people are more likely to allocate their resources to career activities in consideration of their financial constrains (Duflo & Banerjee, 2011; Hu et al., 2020).

Finally, this study identifies the underlying mechanism of how students from different SES transition to high school through the SCCT factors, which are academic self-efficacy, educational aspiration, and career maturity. In particular, this study explores the distinctive role of high career maturity to students from high and low socioeconomic status in students' high school choice in the high school hierarchy.

On the one hand, this study supports the notion in SCCT that individuals are active agents to respond to their surroundings by showing how students react to their family socioeconomic backgrounds during the transition to high school (Lent et al., 2018). In addition, this study finds

that primary constructs of SCCT, students' cognitive and psychological aspects, play a significant role in transition high schools (Bolkan et al., 2021). Together with the socioeconomic disparities in students' cognitive career development, this study confirms that the SCCT framework is stable in explaining the mechanism of how students from different SES choose their high school type through primary SCCT factors.

On the other hand, this study adds to the SCCT literature by showing how high career maturity between high- and low-SES students leads to different educational paths in high school transition. High-SES students with high career maturity are likely to move forward in the high school hierarchy, such as autonomous and special-purpose high schools, interacting with belief in their academic capability and pursuing higher education levels.

In contrast, improved career plans and career self-awareness among low-SES students are associated with attending vocational high schools despite perceived qualitative differences among high school types. Ironically, an improved understanding of careers among students from low SES is likely to move below in the school hierarchy, vocational high schools, which can produce adverse outcomes in their postsecondary career trajectories in the long run. As mentioned before, vocational high school graduates show a lower likelihood of attending 4-year universities and a higher likelihood of getting low-income jobs in Korea (OECD, 2017). It is consistent with the previous finding by Kim (2012) that low-SES students choosing a vocational high school are more likely to consider their family financial circumstances and career choices after graduation, while high-SES students are more likely to attend autonomous or special-purpose high school by prioritizing academic careers (Kim, 2012).

The stability of the SCCT model in predicting students' high school transition allows policymakers, teachers, and career counselors to turn their attention to where to intervene in promoting students' career development, especially for students with low socioeconomic backgrounds.

First, educators and policymakers need to reduce qualitative educational inequity among high school institutions. Expanding educational opportunities, such as diversifying school types or eliminating admission requirements, does not guarantee equal educational opportunities to students from all social strata. In addition, the findings show that there was a significant increase in private education expenditure, as a proxy of household welfare and direct parental support to a student, on attending special-purpose high schools in 2017 from 2007 (Hur, 2018). The study also shows persistent educational inequalities among high school types from the 2000s to the late 2010s. Statistically, students at the bottom income quintile are significantly influenced by their economic backgrounds in a high school decision. In this respect, policymakers and educators should target this group to reduce the educational disparity.

Moreover, this study finds the mechanism of understanding how economically challenged students place low in the high school hierarchy despite perceived qualitative differentials among high school types. This study finds that even high-achieving students with low socioeconomic backgrounds who are eligible to enter autonomous or special-purpose high schools are more likely to attend general or vocational high schools. Among them, students with high career maturity are more likely to attend vocational high schools. The results suggest the cognitive process among socioeconomically disadvantaged students that they perceive vocational high schools provide education that satisfies their fulfilments and is congruent with their social strata. This explains the mechanism of how students with low socioeconomic backgrounds choose vocational high schools. This self-perception on career maturity is more likely to derive from meeting current needs (e.g., entering job markets earlier) (Hu et al., 2019). In reality, vocational high school graduates have difficulty finding jobs, and their expected income is low (MoE, 2020). Thus, career counselors and teachers need to provide adequate information to adolescents in disadvantaged environments to understand how their educational choice that influence students' access to higher education and work in the future.

7.3. Limitations

This study uses secondary data, limiting the ability to formulate a complete picture of SCCT. Specifically, this study utilizes educational aspirations and career maturity as alternative variables for outcome expectations and career interests or career goals. However, educational aspiration and career maturity can be applied in investigating the transition to high school as this study tests high school transition as a career decision process. In addition, SCCT calls for research using the national datasets to apply SCCT (Flores et al., 2017).

Secondly, although the focus of SCCT explores an individual's career decision-making, the data did not allow this study to utilize a variable on whether students choose their high school type. However, three high school types, vocational, autonomous, and special-purpose high schools receive their students based on their application. Thus, this study proposes that students attending the three high school types, which are vocational, general, and special-purpose high schools, choose their high schools on a voluntary basis. As stated earlier, students can choose their high school tracks between academic and vocational high schools regardless of their academic achievement in Korea.

In addition, the results using time dummy predictors to compare the cohorts between 2007-2008 and 2017-2018 is the restraint to examining the significant differences in the change of family SES on students' high school transition. The time differences in cohorts are involved with the disparities in socioeconomic backgrounds (e.g., income, parental education level) that hinder the counterfactual analysis of the intervention of high school reforms. To complement it, this study separately analyzes students' high school transition by cohorts.

Moreover, some of the self-reported measures of socioeconomic resources, including household income, parental educational level, and private spending on education, might include unintentional measurement errors. For instance, given the cultural sensitivities

surrounding the report of SES, this study cannot exclude the under-reporting or over-reporting of socioeconomic resource variables. Despite these limitations, this study has some methodological strengths that expand the conceptualization and testing of different socioeconomic resources on the transition to high schools from SCCT.

REFERENCES

Adams, D., & Gottlieb, E. E. (2017). *Education and social change in Korea*. Routledge.

Akosah-Twumasi, P., Emeto, T. I., Lindsay, D., Tsey, K., & Malau-Aduli, B. S. (2018). A systematic review of factors that influence youths career choices—The role of culture. *Frontiers in Education*, *3*, 58.

Ali, S. R., & McWhirter, E. H. (2006). Rural Appalachian youth's vocational/educational postsecondary aspirations: Applying social cognitive career theory. *Journal of Career Development*, *33*(2), 87–111.

Alliman-Brissett, A. E., & Turner, S. L. (2010). Racism, parent support, and math-based career interests, efficacy, and outcome expectations among African American adolescents. *Journal of Black Psychology*, *36*(2), 197–225.

Alon, S. (2009). The evolution of class inequality in higher education: Competition, exclusion, and adaptation. *American Sociological Review*, *74*(5), 731–755.

Andrew, M. (2017). Effectively Maintained Inequality in U.S. Postsecondary Progress: The Importance of Institutional Reach. *American Behavioral Scientist*, *61*(1), 30–48. https://doi.org/10.1177/0002764216682809

Ansong, D. (2013). *The relationship between household economic resources and* youth *academic performance in Ghana: A multilevel structural equation modeling*.

Autin, K. L., Douglass, R. P., Duffy, R. D., England, J. W., & Allan, B. A. (2017). Subjective social status, work volition, and career adaptability: A longitudinal study. *Journal of Vocational Behavior*, *99*, 1–10.

Ayalon, H., & Shavit, Y. (2004). Educational Reforms and Inequalities in Israel: The MMI Hypothesis Revisited. *Sociology of Education*, *77*(2), 103–120. https://doi.org/10.1177/003804070407700201

Bae, D., & Wickrama, K. A. (2015). Family socioeconomic status and academic achievement

among Korean adolescents: Linking mechanisms of family processes and adolescents' time use. *The Journal of Early Adolescence*, *35*(7), 1014–1038.

Bandura, A. (1999). Social cognitive theory of personality. *Handbook of Personality*, *2*, 154–196.

Bandura, A. (2000). Self-efficacy: The foundation of agency. *Control of Human Behavior, Mental Processes, and Consciousness: Essays in Honor of the 60th Birthday of August Flammer*, *16*.

Bandura, A. (2002). Social cognitive theory in cultural context. *Applied Psychology*, *51*(2), 269–290.

Bandura, A. (2014). *Social cognitive theory of moral thought and action*. Psychology Press.

Baron, R. M., & Kenny, D. A. (1986). The moderator–mediator variable distinction in social psychological research: Conceptual, strategic, and statistical considerations. *Journal of Personality and Social Psychology*, *51*(6), 1173.

Blanco, Á. (2011). Applying social cognitive career theory to predict interests and choice goals in statistics among Spanish psychology students. *Journal of Vocational Behavior*, *78*(1), 49–58.

Bolkan, S., Pedersen, W. C., Stormes, K. N., & Manke, B. (2021). Predicting 4-year graduation: Using social cognitive career theory to model the impact of prescriptive advising, unit load, and students' self-efficacy. *Journal of College Student Retention: Research, Theory & Practice*, *22*(4), 655–675.

Bourdieu, P., & Passeron, J.-C. (1990). *Reproduction in education, society and culture* (Vol. 4). Sage.

Boxer, P., Goldstein, S. E., DeLorenzo, T., Savoy, S., & Mercado, I. (2011). Educational aspiration–expectation discrepancies: Relation to socioeconomic and academic risk-related factors. *Journal of Adolescence*, *34*(4), 609–617. https://doi.org/10.1016/j.adolescence.2010.10.002

Brown, S. D., & Lent, R. W. (2017). Social cognitive career theory in a diverse world: Closing thoughts. *Journal of Career Assessment*, *25*(1), 173–180.

Brown, S. D., & Lent, R. W. (2019). Social cognitive career theory at 25: Progress in studying the domain satisfaction and career self-management models. *Journal of Career Assessment*, *27*(4), 563–578.

Byrne, D., & McCoy, S. (2017). Effectively maintained inequality in educational transitions in the Republic of Ireland. *American Behavioral Scientist*, *61*(1), 49–73.

Byun, S., & Kim, K. (2010a). Educational inequality in South Korea: The widening socioeconomic gap in student achievement. In *Globalization, changing demographics, and educational challenges in East Asia* (Vol. 17, pp. 155–182). Emerald Group Publishing Limited.

Byun, S., & Kim, K. (2010b). Stratification in Korean higher education: Determinants of the college destinations of general high school graduates. *Korean Journal of Sociology of Education*, *20*(1), 73–102.

Byun, S., & Park, H. (2017). When different types of education matter: Effectively maintained inequality of educational opportunity in Korea. *American Behavioral Scientist*, *61*(1), 94–113.

Callander, E. J., & Schofield, D. J. (2016). The impact of poverty on self-efficacy: An Australian longitudinal study. *Occupational Medicine*, *66*(4), 320–325. https://doi.org/10.1093/occmed/kqw017

Chang, S., & Sohn, B. S. (2000). Inequality of educational opportunity in Korea: The effects of family background on educational attainment. *Korean Journal of Sociology*, *34*(3), 671–708.

Choi, K., & Kim, D.-Y. (2013). A cross cultural study of antecedents on career preparation behavior: Learning motivation, academic achievement, and career decision self-efficacy. *Journal of Hospitality, Leisure, Sport & Tourism Education*, *13*, 19–32.

Choi, S. (2020). The Determinants of the Transition in South Korea from Vocational and General High School to Higher Education, Including a Gender Comparison. *International Journal of Higher Education*, *9*(4), 1–12.

Demanet, J., & Van Houtte, M. (2017). *Does socio-economic disadvantage lead to acting out? A reinvigoration of an old question*. American Educational Research Association Conference. http://hdl.handle.net/1854/LU-8520695

Duffy, R. D., Blustein, D. L., Diemer, M. A., & Autin, K. L. (2016). The psychology of working theory. *Journal of Counseling Psychology*, *63*(2), 127.

Duflo, E., & Banerjee, A. (2011). *Poor economics* (Vol. 619). PublicAffairs.

Duncan, G. J., Magnuson, K., & Votruba-Drzal, E. (2015). Children and socioeconomic status. *Handbook of Child Psychology and Developmental Science*, 1–40.

Eryilmaz, N., & Sandoval-Hernández, A. (2021). The relationship between cultural capital and the students' perception of feedback across 75 countries: Evidence from PISA 2018. *International Journal of Educational Research*, *109*, 101803.

Flores, L. Y. (2009). Empowering life choices: Career counseling in the contexts of race and class. *Career Counseling: Contexts, Processes, and Techniques*, 49–74.

Flores, L. Y., Navarro, R. L., & Ali, S. R. (2017). The state of SCCT research in relation to social class: Future directions. *Journal of Career Assessment*, *25*(1), 6–23.

Fouad, N. A., Cotter, E. W., Fitzpatrick, M. E., Kantamneni, N., Carter, L., & Bernfeld, S. (2010). Development and validation of the family influence scale. *Journal of Career Assessment*, *18*(3), 276–291.

Fouad, N. A., & Santana, M. C. (2017). SCCT and Underrepresented Populations in STEM Fields: Moving the Needle. *Journal of Career Assessment*, *25*(1), 24–39. https://doi.org/10.1177/1069072716658324

Garriott, P. O., Flores, L. Y., & Martens, M. P. (2013). Predicting the math/science career

goals of low-income prospective first-generation college students. *Journal of Counseling Psychology*, *60*(2), 200.

Garrison, Y. L., Liu, W. M., Yeung, C. W., Park, S., Sahker, E., & Conrad, M. (2017). The Meaning of hakbeol within the context of educational meritocracy and prestige among South Korean college students. *Journal of Asia Pacific Counseling*, *7*(2), 105–121.

Ghassemi, M., Bernecker, K., Herrmann, M., & Brandstätter, V. (2017). The process of disengagement from personal goals: Reciprocal influences between the experience of action crisis and appraisals of goal desirability and attainability. *Personality and Social Psychology Bulletin*, *43*(4), 524–537.

Griskevicius, V., Ackerman, J. M., Cantú, S. M., Delton, A. W., Robertson, T. E., Simpson, J. A., Thompson, M. E., & Tybur, J. M. (2013). When the economy falters, do people spend or save? Responses to resource scarcity depend on childhood environments. *Psychological Science*, *24*(2), 197–205.

Guan, Y., Chen, S. X., Levin, N., Bond, M. H., Luo, N., Xu, J., Zhou, X., Chen, P., Li, C., & Fu, R. (2015). Differences in career decision-making profiles between American and Chinese university students: The relative strength of mediating mechanisms across cultures. *Journal of Cross-Cultural Psychology*, *46*(6), 856–872.

Gudykunst, W. B., Matsumoto, Y., Ting-Toomey, S., Nishida, T., Kim, K., & Heyman, S. (1996). The influence of cultural individualism-collectivism, self construals, and individual values on communication styles across cultures. *Human Communication Research*, *22*(4), 510–543.

Guetto, R., & Panichella, N. (2019). Family arrangements and children's educational outcomes: Heterogeneous penalties in upper-secondary school. *Demographic Research*, *40*, 1015–1046.

Guetto, R., & Vergolini, L. (2017). Educational expansion without equalization: A reappraisal of the 'Effectively Maintained Inequality' hypothesis in children's choice

of the upper secondary track. *European Societies*, *19*(1), 1–27. https://doi.org/10.1080/14616696.2016.1236283

Guyon, N., & Huillery, E. (2014). The Aspiration-Poverty Trap: Why Do Students from Low Social Background Limit Their Ambition? Evidence from France. *Documento de Trabajo Disponible En Https://Www. Unamur. Be/En/Eco/Eeco/Pdf/Paper_autocensure_feb2014. Pdf*.

Hackett, G., & Byars, A. M. (1996). Social cognitive theory and the career development of African American women. *The Career Development Quarterly*, *44*(4), 322–340.

Han, J., Chu, X., Song, H., & Li, Y. (2014). Social Capital, Socioeconomic Status and Self-efficacy. *Applied Economics and Finance*, *2*(1), 1–10. https://doi.org/10.11114/aef.v2i1.607

Hayes, A. F., & Preacher, K. J. (2014). Statistical mediation analysis with a multicategorical independent variable. *British Journal of Mathematical and Statistical Psychology*, *67*(3), 451–470.

Hofstede, G. (2011). Dimensionalizing cultures: The Hofstede model in context. *Online Readings in Psychology and Culture*, *2*(1), 2307-0919.1014.

Honicke, T., & Broadbent, J. (2016). The influence of academic self-efficacy on academic performance: A systematic review. *Educational Research Review*, *17*, 63–84. https://doi.org/10.1016/j.edurev.2015.11.002

Hout, M. (2006). Maximally maintained inequality and essentially maintained inequality crossnational comparisons. *Sociological Theory and Methods*, *21*(2), 237–252.

Hu, S., Creed, P. A., & Hood, M. (2019). Does socioeconomic status shape young people's goal revision processes in the face of negative career feedback? *Journal of Vocational Behavior*, *110*, 89–101.

Hu, S., Hood, M., Creed, P. A., & Shen, X. (2020). The Relationship Between Family Socioeconomic Status and Career Outcomes: A Life History Perspective. *Journal of*

Career Development, 0894845320958076. https://doi.org/10.1177/0894845320958076

Huang, J.-T., & Hsieh, H.-H. (2011). Linking Socioeconomic Status to Social Cognitive Career Theory Factors: A Partial Least Squares Path Modeling Analysis. *Journal of Career Assessment*, *19*(4), 452–461. https://doi.org/10.1177/1069072711409723

Hui, K., & Lent, R. W. (2018). The roles of family, culture, and social cognitive variables in the career interests and goals of Asian American college students. *Journal of Counseling Psychology*, *65*(1), 98.

Kanny, M. A., Sax, L. J., & Riggers-Piehl, T. A. (2014). Investigating forty years of STEM research: How explanations for the gender gap have evolved over time. *Journal of Women and Minorities in Science and Engineering*, *20*(2).

Kim, K. K., & Byun, S. (2007). The impact of cultural capital on student achievement in South Korea. *Korean Journal of Sociology of Education*, *17*(1), 23–51.

Kim, S., Ahn, T., & Fouad, N. (2016). Family influence on Korean students' career decisions: A social cognitive perspective. *Journal of Career Assessment*, *24*(3), 513–526.

Kim, T. (2009). Confucianism, modernities and knowledge: China, South Korea and Japan. In *International handbook of comparative education* (pp. 857–872). Springer.

Laran, J., & Salerno, A. (2013). Life-history strategy, food choice, and caloric consumption. *Psychological Science*, *24*(2), 167–173.

Laranjo, L. (2016). Chapter 6—Social Media and Health Behavior Change. In S. Syed-Abdul, E. Gabarron, & A. Y. S. Lau (Eds.), *Participatory Health Through Social Media* (pp. 83–111). Academic Press. https://doi.org/10.1016/B978-0-12-809269-9.00006-2

Ledgerwood, A., Mandisodza, A. N., Jost, J. T., & Pohl, M. J. (2011). Working for the system: Motivated defense of meritocratic beliefs. *Social Cognition*, *29*(3), 322–340.

Lee, C. J., Kim, Y., & Byun, S. (2012). The rise of Korean education from the ashes of the Korean War. *Prospects*, *42*(3), 303–318.

Lee, K.-H. (2001). A cross-cultural study of the career maturity of Korean and United States high school students. *Journal of Career Development*, *28*(1), 43–57.

Lee, W., Lee, M.-J., & Bong, M. (2014). Testing interest and self-efficacy as predictors of academic self-regulation and achievement. *Contemporary Educational Psychology*, *39*(2), 86–99.

Lent, R. W., & Brown, S. D. (2019). Social cognitive career theory at 25: Empirical status of the interest, choice, and performance models. *Journal of Vocational Behavior*, *115*, 103316.

Lent, R. W., Brown, S. D., & Hackett, G. (1994). Toward a unifying social cognitive theory of career and academic interest, choice, and performance. *Journal of Vocational Behavior*, *45*(1), 79–122.

Lent, R. W., Brown, S. D., & Hackett, G. (2000). Contextual supports and barriers to career choice: A social cognitive analysis. *Journal of Counseling Psychology*, *47*(1), 36.

Lent, R. W., Paixao, M. P., Da Silva, J. T., & Leitão, L. M. (2010). Predicting occupational interests and choice aspirations in Portuguese high school students: A test of social cognitive career theory. *Journal of Vocational Behavior*, *76*(2), 244–251.

Lent, R. W., Sheu, H.-B., Miller, M. J., Cusick, M. E., Penn, L. T., & Truong, N. N. (2018). Predictors of science, technology, engineering, and mathematics choice options: A meta-analytic path analysis of the social–cognitive choice model by gender and race/ethnicity. *Journal of Counseling Psychology*, *65*(1), 17.

Li, S., Xu, Q., & Xia, R. (2019). Relationship between SES and academic achievement of junior high school students in China: The mediating effect of self-concept. *Frontiers in Psychology*, *10*, 2513.

Lucas, S. R. (2001). Effectively maintained inequality: Education transitions, track mobility,

and social background effects. *American Journal of Sociology*, *106*(6), 1642–1690.

Lucas, S. R. (2009). Stratification theory, socioeconomic background, and educational attainment: A formal analysis. *Rationality and Society*, *21*(4), 459–511.

Lucas, S. R., & Byrne, D. (2017). *Effectively maintained inequality in education: An introduction*. SAGE Publications Sage CA: Los Angeles, CA.

Marks, G. N. (2018). Response: Issues surrounding effectively maintained inequality and educational transitions. *Social Science Research*, *71*, 6–10. https://doi.org/10.1016/j.ssresearch.2017.08.013

Marsh, H. W., & Craven, R. G. (2006). Reciprocal effects of self-concept and performance from a multidimensional perspective: Beyond seductive pleasure and unidimensional perspectives. *Perspectives on Psychological Science*, *1*(2), 133–163.

Mau, W.-C. J., Chen, S.-J., & Lin, C.-C. (2021). Social cognitive factors of science, technology, engineering, and mathematics career interests. *International Journal for Educational and Vocational Guidance*, *21*(1), 47–60.

Mittal, C., & Griskevicius, V. (2014). Sense of control under uncertainty depends on people's childhood environment: A life history theory approach. *Journal of Personality and Social Psychology*, *107*(4), 621.

Mullainathan, S., & Shafir, E. (2013). *Scarcity: Why having too little means so much*. Macmillan.

Oaxaca, R. L., & Geisler, I. (2003). Fixed effects models with time invariant variables: A theoretical note. *Economics Letters*, *80*(3), 373–377.

O'Brien, L. T., & Major, B. (2009). Group status and feelings of personal entitlement: The roles of social comparison and system-justifying beliefs. *Social and Psychological Bases of Ideology and System Justification*, 427–443.

Ojeda, L., & Piña-Watson, B. (2013). Day laborers' life satisfaction: The role of familismo,

spirituality, work, health, and discrimination. *Cultural Diversity and Ethnic Minority Psychology*, *19*(3), 270.

Park, H. (2007). Inequality of educational opportunity in Korea by gender, socio-economic background, and family structure. *The International Journal of Human Rights*, *11*(1–2), 179–197.

Praskova, A., Creed, P. A., & Hood, M. (2015). Career identity and the complex mediating relationships between career preparatory actions and career progress markers. *Journal of Vocational Behavior*, *87*, 145–153.

Protsch, P., & Solga, H. (2016). The social stratification of the German VET system. *Journal of Education and Work*, *29*(6), 637–661. https://doi.org/10.1080/13639080.2015.1024643

Raftery, A. E., & Hout, M. (1993). Maximally maintained inequality: Expansion, reform, and opportunity in Irish education, 1921-75. *Sociology of Education*, 41–62.

Régner, I., Huguet, P., & Monteil, J.-M. (2002). Effects of socioeconomic status (SES) information on cognitive ability inferences: When low-SES students make use of a self-threatening stereotype. *Social Psychology of Education*, *5*(3), 253–269.

Rodríguez-Hernández, C. F., Cascallar, E., & Kyndt, E. (2020). Socio-economic status and academic performance in higher education: A systematic review. *Educational Research Review*, *29*, 100305.

Schervish, P. G., & Havens, J. J. (1995). Explaining the curve in the U-shaped curve. *Voluntas: International Journal of Voluntary and Nonprofit Organizations*, *6*(2), 202–225.

Schlicht-Schmälzle, R., & Ackermann, K. (2012). Logics of Educational Stratification: A Cross-National Map of Educational Inequality. *ISRN Education*, *2012*, 1–11. https://doi.org/10.5402/2012/109647

Sheu, H.-B., & Bordon, J. J. (2017). SCCT research in the international context: Empirical

evidence, future directions, and practical implications. *Journal of Career Assessment*, *25*(1), 58–74.

Sheu, H.-B., Lent, R. W., Brown, S. D., Miller, M. J., Hennessy, K. D., & Duffy, R. D. (2010). Testing the choice model of social cognitive career theory across Holland themes: A meta-analytic path analysis. *Journal of Vocational Behavior*, *76*(2), 252–264.

Shin, Y.-J., & Kelly, K. R. (2013). Cross-cultural comparison of the effects of optimism, intrinsic motivation, and family relations on vocational identity. *The Career Development Quarterly*, *61*(2), 141–160.

Sirin, S. R. (2005). Socioeconomic status and academic achievement: A meta-analytic review of research. *Review of Educational Research*, *75*(3), 417–453.

Smyth, G. K. (2002). Nonlinear regression. *Encyclopedia of Environmetrics*, *3*, 1405–1411.

Son Hing, L. S., Bobocel, D. R., Zanna, M. P., Garcia, D. M., Gee, S. S., & Orazietti, K. (2011). The merit of meritocracy. *Journal of Personality and Social Psychology*, *101*(3), 433.

Talsma, K., Schüz, B., Schwarzer, R., & Norris, K. (2018). I believe, therefore I achieve (and vice versa): A meta-analytic cross-lagged panel analysis of self-efficacy and academic performance. *Learning and Individual Differences*, *61*, 136–150.

van Lent, M. (2019). Goal setting, information, and goal revision: A field experiment. *German Economic Review*, *20*(4), e949–e972.

Vautero, J., Taveira, M. do C., Silva, A. D., & Fouad, N. A. (2020). Family influence on academic and life satisfaction: A social cognitive perspective. *Journal of Career Development*, 0894845320902270.

Wambu, G., Hutchison, B., & Pietrantoni, Z. (2017). Career decision-making and college and career access among recent African immigrant students. *Journal of College Access*, *3*(2), 6.

Wiederkehr, V., Darnon, C., Chazal, S., Guimond, S., & Martinot, D. (2015). From social class to self-efficacy: Internalization of low social status pupils' school performance. *Social Psychology of Education*, *18*(4), 769–784.

Wright, S. L., Jenkins-Guarnieri, M. A., & Murdock, J. L. (2013). Career development among first-year college students: College self-efficacy, student persistence, and academic success. *Journal of Career Development*, *40*(4), 292–310.

Wrosch, C., Scheier, M. F., Miller, G. E., Schulz, R., & Carver, C. S. (2003). Adaptive self-regulation of unattainable goals: Goal disengagement, goal reengagement, and subjective well-being. *Personality and Social Psychology Bulletin*, *29*(12), 1494–1508.

Research in Korea

Korean Educational Development Institute. (2010). 2009 Education Statistics. Seoul, South Korea

Korean Educational Development Institute. (2015). The Historical Changes and Current Status of High School Admission Selection.

Korean Educational Development Institute. (2010). Determinants of parents' motives in choosing high schools for their children.

Ministry of Education. (2019). Plan for resolving the stratified high school system and strengthening the educational competency of general high schools. *Press release of Ministry of Education*.

Kil, Hye-ji &Yoon, Ji-yoon. (2015). A Study on the Determinants of Students' Maturity and Academic Achievement Level. *The Journal of Vocational Education Research*, 24(6), 73–91. (In Korea)

Kim Kyung-keun & Shim Jae-hwee (2016). A Structural Equation Model of The Factors

Affecting Meritocratic Attitudes Among Middle and High School Students in Korea. *Korean Journal of Sociology of Education*, 26, 1–29. (In Korea)

Kim Kyung-keun, Shim Jaehwee, Kim Sol. (2019). The Contours of Korean Adults' Attitudes toward Affirmative Action in College Admissions and Factors Affecting It, *Korean Journal of Education & Culture*, 25(6), 5–28. (In Korean)

Kim Do-jin. (2011). A Comparative Study on Entrance Motivation and Personal Background of Meister High School and Foreign Language High School Students. *Journal of Educational Studies*, 32(2), 55–80.

Kim Miyeong. (2009). The Communitarian Deconstruction of Meritocracy - Complex Equality of Merit, Desert and Need. *Journal of Economy and Society*, 256–277.

Kim Seoung-Nam, Kim Jong-Woo, Kim Tae-Whan. (2016). School Satisfaction and Employment Plans after Graduation Based on High School Entrance Motivation of Meister High School Freshman. *Journal of Agricultural Education and Human Resource Development*, 48(4), 113–138. (In Korean)

Kim Seoung-Nam, Kim Tae-Whan. (2018). Meister High School Freshmens Motive for Entering a school and its Related Variables. *Journal of Agricultural Education and Human Resource Development*, 50(3), 61–85.

Kim Seongyeol & Kim Hunho. (2015). Diversification of High School System in Korea : Changes, Performances and Challenges. *Educational Research and Practice*, 81. (In Korean)

Kim Wuijeong & Kim Yangboon. (2013). Cumulative Mediating Effects of Family Background on the College Entrance. *Korean Journal of Sociology*, 47(4), 263–302. (In Korean)

Kim, Hyangshin, Shim, Jae-hwee, & Kim, Kyung-keun. (2018). Structural relationships between family background, social capital in the family and at school, and educational aspirations. *Korean Journal of Sociology of Education*, 28(2), 27–55.

Phang Hanam Phang, Kim Kihun. (2003). Trends and Differentials in Educational Stratification in Korea. *Korean Journal of Sociology*, 37(4), 31–65.

Bai, Jung-Su, Song, Byeong-Kug. (2015). A Study on Priority of Determinants of Career Decision Level in High School Students Based on Decision Tree Analysis. *The Journal of Career Education Research*, 28(4), 79–105. (In Korean)

Paik Sunhee, Lee Jeeyoung. (2017). The Practice of Vocational and Meister High Schools' Admission Selection and Students' School Choices Through Admission Process. *The Journal of Vocational Education Research*, 36(1), 1–22. (In Korean)

Byun Minkyung, Kim Byung-soo. (2014). A Qualitative Study on the Formation of Educational Aspiration among Middle School Students. *Ewha Journal of Social Sciences*, 30(1), 237–278.

Byun, Soo-yong . (2012). Determinants and Effects of School Choice: Evidence from the Seoul Education Longitudinal Study*. *Korea Educational Development Institute.* (In Korean)

Byun Suyong& Kim Gyeonggeun. (2010). Stratification in Korean Higher Education: Determinants of the College Destinations of General High School Graduates. *Korean Journal of Sociology of Education*, 20, 73–102. (In Korean)

Sim Hyeon-ae, Kim Kyung-yun. (2014). Determinants of third grade middle school students` choosing high school. *Secondary Education Research*, 62(4), 593–621. (In Korean)

Oh Seok-young. (2012). The Effects of social relationships and self-efficiency on career education experience and career maturity : comparative analysis between candidates of general high-school vocational high-school. *The Journal of Career Education Research*, 25(3), 77–94. (In Korean)

Lee Uichang, & Kang Jeonghui. (2010). The effect of family social capital on educational performance Comparative analysis among Korea, China, Japan, and the three countries. *Journal of Korean Policy Studies*, 10(2), 273–294. (In Korean)

Lee Hwiin, Kim Hyunchul. (2015). Exploring the Factors Affecting Career Decision and of Students of Vocational High School and Middle School Students` Choice of Vocational High School. *Journal of Education & Culture*, 21(6), 169–190. (In Korean)

Im Hyunjung. (2013). Factors in Choosing to Enter General High Schools. *Korean Educational Development Institute.* (In Korean)

Jeon Eunjeong. (2015). A Study on the Effects of the Family Backgrounds and the Individual Characteristics of Students on Their Advancement to a High School according to the Types of High School. *Ewha Womans University.* (In Korean)

Wook Jeong-sun. (2011). A study on poor children's perceptions of poverty. *Social Science Research Review*, 27(1), 181–201.

Jyung Chyul-young , Jung Jin-hwa, Oh Chang-hwan. (2011). The Analysis of Family and School Effecton Educational Gaps Between Urban and Rural Areas. *Journal of Agricultural Education and Human Resource Development*, 43(1), 27–49. (In Korean)

Ju Dong-beom. (2009). The Relationship of Family Structure to the Middle School Adolescent's Academic Achievement and Educational Aspirations. *Journal of Future Oriented Youth Society*, 6(2), 25–43.

Choi Yonghwan, & Kim Gangbae. (2017). Difference in difference analysis on the effect of high school diversification policies on school effectiveness: Focusing on students' academic achievement and their core competencies. *Korean Journal of Policy Analysis and Evaluation*, 27(1), 55–79.

Hur. (2018). A study on the Change in Determinants of Type of High Schools for Middle School Students: Focusing on the Seoul Education Longitudinal Study. *Master's thesis in Seoul University*.

Kim Byun, & Kim, K. (2010b). Stratification in Korean higher education: Determinants of the college destinations of general high school graduates. *Korean Journal of*

Sociology of Education, 20, 73-102.

Byun, S., & Kim, K. K. (2012). Determinants of college attendance among vocational high school graduates in South Korea. *Journal of Korean Education*, 39, 79-107. (In Korean)

Chang, S. S. (2007). Family background and the choice of high school sector in Korea. Korean Journal of Sociology, 42, 118-146. (In Korean)

Kim, K. K., & Byun, S. (2006). Determinants of children's educational transition in South Korea. Korean *Journal of Sociology of Education*, 16, 1-27.

Kim, S. S. (2008). A study on the influence of student backgrounds on opportunity of tertiary education in South Korea. *Asian Journal of Education*, 9, 27-47.

APPENDIX

Appendix 1. Education Transition Rate from 1980 to 2020 in Korea

Appendix 2. Data Exclusion Chart

Appendix 3. Proportion of Students by high school types

Appendix 4. Key Survey Questions on KELS

Appendix 5. Descriptive Statistics on RQ1, RQ2, RQ3

Appendix 6. Cronbach's alpha results

Appendix 7. Pairwise correlations for RQ1, RQ2, RQ3

Appendix 8. Multivariate ANOVA result of family SES by high school type in 2017-8

Appendix 9. Box plot of family SES by high school type

Appendix 10. T-test results of two cohorts for RQ1

Appendix 11. Logistic model of predicting students' choice between academic and vocational track

Appendix 12. Logistic model of predicting high school track between academic versus vocational track with interaction dummies

Appendix 13. Multinomial logistic model predicting the transition to high schools with interaction dummies

Appendix 14. Linear prediction plots of the relation of academic self-efficacy and educational aspiration on income decile

Appendix 15. U-shape test for SES and Career Maturity for RQ2

Appendix 16. Regression results of the relationship between family and students' academic and cognitive outcomes by year

Appendix 17. Quadratic prediction plots of the relationship of career maturity on income decile and private education spending

Appendix 18. Career maturity by income decile, predictive margins

Appendix 19. Predicted probability of career maturity by income decile and year

Appendix 20. Stepwise mediation analysis predicting the transition to high school between academic and vocational high schools with odds ratio

Appendix 21. Multinomial logistic model for predicting high school transition

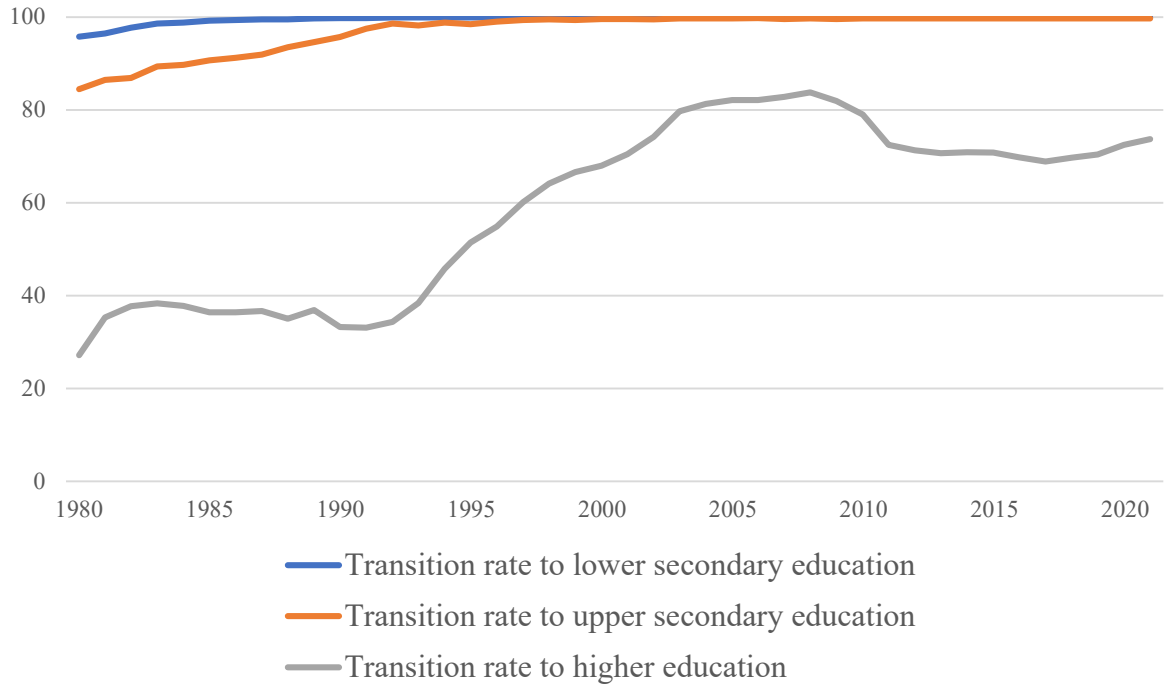
Appendix 22. Multinomial logistic model predicting the transition to high school with all types with averaged marginal effect (without private education spending)

Appendix 23. Average marginal effect by income quintile and academic achievements for high school high school type in Korea

Appendix 24. Averaged marginal effect by Income quintile and academic achievements for high school high school type in Korea

Appendix 1. Education Transition Rate from 1980 to 2020 in Korea

Unit: %



Year	1980	1990	2000	2010	2021
Transition to lower secondary education	96	100	100	100	100
Transition to upper secondary education	85	96	100	100	100
Transition to higher education	27	33	68	79	74

Source: Korea Educational Development Institute (2020), Educational Statistical Yearbook

Appendix 2. Data exclusion chart

Figure 1. Data exclusion chart for RQ 1

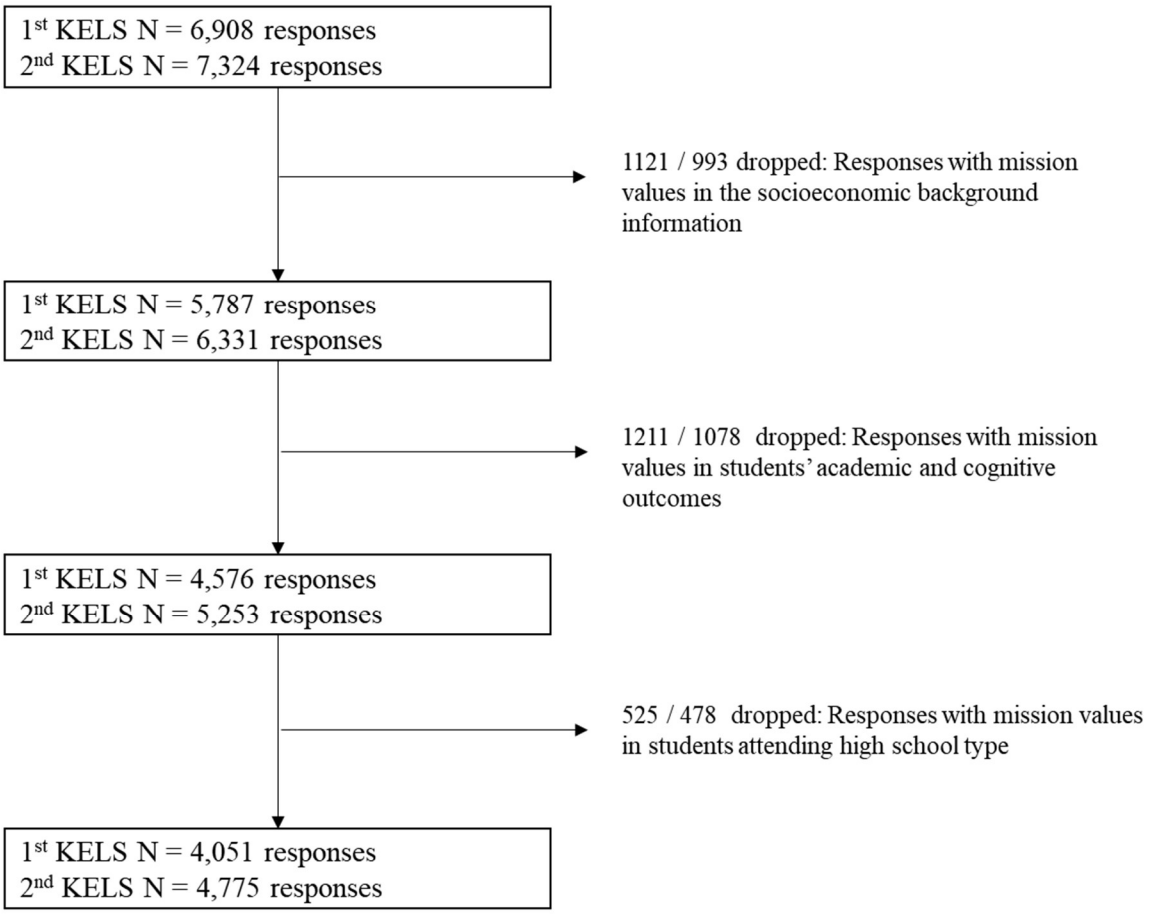
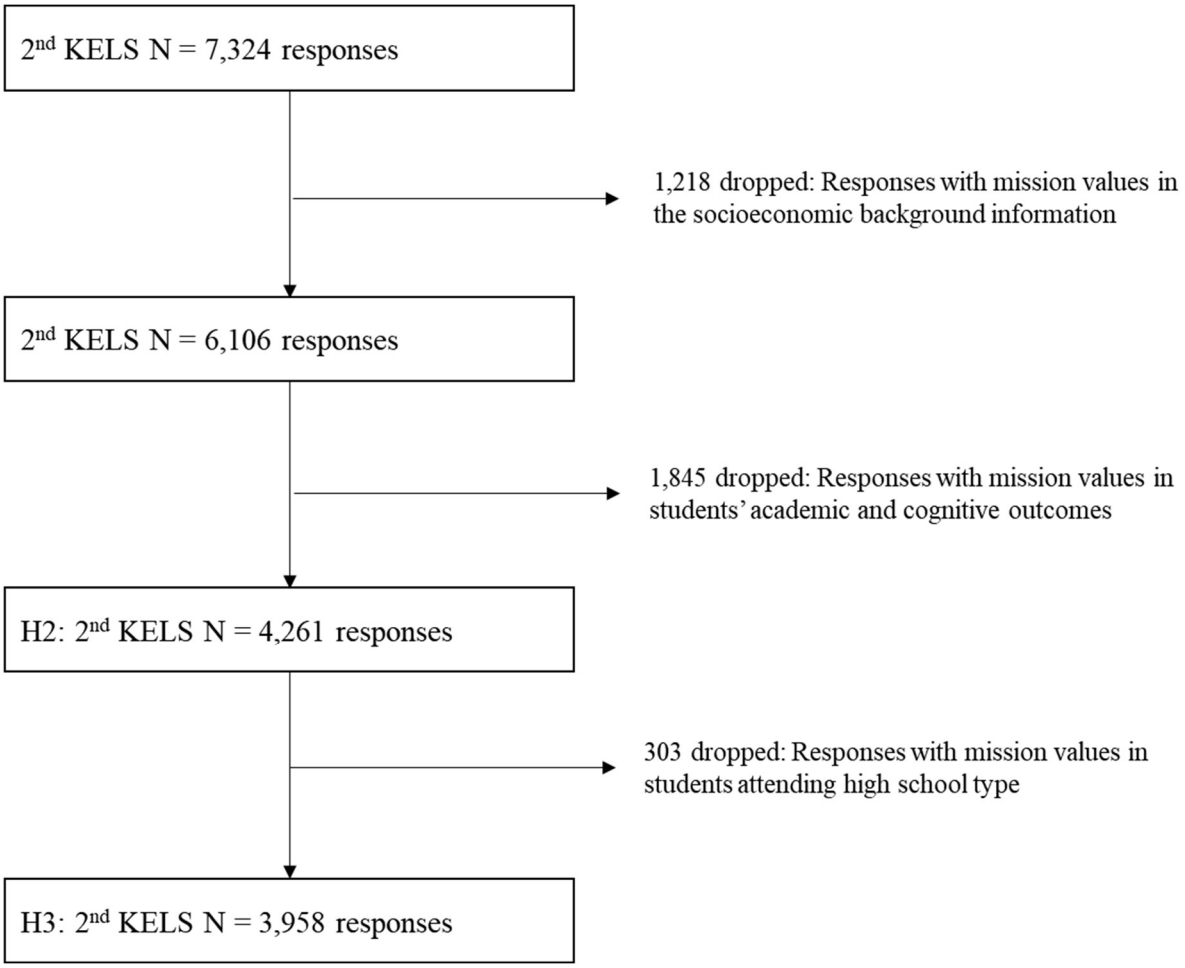


Figure 2. Data exclusion chart for RQ 2 & 3



Appendix 3. Proportion of students by high school type

Table 1. Proportion of students by high school type on RQ1

	1st KELS		2nd KELS		Total	
Type	Frequency	Ratio (%)	Frequency	Ratio (%)	Frequency	Ratio (%)
Vocational	711	17.55	616	12.9	1,327	15.04
General	3,240	79.98	3,564	74.64	6,804	77.09
Autonomous	42	1.04	474	9.93	516	5.85
Special-purpose	58	1.43	121	2.53	179	2.03
Total	4,051	100	4,775	100	8,826	100

Source: The author created by two waves of Korean Education Longitudinal Study (2019)

Table 2. Proportion of students by high school type on RQ2 & RQ3

Type	Frequency	Ratio (%)
Vocational	474	11.98
General	2,975	75.16
Autonomous	397	10.03
Special	112	2.83
Total	3,958	100

Source: The author created by two waves of Korean Education Longitudinal Study (2019)

Appendix 4. Key survey questions on KELS

SES 1. Monthly average household income (Unit: 10,000 KRW)

SES 2. Parental education level

1) Below elementary school

2) Middle school graduates

3) High school graduates

4) Two-year college

5) Four-year university

6) Master's degree

7) Doctor's degree

Household spending on private education. Monthly household spending on private education on a respondent student (Unit: 10,000 KRW)

SCCT 1: Academic self-efficacy 1. I am confident that I can understand Math/English/Korean contents presented by a teacher

SCCT 1: Academic self-efficacy 2. I am confident that I can do well on my Math/English/Korean assignments

SCCT 1: Academic self-efficacy 3. I am certain that I can do an excellent job on my Math/English/Korean test

SCCT 1: Academic self-efficacy 4. I am certain that I can master the skills being taught in Math/English/Korean class

1) Strongly disagree

2) Disagree

3) Agree

4) Strongly agree

SCCT 2: Education aspiration: What education level do you aspire to attend in the future?

1) Middle school

2) High school graduates

3) Two-year college

4) Four-year university

5) Master's degree (coded as 4)

6) Doctor's degree (coded as 4)

7) I don't know (coded as 1)

SCCT 3: Career maturity: Career self-awareness 1. I understand what I am good at

Career self-awareness 2. I understand my strengths are

Career self-awareness 3. I understand what I can do joyfully

Career self-awareness 4. I understand what I like to do

Career self-awareness 5. I have values to cherish

SCCT 3" Career maturity: Career plan 1. I often think about what I should I do to achieve my future dream

Career plan 2. I try to have various experiences for my future

Career plan 3. Some academic subjects in school is important for my career

Career plan 4. I often think what I really would like to do

Career plan 5. I often think what is important in my life

1) Definitely not

2) Probably not

3) Possibly

4) Probably

5) Definitely

Control 1: Gender

1) Male (coded as 0)

2) Female (coded as 1)

Control 2: School location

1) Metropolitan city (coded as 0)

2) Large cities (coded as 0)

3) Small or medium sized cities (coded as 0)

4) Rural areas (coded as 1)

Control 3: Academic achievement on Math, English, and Korean: Academic achievement test (350 points on each subject) converted to percentile

Appendix 5. Descriptive statistics on RQ1, RQ2, RQ3

Table 1. Descriptive statistics on RQ1

Types		Variables	Obs	Mean	Std	Min	Max
Dependent (Types of high school)		High school types	8826	1.949	.536	1	4
		Vocational School	8826	.15	.357	0	1
		General School	8826	.771	.42	0	1
		Private School	8826	.058	.235	0	1
		Special-purposed School	8826	.02	.141	0	1
Independent (SES)		(log) Income	8826	5.979	.728	0	9.306
		Father's education	8826	3.934	1.139	1	7
		Mother's education	8826	3.641	.995	1	7
		Adjusted SES[5]	8826	13.555	2.319	3	22.936
		Adjusted private education spending[6]	8826	50.766	60.278	0	3130
Mediators (SCCT)	Self-efficacy	Averaged Self-efficacy	8826	2.691	.569	1	4
		Average Math Self-efficacy	8826	2.632	.734	1	4
		Average English Self-efficacy	8826	2.599	.767	1	4
		Average Verbal Self-efficacy	8826	2.841	.651	1	4
	Math Self-efficacy	Q1	8826	2.607	.812	1	4
		Q2	8826	2.653	.809	1	4
		Q3	8826	2.635	.812	1	4
		Q4	8826	2.632	.822	1	4
	English Self-efficacy	Q1	8826	2.569	.825	1	4
		Q2	8826	2.621	.839	1	4
		Q3	8826	2.609	.844	1	4

[5] Summed logged income and adjusted parental education are summed (The cohorts in the first wave were adjusted by increasing multiple of the second cohorts (1.108 points of father's educational level and 1.163 points of mother's educational level increased)

[6] Consumer price indicator by the Korean National Statistical Office is used to adjust the changes in the price paid for private spending on education (1.252 points increased from 2007 to 2017)

		Q4	8826	2.596	.846	1	4
	Verbal Self-efficacy	Q1	8826	2.815	.721	1	4
		Q2	8826	2.852	.733	1	4
		Q3	8826	2.852	.737	1	4
		Q4	8826	2.845	.742	1	4
	Aspiration	Educational Aspiration	8826	3.478	1.056	1	4
Control	Female	Female(Female=1, male=0)	8826	.502	.5	0	1
	Academic achievement	Averaged performance score	8826	53.037	28.459	1	100
		Korean performance score	8826	50.701	28.437	1	100
		English performance score	8826	50.601	28.979	1	98
		Math performance score	8826	49.871	29.582	1	98
	Rural	Rural(Rural=1, urban=0)	8826	.125	.331	0	1
	Cohorts	Year(2^{nd} wave=1, 1^{st} wave=0)	8826	.541	.498	0	1

Source: Estimated by the author based on Korean Education Longitudinal Study (2019)

Table 2. Descriptive statistics on RQ2

Measure	Types	Variable	Obs	Mean	Std	Min	Max
Dependent	Academic achievement	Averaged achievement score	12783	52.492	28.634	1	100
		Korean performance score	12783	51.248	28.66	1	100
		English performance score	12783	51.433	28.598	1	99
		Math performance score	12783	51.149	28.779	1	100
	Self-efficacy	Averaged self-efficacy	12783	2.873	.597	1	4
		Averaged math self-efficacy	12783	2.798	.756	1	4
		Averaged English self-efficacy	12783	2.847	.786	1	4
		Averaged verbal self-efficacy	12783	2.974	.663	1	4
	Math Self-efficacy	Q1	12783	2.731	.82	1	4
		Q2	12783	2.868	.804	1	4
		Q3	12783	2.763	.854	1	4
		Q4	12783	2.83	.823	1	4
	English Self-efficacy	Q1	12783	2.771	.853	1	4
		Q2	12783	2.916	.828	1	4
		Q3	12783	2.847	.861	1	4
		Q4	12783	2.853	.85	1	4
	Verbal Self-efficacy	Q1	12783	2.927	.737	1	4
		Q2	12783	3.032	.714	1	4
		Q3	12783	2.957	.748	1	4
		Q4	12783	2.979	.743	1	4
	Aspiration	Educational Aspiration	12783	3.334	1.179	1	4
	Career maturity	Averaged career maturity	12783	3.957	.69	1	5
	Career self-awareness	Average self-awareness	12783	3.957	.69	1	5
		Q1	12783	3.885	.886	1	5
		Q2	12783	3.908	.874	1	5
		Q3	12783	4.101	.819	1	5
		Q4	12783	4.13	.807	1	5

		Q5	12783	4.09	.819	1	5
	Career plan	Average career plan	12783	3.846	.914	1	5
		Q1	12783	3.906	.881	1	5
		Q2	12783	3.776	.94	1	5
		Q3	12783	3.983	.857	1	5
		Q4	12783	3.943	.874	1	5
		Q5	12783	4.09	.819	1	5
Independent	SES	SES	12783	14.229	2.162	4	21.824
		Income Quintile	12783	2.877	1.445	1	5
		Father's education level	12783	4.174	1.1	1	7
		Mother's education level	12783	3.937	.976	1	7
		Private education spending	12783	47.991	39.533	1	950
Control	Female	Female(Female=1, male=0)	12783	.521	.5	0	1
	Rural	Rural(Rural=1, urban=0)	12783	.157	.364	0	1
	Cohorts	Year	12783	2	.817	1	3

Source: Estimated by the author based on the 2nd wave Korean Education Longitudinal Study (2019)

Table 3. Descriptive statistics on RQ3

Types		Variable	Obs	Mean	Std	Min	Max
Dependent (Types of high school)		High school types	3958	2.037	.576	1	4
Independent (SES)		(log) Income	3958	6.17	0.53	0	9.16
		Income Quintile	3958	3.007	1.448	1	5
		Father's education	3958	3.692	2.063	1	7
		Mother's education	3958	4.175	1.089	1	7
		SES	3958	3.933	.975	1	7
		(log) Private education spending	3958	3.61	1.042	0	6.856
Mediators (SCCT)	Self-efficacy	Averaged Self-efficacy	3958	2.78	0.60	1	4
		Average Math Self-efficacy	3958	2.72	0.78	1	4
		Average English Self-efficacy	3958	2.71	0.80	1	4
		Average Verbal Self-efficacy	3958	2.92	0.67	1	4
	Math Self-efficacy	Q1	3958	2.666	.838	1	4
		Q2	3958	2.808	.827	1	4
		Q3	3958	2.671	.875	1	4
		Q4	3958	2.728	.842	1	4
	English Self-efficacy	Q1	3958	2.655	.861	1	4
		Q2	3958	2.806	.85	1	4
		Q3	3958	2.676	.876	1	4
		Q4	3958	2.706	.869	1	4
	Verbal Self-efficacy	Q1	3958	2.871	.741	1	4
		Q2	3958	2.993	.719	1	4
		Q3	3958	2.896	.759	1	4
		Q4	3958	2.923	.749	1	4
	Aspiration	Educational Aspiration	3958	3.484	1.049	1	4
	Career maturity	Averaged career maturity	3958	3.88	.709	1	5
	Career self-	Average self-awareness	3958	3.915	.774	1	5

	awareness	Q1	3958	3.769	.904	1	5
		Q2	3958	3.812	.895	1	5
		Q3	3958	3.979	.861	1	5
		Q4	3958	3.996	.853	1	5
		Q5	3958	3.996	.853	1	5
	Career plan	Average career plan	3958	4.02	.841	1	5
		Q1	3958	3.845	.761	1	5
		Q2	3958	3.812	.914	1	5
		Q3	3958	3.826	.897	1	5
		Q4	3958	3.683	.963	1	5
		Q5	3958	3.96	.842	1	5
Control	Gender	Gender	3958	0.48	0.50	0	1
	Academic achievement	Averaged performance score	3958	69.96	26.82	8	100
		Korean performance score	3958	69.15	28.23	8	100
		English performance score	3958	65.35	28.73	13	100
		Math performance score	3958	67.25	28.21	8	99
	Region	Region	3958	0.85	0.36	0	1

Source: Estimated by the author based on the 2nd wave Korean Education Longitudinal Study (2019)

Appendix 6. Cronbach's alpha results

Item		Obs	Sign	item-test correlation	item-rest correlation	average inter-item correlation	Alpha
Math SE	Q1	3958	+	0.8998	0.819	0.7555	0.9026
	Q2	3958	+	0.9088	0.8344	0.7447	0.8975
	Q3	3958	+	0.8956	0.8119	0.7606	0.905
	Q4	3958	+	0.9054	0.8285	0.7489	0.8995
Test scale						0.7524	**0.924**
English SE	Q1	3958	+	0.9172	0.8504	0.7808	0.9144
	Q2	3958	+	0.9192	0.8538	0.7783	0.9133
	Q3	3958	+	0.9105	0.839	0.7888	0.9181
	Q4	3958	+	0.9136	0.8441	0.7852	0.9164
Test scale						0.7833	0.9353
Verbal SE	Q1	3958	+	0.8891	0.7985	0.7131	0.8817
	Q2	3958	+	0.8984	0.8145	0.702	0.8761
	Q3	3958	+	0.8758	0.776	0.7288	0.8897
	Q4	3958	+	0.8846	0.7908	0.7184	0.8844
Test scale						0.7156	**0.9096**
Career self-awareness	Q1	3958	+	0.889	0.8235	0.7446	0.921
	Q2	3958	+	0.8975	0.8365	0.7383	0.9186
	Q3	3958	+	0.9129	0.8602	0.7269	0.9141
	Q4	3958	+	0.9152	0.8638	0.7251	0.9134
	Q5	3958	+	0.8416	0.7526	0.7798	0.9341
Test scale						0.743	0.9353
Career planning	Q1	3958	+	0.8512	0.7616	0.662	0.8868
	Q2	3958	+	0.8649	0.7824	0.6523	0.8824
	Q3	3958	+	0.7951	0.6789	0.702	0.904
	Q4	3958	+	0.8792	0.8043	0.6421	0.8777
	Q5	3958	+	0.8768	0.8006	0.6438	0.8785
Test scale						0.6605	**0.9068**

Source: Estimated by the author based on the Korean Education Longitudinal Study (2019)

Appendix 7. Pairwise correlations for RQ1, RQ2, RQ3

Table 1. Pairwise correlations for RQ1

Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Income	1.000									
Father's education	0.384***	1.000								
Mother's education	0.378***	0.668***	1.000							
Private spending	0.281***	0.193***	0.191***	1.000						
SES	0.833***	0.786***	0.767***	0.291***	1.000					
Academic self-efficacy	0.209***	0.222***	0.210***	0.141***	0.265***	1.000				
Educational aspiration	0.087***	0.088***	0.075***	0.054***	0.105***	0.174***	1.000			
Female	-0.044***	-0.029***	-0.013	-0.031***	-0.040***	-0.065***	0.067***	1.000		
Academic achievement	0.232***	0.302***	0.291***	0.143***	0.332***	0.344***	0.155***	0.121***	1.000	
Rural	-0.109***	-0.132***	-0.126***	-0.097***	-0.149***	-0.058***	-0.040***	-0.012	-0.087***	1.000

Note: *** p<0.001, ** p<0.05, * p<0.1

Source: Estimated by the author based on the two waves of Korean Education Longitudinal Study (2019)

Table 2. Pairwise correlations for RQ2

Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
Income	1.000										
Father's education	0.392***	1.000									
Mother's education	0.389***	0.662***	1.000								
Private spending	0.396***	0.273***	0.253***	1.000							
SES	0.849***	0.774***	0.759***	0.406***	1.000						
Academic self-efficacy	0.175***	0.213***	0.191***	0.174***	0.235***	1.000					
Educational aspiration	0.099***	0.119***	0.113***	0.089***	0.134***	0.193***	1.000				
Career maturity	0.062***	0.102***	0.099***	0.093***	0.102***	0.456***	0.133***	1.000			
Female	-0.018**	-0.030***	-0.001	-0.012	-0.021**	-0.081***	0.094***	-0.048***	1.000		
Academic achievement	0.254***	0.281***	0.269***	0.229***	0.329***	0.256***	0.210***	0.039***	0.104***	1.000	
Rural	-0.124***	-0.118***	-0.121***	-0.139***	-0.151***	-0.086***	-0.036***	-0.048***	-0.011	-0.091***	1.000

Note: *** p<0.001, ** p<0.05, * p<0.1

Source: Estimated by the author based on the 2nd wave of Korean Education Longitudinal Study (2019)

Table 3. Pairwise correlations for RQ3

Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
Income	1.000										
Father's education	0.340***	1.000									
Mother's education	0.336***	0.654***	1.000								
Private spending	0.452***	0.295***	0.277***	1.000							
SES	0.850***	0.733***	0.720***	0.465***	1.000						
Academic self-efficacy	0.180***	0.227***	0.209***	0.239***	0.250***	1.000					
Educational aspiration	0.085***	0.115***	0.105***	0.107***	0.126***	0.214***	1.000				
Career maturity	0.048***	0.078***	0.080***	0.094***	0.077***	0.414***	0.120***	1.000			
Female	-0.028*	-0.045***	-0.012	-0.035**	-0.037**	-0.094***	0.109***	-0.048***	1.000		
Academic achievement	0.180***	0.261***	0.249***	0.187***	0.272***	0.299***	0.193***	0.068***	0.123***	1.000	
Rural	-0.097***	-0.113***	-0.118***	-0.144***	-0.135***	-0.077***	-0.034**	-0.035**	-0.006	-0.096***	1.000

Note: *** p<0.001, ** p<0.05, * p<0.1

Source: Estimated by the author based on the 2nd wave of Korean Education Longitudinal Study (2019)

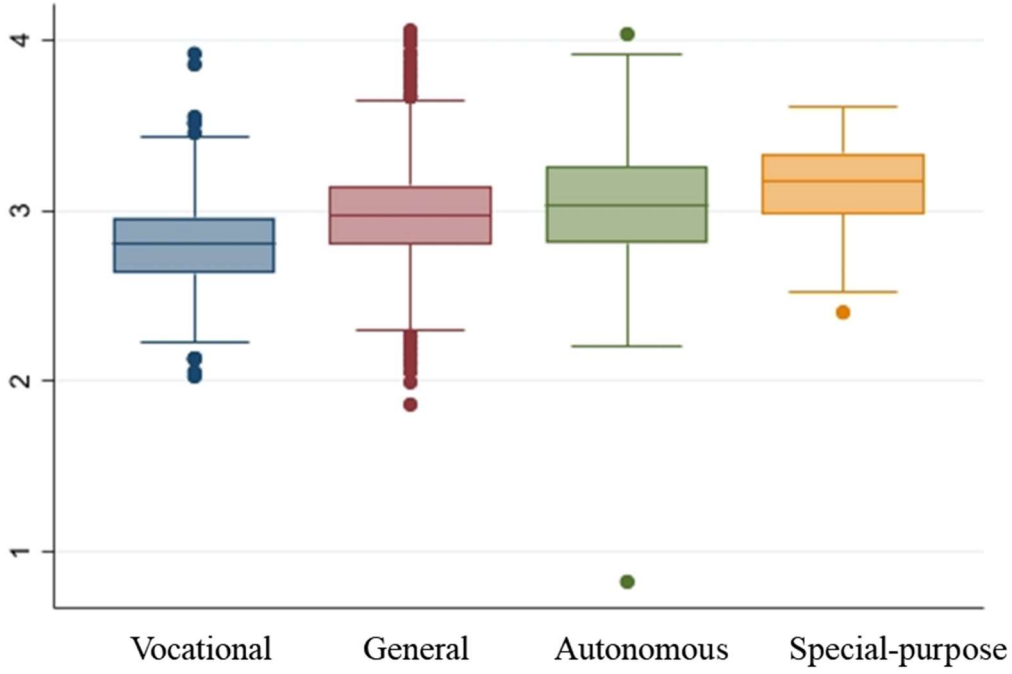
Appendix 8. Multivariate ANOVA result of family SES by high school type in 2017-8

	Vocational	General	Autonomous	Special	Total	F-statistic
SES						
Mean	2.81	2.98	3.03	3.15	2.97	82.18***
SD	0.26	0.27	0.31	0.25	0.28	
Income						
Mean	5.93	6.18	6.27	6.38	6.17	44.06***
SD	0.54	0.50	0.64	0.50	0.53	
Household spending on private education						
Mean	34.72	52.29	60.14	85.95	51.93	61.5***
SD	48.14	37.69	42.91	53.55	41.04	
Frequency	474	2975	397	112	3958	

Note: *** p<0.001, ** p<0.05, * p<0.1

Source: Estimated by the author based on the 2nd wave of Korean Education Longitudinal Study (2019)

Appendix 9. Box plot of family SES by high school type



Source: Estimated by the author based on Korean Education Longitudinal Study (2019)

Appendix 10. T-test results of two cohorts for RQ1

	1st	2nd	Mean1	Mean2	Diff	SE	t-value	p-value
Quintile	4051	4775	2.854	2.872	-.018	.03	-.6	.536
Father's education	4051	4775	4.117	4.119	-.002	.025	-.05	.955
Mother's education	4051	4775	3.893	3.891	.002	.022	.05	.954
SES	4051	4775	5.413	5.446	-.032	.062	-.5	.604
Adjusted private spending on education	4051	4775	50.827	50.665	.162	1.29	.15	.9
Academic Self-efficacy	4051	4775	2.603	2.764	-.162	.012	-13.45	0
Educational aspiration	4051	4775	3.508	3.454	.054	.022	2.4	.017
Academic Achievement	4051	4775	53.37	52.822	.548	.608	.9	.367
Gender	4051	4775	.489	.513	-.024	.011	-2.25	.023
Region	4051	4775	.086	.159	-.072	.007	-10.3	0

Note: SES is standardized to the 10th decile by cohorts (1 is lowest, 10 is highest)

Source: Estimated by the author based on two waves of Korean Education Longitudinal Study (2019)

Appendix 11. Logistic model of predicting students' choice between academic and vocational track

	Model I (each SES factor)		Model II (SES)	
	(1)	(2)	(1)	(2)
	Cohort I 2007-8	Cohort II 2017-8	Cohort I 2007-8	Cohort II 2017-8
Income quintile	0.180***	0.190***		
	[0.09,0.27]	[0.11,0.27]		
Father's education	0.216**	0.255***		
	[0.09,0.35]	[0.13,0.38]		
Mother's education	0.120	0.062		
	[-0.05,0.29]	[-0.08,0.20]		
SES			0.151***	0.149***
			[0.11,0.19]	[0.11,0.19]
Private education spending	0.199***	0.194***	0.206***	0.213***
	[0.09,0.31]	[0.11,0.27]	[0.10,0.31]	[0.13,0.29]
Academic self-efficacy	0.814***	0.621***	0.828***	0.627***
	[0.60,1.03]	[0.45,0.79]	[0.62,1.04]	[0.46,0.80]
Educational aspiration	0.217***	0.406***	0.217***	0.408***
	[0.13,0.30]	[0.33,0.48]	[0.13,0.30]	[0.34,0.48]
Female	-0.248*	0.111	-0.259*	0.107
(1=female, 0=male)	[-0.45,-0.05]	[-0.08,0.31]	[-0.46,-0.06]	[-0.09,0.30]
Academic achievement	0.038***	0.023***	0.038***	0.023***
(100-quantiles)	[0.03,0.04]	[0.02,0.03]	[0.03,0.04]	[0.02,0.03]
Rural	-0.015	0.598***	-0.029	0.586***
(1=rural, 0=urban)	[-0.32,0.29]	[0.33,0.87]	[-0.34,0.28]	[0.32,0.85]
Constant	-4.895***	-4.485***	-4.066***	-3.566***
	[-5.60,-4.19]	[-5.11,-3.86]	[-4.70,-3.43]	[-4.07,-3.06]
Adjusted R^2	0.264	0.220	0.262	0.217
N	4051	4775	4051	4775

Note: Adapted from the two waves of KELS. 95% confidence intervals in brackets for the coefficient, * p<0.05, ** p<0.01, *** p<0.001

Appendix 12. Logistic model of predicting high school track between academic versus vocational track with interaction dummies

	(1) Model I (each SES factor)		(2) Model II (SES)	
Income quintile	0.169***	[0.081,0.257]		
Father's education level	0.193**	[0.076,0.309]		
Mother's education level	0.102	[-0.043,0.246]		
SES			0.147***	[0.106,0.187]
Private education spending	0.007**	[0.002,0.012]	0.008**	[0.003,0.012]
Academic self-efficacy	0.806***	[0.592,1.019]	0.816***	[0.605,1.028]
Educational aspiration	0.222***	[0.139,0.304]	0.221***	[0.139,0.304]
Female	-0.253*	[-0.451,-0.055]	-0.260**	[-0.458,-0.062]
Academic achievement	0.038***	[0.034,0.042]	0.038***	[0.034,0.042]
Rural	-0.013	[-0.319,0.292]	-0.021	[-0.326,0.283]
Year (Dummy)	0.385	[-0.516,1.286]	0.486	[-0.269,1.241]
Income quintile*Year	0.011	[-0.116,0.138]		
Father's education level*Year	0.059	[-0.114,0.231]		
Mother's education level*Year	-0.046	[-0.249,0.157]		
SES*Year			-0.005	[-0.064,0.053]
Private spending*Year	0.001	[-0.009,0.011]	0.002	[-0.008,0.011]
Academic self-efficacy*Year	-0.181	[-0.453,0.091]	-0.188	[-0.459,0.083]
Educational aspiration*Year	0.183**	[0.073,0.292]	0.184***	[0.075,0.294]
Female*Year	0.371**	[0.093,0.649]	0.377**	[0.099,0.654]
Academic achievement*Year	-0.015***	[-0.020,-0.009]	-0.015***	[-0.020,-0.009]
Rural*Year	0.599**	[0.190,1.007]	0.596**	[0.191,1.002]
Pseudo R^2	0.246		0.244	
N	8826			

Note: Adapted from two waves of KELS. 95% confidence intervals in brackets for the coefficient, * p<0.05, ** p<0.01, *** p<0.001

Appendix 13. Multinomial logistic model predicting the transition to high schools with interaction dummies

Table 1. Full result on Multinomial logistic model predicting the transition to high school with all types with interaction dummies (each SES factor)

	Vocational	*General*	*Autonomous*	*Special*
Income (Quintile)	-0.018***	0.001	0.017*	0
	[-0.03,-0.01]	[-0.01,0.02]	[0.00,0.03]	[-0.00,0.00]
Father's education level	-0.019**	0.011	0.006	0.002
	[-0.03,-0.01]	[-0.01,0.03]	[-0.01,0.02]	[-0.00,0.01]
Mother's education level	-0.009	0.019	-0.013	0.003
	[-0.02,0.01]	[-0.00,0.04]	[-0.03,0.01]	[-0.00,0.01]
Private spending	-0.001**	0.001*	0	0.000*
	[-0.00,-0.00]	[0.00,0.00]	[-0.00,0.00]	[0.00,0.00]
Academic self-efficacy	-0.076***	0.088***	-0.043**	0.031***
	[-0.10,-0.06]	[0.05,0.12]	[-0.07,-0.01]	[0.02,0.04]
Educational aspiration	-0.022***	0.012	0.004	0.006
	[-0.03,-0.01]	[-0.01,0.03]	[-0.01,0.02]	[-0.00,0.01]
Gender	0.027**	-0.003	-0.032	0.007
	[0.01,0.05]	[-0.04,0.03]	[-0.07,0.00]	[-0.00,0.02]
Academic achievement	-0.004***	0.003***	0	0.000*
	[-0.00,-0.00]	[0.00,0.00]	[-0.00,0.00]	[0.00,0.00]
Region	0.011	0.246***	-0.006	-0.251***
	[-0.02,0.04]	[0.17,0.32]	[-0.08,0.07]	[-0.29,-0.21]
Year (Dummy)	-0.039	0.047	-0.03	0.022
	[-0.13,0.05]	[-0.10,0.20]	[-0.16,0.10]	[-0.04,0.09]
Income (Quintile)*Year	0	0.015	-0.014*	-0.001
	[-0.01,0.01]	[-0.00,0.03]	[-0.03,-0.00]	[-0.01,0.00]
Father's education level*Year	-0.005	0.007	-0.003	0.001
	[-0.02,0.01]	[-0.02,0.03]	[-0.02,0.02]	[-0.01,0.01]
Mother's education level*Year	0.004	-0.016	0.012	0.001
	[-0.02,0.02]	[-0.04,0.01]	[-0.01,0.03]	[-0.01,0.01]
Private spending*Year	0	0	0	0.000**
	[-0.00,0.00]	[-0.00,0.00]	[-0.00,0.00]	[0.00,0.00]
Academic self-efficacy*Year	0.016	-0.065**	0.055**	-0.007
	[-0.01,0.04]	[-0.11,-0.02]	[0.02,0.09]	[-0.02,0.01]
Educational aspiration*Year	-0.017**	0.021*	0	-0.004
	[-0.03,-0.01]	[0.00,0.04]	[-0.02,0.02]	[-0.01,0.01]
Gender*Year	-0.040**	0.035	0.002	0.003
	[-0.07,-0.01]	[-0.01,0.08]	[-0.03,0.04]	[-0.01,0.02]
Academic achievement*Year	0.001***	-0.002***	0	0
	[0.00,0.00]	[-0.00,-0.00]	[-0.00,0.00]	[-0.00,0.00]
Region*Year	-0.069***	-0.165***	-0.017	0.251***
	[-0.11,-0.03]	[-0.25,-0.08]	[-0.09,0.06]	[0.21,0.29]
N		8826		

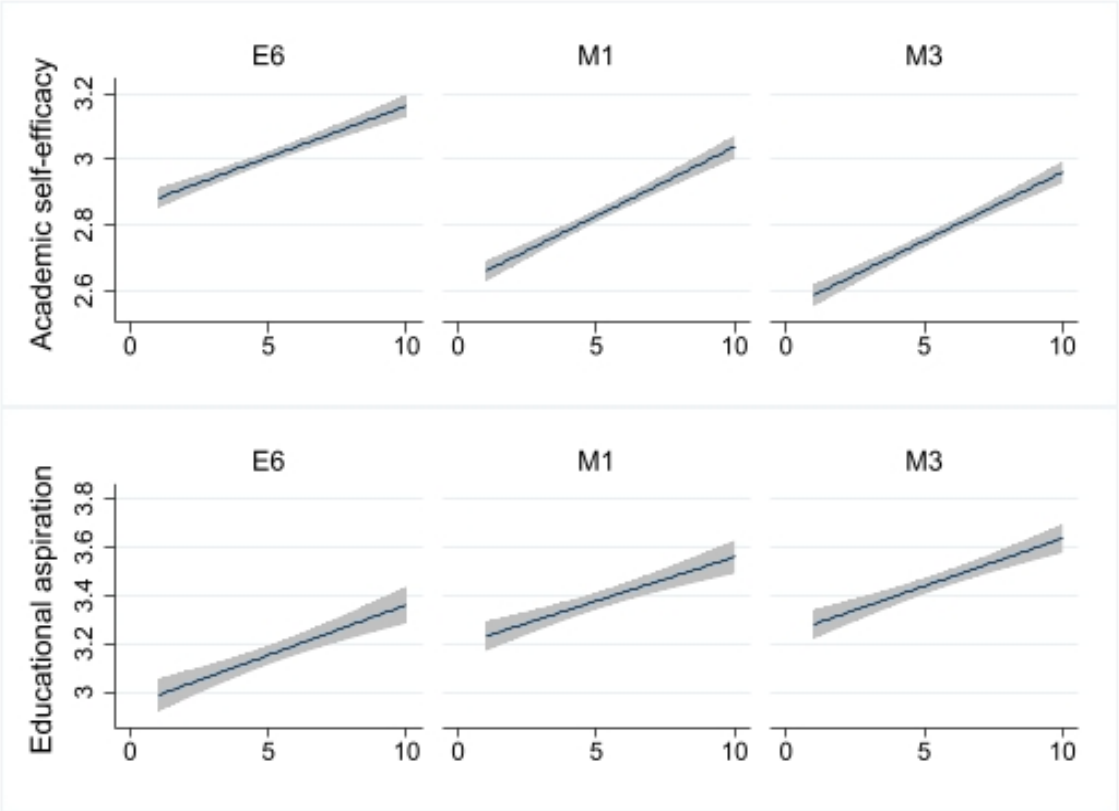
Note. Adapted from the two waves of KELS. Results are marginal effects (the percentage point change in the likelihood attending one type of high school), 95% confidence intervals in bracket,

Table 2. Full result on multinomial logistic model predicting the transition to high school with all types with interaction dummies (aggregated SES)

	Vocational	*General*	*Autonomous*	*Special*
SES	-0.015***	0.010**	0.002	0.002
	[-0.02,-0.01]	[0.00,0.02]	[-0.00,0.01]	[-0.00,0.00]
Private spending	-0.001**	0.001**	0	0.000**
	[-0.00,-0.00]	[0.00,0.00]	[-0.00,0.00]	[0.00,0.00]
Self-efficacy	-0.077***	0.088***	-0.042*	0.031***
	[-0.10,-0.06]	[0.05,0.12]	[-0.07,-0.01]	[0.02,0.04]
Educational aspiration	-0.022***	0.011	0.005	0.006
	[-0.03,-0.01]	[-0.01,0.03]	[-0.01,0.02]	[-0.00,0.01]
Gender	0.028**	-0.002	-0.033	0.007
	[0.01,0.05]	[-0.04,0.03]	[-0.07,0.00]	[-0.00,0.02]
Academic achievement	-0.004***	0.003***	0	0.001*
	[-0.00,-0.00]	[0.00,0.00]	[-0.00,0.00]	[0.00,0.00]
Region	0.012	0.262***	-0.003	-0.272***
	[-0.02,0.04]	[0.18,0.34]	[-0.08,0.07]	[-0.31,-0.23]
Year (Dummy)	-0.048	0.052	-0.029	0.025
	[-0.12,0.03]	[-0.08,0.18]	[-0.14,0.08]	[-0.04,0.08]
SES*Year	0.001	0	-0.002	0.001
	[-0.01,0.01]	[-0.01,0.01]	[-0.01,0.01]	[-0.00,0.00]
Private spending*Year	0	0	0	0.000*
	[-0.00,0.00]	[-0.00,0.00]	[-0.00,0.00]	[0.00,0.00]
Academic self-efficacy*Year	0.017	-0.065**	0.055**	-0.007
	[-0.01,0.04]	[-0.11,-0.02]	[0.02,0.09]	[-0.02,0.01]
Educational aspiration*Year	-0.018**	0.022*	-0.001	-0.003
	[-0.03,-0.01]	[0.00,0.04]	[-0.02,0.02]	[-0.01,0.01]
Gender*Year	-0.041**	0.035	0.004	0.003
	[-0.07,-0.01]	[-0.01,0.08]	[-0.03,0.04]	[-0.01,0.02]
Academic achievement*Year	0.001***	-0.002***	0	0
	[0.00,0.00]	[-0.00,-0.00]	[-0.00,0.00]	[-0.00,0.00]
Region*Year	-0.069***	-0.183***	-0.021	0.273***
	[-0.11,-0.03]	[-0.27,-0.10]	[-0.10,0.06]	[0.23,0.31]
N	8226			

Note. Adapted from the two waves of KELS. Results are marginal effects (the percentage point change in the likelihood attending academic high school), 95% confidence intervals in bracket, * p<0.05, ** p<0.01, *** p<0.001

Appendix 14. Linear prediction plots of the relation of income decile on academic self-efficacy and educational aspiration



Note: Adapted from the second wave of KELS in 2017-2018. The 1st income deciles contain the lowest income tenth and the 10th on the highest income tenth, E6: sixth grade of elementary school, M1: the first year of middle school, M3: the third year of middle schools

Appendix 15. U-shape test for SES and career maturity for RQ2

Table 1. U-shape relationship test for SES and career maturity for RQ2

	Lower bound	Upper bound
Interval	4	21.824
Slope	-0.051	0.096
t-value	-2.139	5.751
P>t	0.016	0.000

H0: Monotone or Inverse U shape / H1: U shape

Overall test of presence of a U shape:

t-value	1.33
P>|t|	.0162**

Note: Adapted from the second wave of KELS. * p<0.05, ** p<0.01, *** p<0.001

Source: Lind, J. T., & Mehlum, H. (2010)

Table 2. U-shape relationship test for household spending on private education and career maturity for RQ2

	Lower bound	Upper bound
Interval	0	6.856
Slope	-0.091	0.269
t-value	-4.247	8.815
P>t	0.000	0.000

H0: Monotone or Inverse U shape / H1: U shape

Overall test of presence of a U shape:

t-value	1.33
P>|t|	.000***

Note: Adapted from the second wave of KELS. * p<0.05, ** p<0.01, *** p<0.001

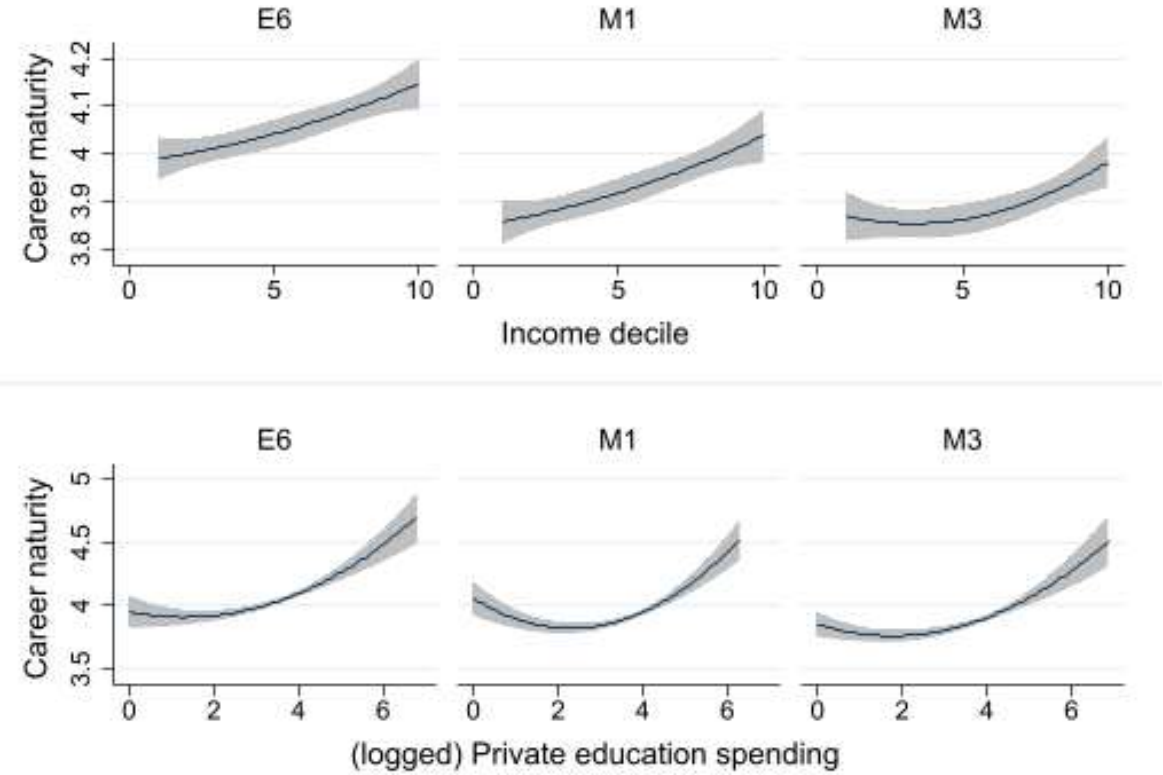
Source: Lind, J. T., & Mehlum, H. (2010)

Appendix 16. Regression results of the relationship between family SES and students' career maturity by year

	(1)		(2)		(3)	
	6th year of elementary school		1st year of middle school		3rd year of middle school	
SES	-0.109**		-0.187***		-0.091*	
	[-0.199,-0.018]		[-0.286,-0.088]		[-0.193,0.010]	
SES^2	0.004**		0.007***		0.003*	
	[0.001,0.007]		[0.003,0.010]		[-0.000,0.007]	
(log) Private education spending		-0.065*		-0.165***		-0.086**
		[-0.133,0.002]		[-0.243,-0.087]		[-0.146,-0.027]
((log) Private education spending)^2		0.016**		0.026***		0.013**
		[0.005,0.027]		[0.013,0.040]		[0.002,0.024]
Academic self-efficacy	0.602***	0.601***	0.543***	0.545***	0.495***	0.498***
	[0.567,0.637]	[0.566,0.636]	[0.504,0.582]	[0.506,0.584]	[0.455,0.535]	[0.458,0.539]
Educational aspiration	0.035***	0.036***	0.045***	0.045***	0.028**	0.028**
	[0.020,0.049]	[0.021,0.050]	[0.027,0.063]	[0.028,0.063]	[0.007,0.048]	[0.007,0.048]
Female	-0.022	-0.023	0.011	0.010	-0.006	-0.004
	[-0.057,0.013]	[-0.058,0.012]	[-0.027,0.048]	[-0.028,0.047]	[-0.046,0.034]	[-0.045,0.036]
Rural	-0.023	-0.020	-0.030	-0.035	-0.016	-0.020
	[-0.069,0.024]	[-0.067,0.027]	[-0.080,0.020]	[-0.086,0.017]	[-0.070,0.038]	[-0.074,0.034]
Academic achievement	-0.004***	-0.004***	-0.003***	-0.003***	-0.002***	-0.002***
	[-0.005,-0.003]	[-0.005,-0.003]	[-0.004,-0.002]	[-0.004,-0.002]	[-0.003,-0.001]	[-0.003,-0.001]
Constant	2.952***	2.311***	3.629***	2.603***	3.202***	2.670***
	[2.292,3.611]	[2.159,2.463]	[2.914,4.344]	[2.437,2.769]	[2.466,3.938]	[2.524,2.816]
Adjusted R^2	0.268	0.266	0.215	0.214	0.171	0.172
N	4261					

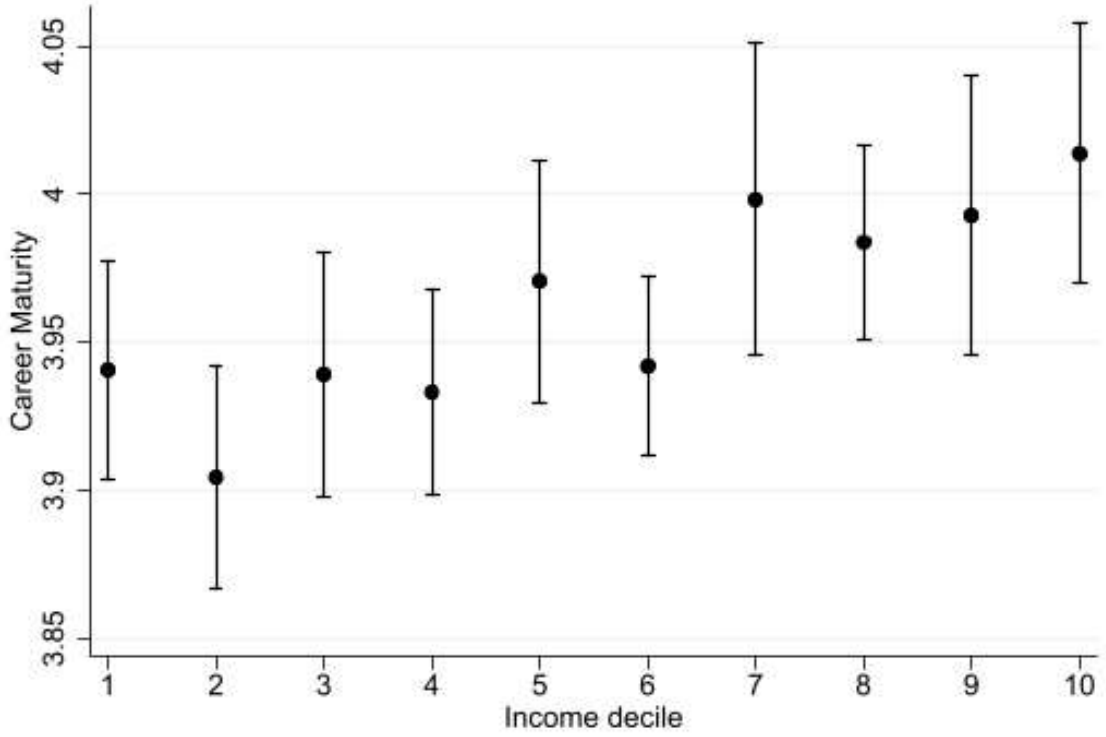
Note: Adapted from the second wave of KELS. 95% confidence intervals in brackets, * p<0.10, ** p<0.05, *** p<0.001

Appendix 17. Quadratic prediction plots of the relationship of career maturity on income decile and private education spending



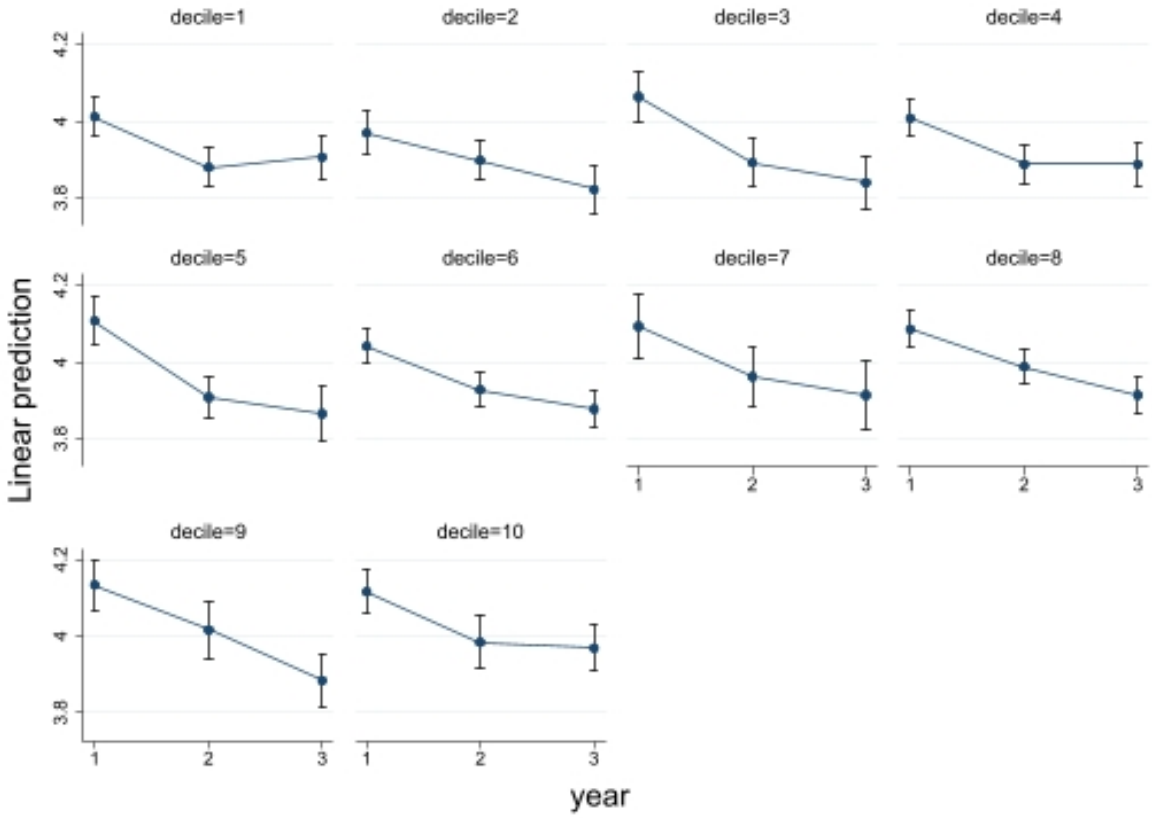
Note: Adapted from the second wave of KELS. The 1st income deciles contain the lowest income tenth and the 10th on the highest income tenth, E6: sixth grade of elementary school, M1: the first year of middle school, M3: the third year of middle schools

Appendix 18. Career maturity by income decile, predictive margins



Note: Adapted from the second wave of KELS. The 1st income deciles contain the lowest income tenth and the 10th on the highest income tenth

Appendix 19. Predicted probability of career maturity by income decile and year



Note: Adapted from the second wave of KELS. The 1st income deciles contain the lowest income tenth and the 10th on the highest income tenth. Year 1 equals to 6th year of elementary school, year 2 equals to 1st year of middle school, and year 3 equals to 3rd year of middle school.

Appendix 20. Stepwise mediation analysis predicting the transition to high school between academic and vocational high schools with odds ratio

	(1) Model I. SES only	(2) Model II. Adding SCCT variables	(3) Model III. adding control variables
SES	1.324***	1.254***	1.211***
	[1.251,1.400]	[1.180,1.332]	[1.136,1.291]
(log) Private education spending	1.377***	1.223***	1.217***
	[1.275,1.487]	[1.123,1.331]	[1.113,1.331]
Academic self-efficacy		2.842***	2.302***
		[2.332,3.464]	[1.884,2.813]
Educational aspiration		0.616***	0.660***
		[0.522,0.728]	[0.561,0.777]
Career maturity		1.593***	1.534***
		[1.472,1.723]	[1.414,1.664]
Female (1=female, 0=male)			1.109
			[0.888,1.384]
Academic achievement			1.019***
			[1.015,1.023]
Rural (1=rural, 0=urban)			1.625**
			[1.198,2.203]
Pseudo R^2	0.081	0.173	0.207
N	3958	3958	3958

Note: Adapted from the second wave of KELS in 2017-2018. * p<0.05, ** p<0.01, *** p<0.001, 95% confidence intervals in brackets.

Appendix 21. Multinomial logistic model for predicting high school transition

	(1) Vocational	(2) Autonomous	(3) Special-purpose
SES	-0.185***	0.0391	0.129*
	[-0.249,-0.121]	[-0.018,0.096]	[0.028,0.230]
(log) Private education spending	-0.190***	0.0469	0.617**
	[-0.279,-0.101]	[-0.089,0.183]	[0.193,1.041]
Academic elf-efficacy	-0.795***	0.274*	1.126***
	[-0.997,-0.594]	[0.043,0.505]	[0.676,1.576]
Career maturity	0.419***	-0.00541	0.428*
	[0.256,0.583]	[-0.177,0.166]	[0.064,0.791]
Educational aspiration	-0.428***	-0.0153	0.172
	[-0.510,-0.346]	[-0.130,0.100]	[-0.169,0.513]
Female (1=female, 0=male)	-0.145	-0.492***	0.444*
	[-0.368,0.078]	[-0.710,-0.274]	[0.031,0.858]
Academic achievement	-0.0183***	0.00586*	0.0273***
	[-0.022,-0.014]	[0.001,0.011]	[0.012,0.042]
Rural (1=rural, 0=urban)	-0.522***	-0.462*	-0.00101
	[-0.826,-0.218]	[-0.825,-0.099]	[-0.687,0.685]
Constant	4.437***	-3.606***	-16.07***
	[3.401,5.473]	[-4.649,-2.563]	[-18.577,-13.556]
Pseudo R^2		0.133	
N		3958	

Note: Adapted from the second wave of KELS. * p<0.05, ** p<0.01, *** p<0.001, 95% confidence intervals in brackets.

Appendix 22. Multinomial logistic model predicting the transition to high school with all types with averaged marginal effect (without private education spending)

	Vocational	General	Autonomous	Special
SES	-0.0190***	0.00902*	0.00493*	0.00505***
	[-0.024,-0.014]	[0.002,0.016]	[0.000,0.010]	[0.003,0.008]
Academic Self-efficacy	-0.0771***	0.0193	0.0278**	0.0300***
	[-0.094,-0.060]	[-0.008,0.046]	[0.008,0.048]	[0.018,0.042]
Career Maturity	0.0362***	-0.0411***	-0.00572	0.0106*
	[0.022,0.050]	[-0.062,-0.020]	[-0.021,0.009]	[0.001,0.020]
Educational aspiration	-0.0377***	0.0308***	0.00171	0.0052
	[-0.044,-0.031]	[0.017,0.044]	[-0.008,0.012]	[-0.004,0.014]
Female	-0.00695	0.0379**	-0.0442***	0.0132*
	[-0.026,0.012]	[0.011,0.065]	[-0.063,-0.025]	[0.003,0.024]
Academic Achievement	-0.00170***	0.000387	0.000574**	0.000742***
	[-0.002,-0.001]	[-0.000,0.001]	[0.000,0.001]	[0.000,0.001]
Rural	-0.0337**	0.0732***	-0.0381*	-0.0013
	[-0.059,-0.008]	[0.033,0.113]	[-0.070,-0.007]	[-0.018,0.016]

Note: Adapted from the second wave of KELS. * p<0.05, ** p<0.01, *** p<0.001, 95% confidence intervals in brackets.

Appendix 23. Average marginal effect by income quintile and academic achievements for high school high school type in Korea

	Vocational track		Academic track					
	Vocational		General		Autonomous		Special	
	(1)		(2)		(3)		(4)	
A. Low academic achievement (Bottom 25th percentile)								
Middle SES	-0.118***	[-0.182,-0.055]	0.110**	[0.043,0.177]	0.003	[-0.031,0.038]	0.005	[-0.001,0.011]
High SES	-0.275***	[-0.348,-0.202]	0.192***	[0.095,0.290]	0.063	[-0.008,0.133]	0.02	[-0.007,0.047]
B. Middle academic achievement								
Middle SES	-0.084***	[-0.124,-0.044]	0.065**	[0.018,0.113]	0.011	[-0.019,0.042]	0.007	[-0.004,0.019]
High SES	-0.123***	[-0.168,-0.078]	0.093**	[0.032,0.153]	0.023	[-0.021,0.066]	0.008	[-0.010,0.025]
C. High academic achievement (Top 25th percentile)								
Middle SES	-0.03	[-0.081,0.021]	-0.029	[-0.122,0.064]	0.023	[-0.051,0.096]	0.036	[-0.005,0.077]
High SES	-0.049	[-0.099,0.001]	-0.136**	[-0.236,-0.037]	0.090*	[0.010,0.170]	0.095***	[0.045,0.145]

Note: Adapted from the second wave of KELS. Results are marginal effects (the percentage point change in the likelihood one type of high school), The reference group is low SES at the bottom 25th percentile. 95% confidence intervals in bracket, * p<0.05, ** p<0.01, *** p<0.001

Appendix 24. Averaged marginal effect by income quintile and academic achievements for the transition to high school

	Vocational track		Academic track	
	Vocational (1)	General (2)	Autonomous (3)	Special (4)
A. Low academic achievement (Bottom 25th percentile, N=1,000)				
2nd income quintile	-0.108** [-0.190,-0.027]	0.091* [0.005,0.177]	0.021 [-0.026,0.067]	-0.003 [-0.010,0.003]
3rd income quintile	-0.137*** [-0.216,-0.058]	0.131** [0.047,0.215]	0.009 [-0.035,0.054]	-0.003 [-0.010,0.003]
4th income quintile	-0.197*** [-0.283,-0.112]	0.186*** [0.091,0.280]	0.007 [-0.046,0.059]	0.005 [-0.013,0.023]
5th income quintile – highest	-0.218*** [-0.292,-0.144]	0.175*** [0.091,0.258]	0.03 [-0.019,0.080]	0.013 [-0.007,0.032]
B. Middle academic achievement (N=2,006)				
2nd income quintile	-0.062* [-0.111,-0.014]	0.067* [0.008,0.126]	-0.006 [-0.044,0.032]	0.001 [-0.015,0.018]
3rd income quintile	-0.108*** [-0.151,-0.065]	0.105*** [0.051,0.159]	0.001 [-0.036,0.037]	0.002 [-0.013,0.018]
4th income quintile	-0.084*** [-0.133,-0.034]	0.100** [0.039,0.162]	-0.013 [-0.053,0.027]	-0.004 [-0.020,0.012]
5th income quintile – highest	-0.127*** [-0.170,-0.085]	0.086** [0.028,0.144]	0.035 [-0.008,0.077]	0.007 [-0.011,0.025]
C. High academic achievement (Top 25th percentile, N=952)				
2nd income quintile	-0.033 [-0.085,0.018]	0.039 [-0.064,0.143]	-0.03 [-0.110,0.050]	0.025 [-0.033,0.082]
3rd income quintile	-0.035 [-0.084,0.015]	-0.008 [-0.108,0.093]	0.005 [-0.074,0.084]	0.038 [-0.018,0.093]
4th income quintile	-0.047 [-0.095,0.001]	0.01 [-0.097,0.116]	0.032 [-0.055,0.120]	0.005 [-0.049,0.059]
5th income quintile – highest	-0.042 [-0.090,0.005]	-0.099* [-0.195,-0.002]	0.077 [-0.001,0.154]	0.064* [0.012,0.117]

Note: Adapted from the second wave of KELS. The reference group is the lowest income quintile at the bottom 20th percentile. 95% confidence intervals in brackets, * p<0.05, ** p<0.01, *** p<0.00