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Contents

Evaluation of a digital textbook program in terms of implementation fidelity*

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Abstract

The purpose of this study is to investigate the effect of a digital textbook program in terms of program implementation fidelity. The outcome variable of the program was defined as changes in pre- and post-scores of student competencies composed of self-directed learning (SDL) ability, creativity and innovative (CI) ability, and information literacy (IL) skill. The implementation fidelity of the digital textbook program was measured by three sub-factors: "dose," "quality of delivery," and "participant responsiveness". For whole groups, changes in SDL ability and CI ability were not significant or were slightly decreased unexpectedly. Analysis of the groups by dividing them into upper and lower groups based on implementation fidelity showed that SDL and CI ability improved in the upper group at the level of implementation fidelity but were degraded in the lower group. The multi-level analysis showed that based on the total scores, SDL ability, CI ability, and IL skill all improved in classes with higher implementation fidelity. Among the sub-areas of implementation fidelity, a higher dose defined as the time and frequency of students' use of digital textbooks induced a stronger effect compared with other sub-factors of implementation fidelity.

Keywords: digital textbook program, program evaluation, implementation fidelity, student competency, multi-level analysis

Introduction

A digital textbook program was introduced as an official educational policy in Korea when the Ministry of Education (2002) announced its "Digital Textbook Development Plans" to prepare for establishing an innovative teaching and learning system in schools. In 2007, prototypes of digital textbooks for nine study courses in Grade 5 were developed, and in 2008, 20 elementary schools were designated as pilot schools (G. H. Jeong & Kye, 2014). Since then, the number of research schools has gradually increased. With more than 130 elementary and middle schools using digital textbooks in Social Studies and Science courses as of February 2016, the digital textbook program has become a relatively large-scale educational policy in Korea. This can be interpreted as the government's determination to establish a new teaching and learning model, to disseminate a successful model, and to innovate public education based on information and communications technology (ICT) by implementing the digital textbook program.

Existing studies on the effects of digital textbooks have mainly addressed such issues as whether digital textbooks are effective or whether they have intended consequences. The outcomes variables in the studies were concentrated on cognitive domains, including academic achievements (Noh, Kim, & Lee, 2011; Ryu & Byun, 2012; G. H. Jeong & Kye, 2014), self-directed learning (SDL) ability (Noh et al., 2011; Park, 2010; Byun et al., 2010; Chang & Kim, 2014; G. H. Jeong & Kye, 2014), and problem-solving ability (H. S. Kim et al., 2012; Park, Seo, & Park, 2008; Seo, Seo, & Hwang, 2008; M. S. Jeong, Lee, Lee, & Jo, 2008; G. H. Jeong & Kye, 2014; Choi & Seo, 2008). Most of these studies reported positive outcomes. However, it is necessary to consider whether the digital textbook program will have the same effects when it is spread throughout the schools beyond the limited number of pilot schools. With the increasing number of schools that operate the digital textbook program, notable differences may arise between schools due to variations in the competencies of teachers who can effectively use digital textbooks and in the environmental support of schools. Schools have different social, economic, and cultural conditions, and their members have very diverse competencies; hence, even policies or programs that have been proven effective through several studies may have unexpected outcomes in the field. Therefore, the effects of policies or programs may vary depending on the implementation competencies of schools.

In program studies, implementation fidelity traditionally means whether program intervention occurs as originally intended (Berman & McLaughlin, 1976; Lipsey, 1999). According to O'Donnell (2008), the concept of implementation fidelity was discussed in the 1970s but only recently began to be actively used in the studies of the K-12 curriculum of the United States. He contended that one of the reasons for the lack of discussion about implementation fidelity was that when a new program was introduced, most researchers assumed that the fidelity of program operators would be maintained at a high level. However, researchers began to recognize that such high implementation fidelity could not be assumed (Rogers, 2003). Nelson, Cordray, Hulleman, Darrow, and Sommer (2012) asserted that when a program's performance turned out to be insignificant, they could specifically explain the issue by measuring and assessing the fidelity of program implementation, that is, whether the problem resulted from the program itself or from the failure of the intervention group to implement the program properly.

This study analyzes whether the digital textbook program, which is currently being implemented in more than 130 research schools in Korea, is educationally effective from the perspective of implementation fidelity. To this end, this study defined the concept of "the implementation fidelity of the digital textbook program" and selected measuring indicators to calculate the implementation fidelity of the digital textbook program in research schools. This study also investigated the effect of research schools' implementation fidelity levels on the impact of digital textbooks on student competencies. The following two research questions were posed:

First, is there any difference in the three program effect variables (SDL ability, creativity and innovative (CI) ability, and information literacy (IL) skill) depending on the implementation fidelity levels of the digital textbook program?

Second, does the digital textbook program have any impact on changes in these three program effect variables from the perspective of implementation fidelity?

Literature review

Effects of the digital textbook program

Korea's digital textbooks have the following four features (Ministry of Education, 2014). First, digital textbooks have different authorization and approval systems depending on the courses and years of study. Social Studies and Science digital textbooks for Grades 3 and 4 were developed as nationally designated textbooks, whereas Social Studies and Science digital textbooks for Grade 7 were developed by publishers as authorized and approved textbooks, then reviewed and used by related institutions. Second, digital textbooks provide not only contents of the course of study, learning aids, and glossary, but also contain functions, such as videos, animations, and virtual reality. Third, as learning tools, digital textbooks enable learners to interact, link with external resources, and form communities. Lastly, digital textbooks are configured so as to be downloaded and used by installing software-form platforms and to enable learners to develop SDL.

Studies on the effects of digital textbooks have largely focused on investigating the effects of the medium itself by selecting academic achievements, SDL ability, and problem-solving ability as effect variables. They also frequently compare an experimental group and a control group at a single point in time to examine any difference between the two groups or variation in pre- and post-test results. Digital textbooks have been reported to have a positive effect on academic achievement (Al-Mashaqbeh & Al Shurman, 2015; Maynard & Cheyne, 2005). They have also been reported to improve ICT literacy competencies (Li, Pow, Wong, & Fung, 2010). According to a meta-analysis of 28 research reports, academic papers, and theses and dissertations about the effects of Korea's digital textbooks published from 2007 to 2014 (Hwang et al., 2014), using digital textbooks had a significantly positive effect size from the overall studies. The effect size was at a moderate level of .419 (confidence interval .358~.479). By subject, the effect size was largest in Social Studies, followed in the descending order by Science, Mathematics, Korean, and English. By gender, the effect size was larger with male students than with female students. By

area, it was largest in small cities, followed in descending order by medium-sized cities, large cities, and rural and fishing villages. By academic performance, the effect of digital textbooks was positive for those who have lower academic performance level.

However, previous studies are insufficient to confirm changes in effect variables over time and to examine the factors influencing these changes. With regard to the teaching method using digital textbooks, the average achievement score of students in the student-centered demonstrating group was higher than that of the teacher-centered demonstrating group (Song & Park, 2009), and the effectiveness of using digital textbooks varied depending on the teachers' preparation for lessons and training levels (M. S. Jeong et al., 2008). However, insufficient studies have examined how such differences in program effect occurred depending on the teachers' competencies or efforts. In particular, because the digital textbook program is operated for more than one year generally, whether it is operated faithfully as intended is a crucial condition and environmental factor for the program.

Program evaluation from the perspective of implementation fidelity

Although the concept of implementation fidelity has been variously discussed by scholars, it can be summarized as the "degree of agreement between the program model or core elements of the program as originally intended by the program developer and the actual implementation of the program" (Bickman, 1987; Bond, Evans, Salyers, Williams, & Kim, 2000; Dormitrovich & Greenberg, 2000; Dusenbury, Branningan, Falco, & Hansen, 2003; Wang et al., 2015). Dane and Schneider (1998) asserted that the most commonly mentioned sub-factors in studies on implementation fidelity were "dose", "adherence", "quality of delivery", "program differentiation", and "participant responsiveness". These sub-factors can be explained as follows (Carroll et al., 2007; Dane & Schneider, 1998; H. Kim & Yu, 2016). First, dose or exposure addresses quantitative aspects, referring to the quantity, frequency, and continuity of program intervention as intended by the program developer. At times, the concept of coverage is included in the discussion, which means whether recipients of the program intervention are properly included. Second, adherence refers to the degree of delivery of the program components as stated in the program manual. This concept is a key factor for implementation fidelity. Third, quality of delivery addresses qualitative aspects, referring to the way the program operator implements the program. Benchmarks are required to judge this quality. For example, they include the operator's enthusiasm, degree of preparation, attitude toward the program, and overall estimate of effectiveness. Fourth, program differentiation means the unique characteristics of the program. To confirm this sub-factor, monitoring is needed to prove that the subjects received a planned intervention only. Lastly, participant responsiveness refers to how much the program participant takes part in the program and responds to it.

Carroll et al. (2007) developed a conceptual framework to clearly reveal the process of assessing implementation fidelity based on the studies of program effectiveness that had been published from 2002 to 2007. They saw adherence as a key factor in assessing implementation fidelity and included the aspect of dose as one of the sub-factors that comprise program content, scope, frequency, and duration. As latent moderator variables

influencing adherence to the program, they presented intervention complexity, facilitation strategies, quality of delivery, and participant responsiveness. Here, intervention complexity and facilitation strategies are suggested as new factors. The former means the degree of the program's seeking conciseness, whereas the latter means policies to raise implementation fidelity, such as providing manuals, guidelines, training, monitoring, feedback, and incentives. Through assessment of the program outcomes and of implementation fidelity, core elements influencing program outcomes can be analyzed and given as feedback in the subsequent program intervention. Carroll et al.'s framework suggested variables for both quantitative (e.g., dose) and qualitative (e.g., quality of delivery and participant responsiveness) aspects of implementation fidelity. Based on this framework, this study defined the sub-factors of implementation fidelity as dose, quality of delivery, and participant responsiveness.

Research methods

Subjects

This study focused on the research schools for digital textbooks run from 2014 to 2016. As 163 and 133 research schools for digital textbooks were selected in 2014 and 2015, respectively, subjects can be divided into research schools that were selected in 2014 and operated for two years (hereinafter called 2014 Research Schools) and research schools that were selected in 2015 and operated for one year (hereinafter called 2015 Research Schools). Questionnaire surveys were administered to all students, parents, and teachers in the research schools. At the student level, pre-tests of Grades 3, 4, and 7 were conducted online in April 2014 for 2014 Research Schools. For 2015 Research Schools, pre-tests of Grades 4, 5, and 8 were conducted in April 2015. Then, post-tests were conducted in October 2015 when a questionnaire survey was administered to parents, as well. At the teacher level, a questionnaire survey was carried out in October 2015. The numbers of responses to the questionnaire surveys and subjects of final analysis are presented by subject in Table 1.

Table 1. Numbers of Responses and Subjects of Analysis

	Subjects	Number of responses	Number of subjects of analysis
Students	Pre-survey in 2014	22,390	12,743
	Pre-survey in 2015	18,530	16,003
	Post-survey in 2015	19,332	16,761
Parents		16,912	14,586
Teachers		1,065	941
Schools	In 2014	163	163
	In 2015	133	133

Measurement variables

Effectiveness of the digital textbook program

This study defines the effectiveness of the digital textbook program as variations of the three program effect variables (SDL ability, CI ability, and IL skill) to indicate changes in student competencies based on the literature review. Variations of student competencies were presented for 2014 Research Schools as the difference between the pre-tests in 2014 and the post-tests in 2015, and for 2015 Research Schools as the difference between the pre-tests in 2015 and the post-tests in 2015. For each student competency, exploratory factor analysis and reliability analysis were performed. Also, in order to measure the implementation fidelity of the digital textbook program for research schools, we set sub-measurement variables by area and calculated them as t-scores with a mean of 50 and standard deviation of 10.

Student competency scales consisted of 13 questions: five on SDL ability, four on CI ability, and four on IL skill. Each item was measured on a five-point Likert scale of 1) strongly disagree, 2) disagree, 3) neither agree nor disagree, 4) agree, and 5) strongly agree. The results of the exploratory factor analysis on the student competency scale are presented in Table 2. For factor extraction, we used the method of maximum likelihood with Promax rotation which assumes a correlation between variables. Analysis of reliability showed that the reliability of all questions was good with Cronbach's alpha of .926, and the reliability of each sub-factor ranged between .858 and .884.

Table 2. Results of Exploratory Factor Analysis of Student Competency Scales

Factor	Item	1	2	3
SDL ability	I make plans for myself and proceed according to the plans.	-.042	.785	-.022
	When learning, I set priorities and set to work on what is important first.	.033	.780	-.050
	I can understand important contents without others' help.	.176	.511	.098
	I reflect on what was wrong with myself about learning outcomes (e.g., method of learning, attitude, etc.)	-.036	.749	.038
	I think of what is necessary to study better afterwards.	.019	.646	.119
CI ability	When learning, I tend to suggest various ideas.	.019	-.026	.807
	I try to solve a given problem in a new way different from existing methods.	-.029	.079	.805
	I try to come up with applicable ideas.	.010	-.002	.840
	I tend to have a challenging spirit for something new.	.106	.057	.624
IL skill	When learning, I know what information is needed for learning.	.773	.058	.036
	I can collect information necessary for learning.	.920	-.040	-.021
	I can make up what I want using the collected information.	.784	.010	.014
	I can select proper tools to solve problems.	.703	.002	.038

Program implementation fidelity

The indicators of dose, quality of delivery, and participant responsiveness, which are the three sub-factors of implementation fidelity, are presented in Table 3. In the study, dose was defined as quantitative aspects, including time and frequencies of students' and teachers' use of the digital textbook program. Also, quality of delivery was defined as qualitative aspects of the program, meaning whether program elements are delivered properly as intended in lessons. Lastly, participant responsiveness was defined as levels of participation and enthusiasm of participants in research schools. For each sub-factor score, we used the mean of standardized scores of the variables and calculated the total score of implementation fidelity index by summing all three sub-factor scores.

Table 3. Variables Related to Implementation Fidelity

Sub-factor		Indicator	Definition	Scale	No. of questions
Dose	1	Frequency of students' use of digital textbooks	Mean value of frequencies of using Social Studies and Science digital textbooks each day	5-point scale	2
	2	Frequency of teachers' use of digital textbooks	Mean value of frequencies of using digital textbooks in Social Studies and Science lessons for a week	5-point scale	2
	3	Time of students' use of digital textbooks	Average time of using digital textbooks in learning at schools and homes (weekdays, weekends)	minutes	3
Quality of delivery	1	High-level IL activity in digital textbook lessons	Newly making, evaluating, analyzing, applying, understanding, and remembering	5-point scale	6
	2	Students' ICT activity in digital textbook lessons	Perform long- and short-term projects; explain and discuss my ideas with other students, etc.	yes/no	13
	3	Professional teaching activity in digital textbook lessons	Present information in direct teaching methods; support small-group students for making up and enriching their learning, etc.	5-point scale	11
Participant responsiveness	1	Teachers' participation in operating digital textbooks	Teachers' overall participation in operating digital textbooks	3-point scale	1
	2	Teachers' awareness of digital textbook-based lessons	Level of positive awareness of digital textbook-based lessons	5-point scale	1

Background variables of students and teachers

Background variables of students and teachers were set as control variables to analyze the effectiveness of digital textbooks, as shown in Table 4. At the student level, gender, parents' help, private education time, and learning time were selected. At the teacher level, the teacher's service career was selected. Because teachers often teach many

classes in the research schools, teacher variables at level 2 were used by calculating the mean of each class to match the teacher and student data in the multi-level analysis.

Table 4. Background Variables

Level	Variable	Variable description	Scale
Students	Gender	-	female=1 male=0
	Private education time	Time spent studying at private institutes, tutoring, or home-study materials out of school	5-point scale
	Learning time	Time spent learning or doing homework for oneself	5-point scale
	Parents' help	Average daily time spent helping children with learning	5-point scale
Teachers	Service career	Teachers' service career period	5-point scale

Analysis strategies

In order to examine the impact of the implementation fidelity of research schools on the effectiveness of the digital textbook program, we set a base model and a conditional model in which the implementation fidelity variable and the other explanatory variables are inserted in order to identify the degree of changes in the explained variance of the implementation fidelity variable. We then analyzed the difference in the explained variance between schools through the intra-class correlation (ICC). Specifically, the research model is as follows.

The base model (random-effect ANOVA) was designed to confirm if the random effects of individuals and schools were statistically significant, that is, to examine the extent of individual deviation from the group mean of dependent variables at the individual level and the extent of the deviation of the mean of the applicable schools from the total mean. In the level-1 model, Y_{ij} means the pre- and post- score of changes in competency as a dependent variable of student i who belongs to school j at the student level. β_{oj} means the mean of school j, and r_{ij} means the random effect as random error or variance that shows how much student i who belongs to school j deviated from the mean of the school. The level-2 school model classifies the mean of the school into fixed and random effects. In other words, the mean β_{oj} of each school is divided into the fixed effect γ_{00} which means the total mean, and the random effect u_{oj} which means the degree of deviation of the applicable school from the total mean.

$$\text{Level 1}: \ Y_{ij} = \beta_{qj} + r_{ij}, \ r_{ij} \sim N(0, \delta^2)$$
$$\text{Level 2}: \ \beta_{qj} = \gamma_{00} + u_{oj}$$

The conditional model is an intercept- and slope-as-outcomes model. In the level-1 model (within-school model), the explanatory variable X_q is inserted from $1 \cdots \Omega$, and β_q can be a random effect as the coefficient of the explanatory variable. The independent

variable at each student level is grand-mean centered, except for dummy variables including gender in order to estimate the intercept coefficient. Here, variables set as student-level variables are divided into background and program implementation fidelity-related variables. In other words, we examined if the implementation fidelity of the digital textbook program serves to improve the changes in student competencies when background variables are controlled.

In the level-2 model, only intercept β_{0j} is set as a random effect that varies depending on teachers, and then W_{sj} is inserted to explore teacher-level variables that impact on effect variables of student-level. Also, in slope β_{qj}, we assumed only fixed effects without setting random effects. In other words, this study focused on confirming whether the program implementation fidelity of research schools has any significant impact on changes in student competencies. To simplify the exploration of factors influencing the dependent variables, the study inserted explanatory variables only into the intercept coefficient. As teacher-level variables, this study set the service career variable which is the teacher's background in addition to the teacher's implementation fidelity variables.

$$\text{Level 1}: Y_j = \beta_{0j} + \sum_{q=1}^{\Omega} \beta_q X_q + r_j, \quad r_{ij} \sim N(0, \delta^2)$$

$$\text{Level 2}: \beta_{0j} = \gamma_{00} + u_{0j}$$

$$\beta_{qj} = \gamma_{q0}$$

Results

Analysis of differences by program implementation fidelity level

Table 5 shows the descriptive statistics of the student competency test of 2014 and 2015 Research Schools and the results of the paired t-test. SDL ability and CI ability decreased at the 2014 Research Schools but had no statistically significant difference at the 2015 Research Schools. On the other hand, IL skill increased in both school groups.

Table 5. Paired T-Test Results of Changes in Student Competencies

Student competencies	2014 Research Schools					2015 Research Schools				
	pre M(SD)	post M(SD)	Change	N	t	pre M(SD)	post M(SD)	Change	N	t
SDL ability	3.60 (0.78)	3.54 (0.80)	-0.06	2,760	-3.43***	3.41 (0.77)	3.40 (0.78)	-0.01	4,435	-0.71
CI ability	3.69 (0.83)	3.63 (0.81)	-0.06	2,750	-3.30***	3.48 (0.79)	3.48 (0.81)	0.00	4,427	0.36
IL skill	3.63 (0.85)	3.83 (0.82)	0.20	2,740	11.04***	3.61 (0.88)	3.70 (0.81)	0.08	4,399	6.24***

*** $p < .001$.

In order to examine the change of student competencies according to the level of implementation fidelity, the upper and lower groups were divided based on the mean score of the implementation fidelity index at the school level. In Table 6, the descriptive statistics include average and standard deviation of changes of between pre- and post-test student competencies, and t-test results show whether the mean differences between the upper and lower groups by the implementation fidelity of the 2014 and 2015 Research Schools are statistically significant or not. The results show that the scores of change in the upper group were higher than those of the lower group in all areas. These results indicate that the program implementation fidelity functions as a mediator variable to the change of students' competency in research schools.

Table 6. Independent T-Test Results of Changes in Student Competencies between Upper and Lower Groups at Implementation Fidelity Levels

Effect variable	Implementation fidelity	2014 Research Schools			2015 Research Schools		
		M(SD)	Mean diff	t	M(SD)	Mean diff	t
SDL ability	Upper	0.06 (0.37)	0.16	3.32**	0.10 (0.38)	0.18	4.02***
	Lower	-0.10 (0.32)			-0.07 (0.22)		
CI ability	Upper	0.04 (0.37)	0.16	3.18**	0.08 (0.32)	0.15	3.55***
	Lower	-0.13 (0.38)			-0.07 (0.28)		
IL skill	Upper	0.34 (0.39)	0.21	3.61***	0.22 (0.44)	0.21	4.21***
	Lower	0.13 (0.45)			0.01 (0.26)		

Note. No. of cases in schools: upper = 131, lower = 88 for 2014 Research Schools and upper = 103, lower = 102 for 2015 Research Schools.
** $p < .01$. *** $p < .001$.

Impact of implementation fidelity on program effects

The results of multi-level analysis on the impact of the total score of the implementation fidelity on changes in student competencies are presented in Table 7. First, the total score of the implementation fidelity of research schools had a statistically significant impact on changes in students' SDL abilities ($ɣ = 0.006$, $p < .001$, ES = 0.17)[1].

Among the control variables, as students spent more time on autonomous learning, their SDL competencies increased, and male students had higher SDL abilities and IL skills than female students ($\beta = 0.042$, $p < .001$; $\beta = -0.008$, $p < .001$). Second, the total score of implementation fidelity had a significant impact on changes in CI ability ($ɣ = 0.005$, $p < .001$, ES = 0.17), such that students' CI abilities rose with increasing teachers' implementation fidelity. Third, the total score of implementation fidelity had a statistically significant impact on changes in IL skill ($ɣ = 0.007$, $p < .001$, ES = 0.20), and male students had a higher variation than female students ($\beta = -.085$, $p < .001$). Also, the students' IL skill increased with lengthening the teachers' service career ($ɣ = 0.0005$, $p < .05$).

The ICC of each model was around 8%, with SDL ability 8.3%, CI ability 7.7%, and IL skill 8.8%. This means that the difference between teachers explains around 8% of changes in student competencies, and the difference between students the remaining 92%.

Table 7. Results of Multi-Level Analysis of Changes in Student Competencies

	SDL ability		CI ability		IL skill	
	base model	conditional model	base model	conditional model	base model	conditional model
Intercept	-0.015 (0.016)	0.027 (0.020)	-0.008 (0.017)	0.007 (0.020)	0.159*** (0.018)	0.202*** (0.022)
Student level						
Gender		-0.080*** (0.023)		-0.026 (0.024)		-0.085*** (0.025)
Parent's help		0.001 (0.005)		-0.002 (0.006)		0.008 (0.006)
Private education time		-0.010 (0.008)		0.007 (0.008)		-0.011 (0.009)
Learning time		0.042*** (0.011)		0.015 (0.012)		-0.024 (0.012)
Teacher-level						
Total score of implementation fidelity		0.006*** (0.001)		0.005*** (0.001)		0.007*** (0.001)
Service career		0.000 (0.000)		0.000 (0.000)		0.005* (0.000)
Variation						
Student level (%)	0.596 (91.7)	0.594 (92.9)	0.660 (92.3)	0.660 (93.4)	0.718 (91.2)	0.716 (92.9)
Teacher level (%)	0.054 (8.3)	0.045 (7.1)	0.055 (7.7)	0.047 (6.6)	0.070 (8.8)	0.054 (7.1)
Explained variance						
Student level (%)		0.002 (0.4)		0.000 (0.1)		0.002 (0.2)
Teacher level (%)		0.01 (16.3)		0.01 (15.4)		0.015 (21.9)

Note. No. of cases: level 1 = 5,115 and level 2 = 408.
*$p < .05$. **$p < .01$. ***$p < .001$.

The results of analyzing the impact of the three sub-factors (dose, quality of delivery, and participant responsiveness) of the implementation fidelity of digital textbook research schools on changes in student competencies through a multi-level model are shown in Table 8. Because dose is divided into time and frequency of students' use of digital textbooks and time of teachers' use of digital textbooks, it is set as an explanatory variable by dividing the variable into level 1 and level 2. Because the time and frequency of students' use of digital textbooks failed to satisfy the assumption of normality with skewness of 1.3 and kurtosis of 13.6 at level 1, they were converted into a logarithm to be used.

According to the analysis of results, first, the student-level dose measured by time and frequency of using digital textbooks had a significant impact on changes in SDL competency ($\beta = 0.614$, $p < .001$, ES = 0.004). In other words, with increased time and frequency of students' use of digital textbooks, their SDL competencies increased. Second, student-level dose had a significant impact on changes in CI ability ($\beta = 0.655$, $p < .001$, ES = 0.005). That is, with increasing the time and frequency of the students' use of digital textbooks, their CI abilities improved. Third, student-level dose and teacher-level participant responsiveness had a statistically significant impact on changes in IL skill (respectively, $\beta = 0.448$, $p < .001$, ES = 0.0003; $\gamma = 0.008$, $p < .01$, ES = 0.05). In other words, students' IL skills increased both with increased time and frequency of the students' use of digital textbooks and with increasing the teachers' participation and enthusiasm.

Table 8. Results of Multi-Level Analysis of Student Competencies by Sub-Factor of Implementation Fidelity

	SDL ability		CI ability		IL skill	
	base model	conditional model	base model	conditional model	base model	conditional model
Intercept	-0.015 (0.016)	0.029 (0.019)	-0.008 (0.017)	0.009 (0.020)	0.159*** (0.018)	0.201*** (0.021)
Student-level						
Time and frequency of using digital textbooks (dose)		0.614*** (0.088)		0.655*** (0.092)		0.448*** (0.097)
Gender		-0.084*** (0.023)		-0.029 (0.024)		-0.086*** (0.025)
Parent's help		0.000 (0.005)		-0.002 (0.006)		0.008 (0.006)
Private education time		-0.011 (0.008)		0.006 (0.008)		-0.012 (0.009)
Learning time		0.036** (0.011)		0.008 (0.012)		-0.028* (0.012)
Teacher-level						
Time of using digital textbooks (dose)		0.003 (0.002)		0.002 (0.002)		0.001 (0.002)
Quality of delivery		0.003 (0.002)		0.003 (0.002)		0.003 (0.002)
Participant responsiveness		0.003 (0.002)		0.003 (0.003)		0.008** (0.003)
Service career		0.000 (0.000)		0.000 (0.000)		0.005* (0.000)
Variation						
Student level (%)	0.597 (91.7)	0.592 (93.3)	0.659 (92.3)	0.657 (93.8)	0.718 (91.2)	0.717 (93.2)
Teacher level (%)	0.054 (8.3)	0.042 (6.7)	0.055 (7.7)	0.044 (6.2)	0.070 (8.8)	0.052 (6.8)

	SDL ability		CI ability		IL skill	
	base model	conditional model	base model	conditional model	base model	conditional model
Explained variance						
Student level		0.005		0.003		0.001
(%)		(0.8)		(0.4)		(0.2)
Teacher level		0.012		0.012		0.018
(%)		(21.6)		(21.0)		(25.4)

Note. No. of cases: level 1 = 5,110 and level 2 = 408.
*p < .05. **p < .01. ***p < .001.

Discussion

This study analyzed the impact of the digital textbook program on changes in student competencies from the perspective of implementation fidelity. The assessment areas from the perspective of implementation fidelity were 1) dose, 2) quality of delivery, and 3) participant responsiveness. Then, based on the results of a questionnaire survey of teachers, students, and students' parents, measurement indicators were selected to calculate indices for digital textbook implementation fidelity. Because the program was implemented by the unit of class, indices were calculated by the same unit. Among student competencies as effectiveness variables, the study analysis was limited to three program effect variables: SDL ability, CI ability, and IL skill. In this context, the study results are discussed as follows.

Conducting paired t-tests of student competencies for 2014 and 2015 Research Schools (see Table 6) revealed that the differences between pre- and post-scores of changes in SDL ability and CI ability were not significant or were slightly reduced. This demonstrates the effectiveness of the digital textbook program in improving IL skill, but not SDL and CI abilities for the whole group. However, when we analyzed the differences between groups by dividing them into upper and lower groups according to the levels of implementation fidelity, the upper group exhibited positive changes in all three areas of competency whereas the lower group showed negative changes in SDL and CI abilities. Also, at the level of implementation fidelity, both SDL ability and CI ability improved in the upper group but degraded in the lower group. This implies that the program itself is not the cause of these effects but rather the program's "implementation," which reveals that the program intervention was not properly implemented to the lower group. According to the results of the needs analysis of the previous research schools (G. H. Jeong & Kye, 2014), the factors that hinder the schools' operation of the program can be classified into three factors. The first is infrastructure technology. It is difficult for teachers to run a class as intended due to technical factors, such as maintenance of infrastructure, stability of viewer function, and lack of technical support personnel. The second factor is the lack of diverse content in the digital textbooks. Finally, the teacher training system is incapable of improving the teaching methods and sharing the best practices within the teacher community.

Furthermore, even in the same upper group at the level of implementation fidelity, the program effect was lower in 2014 Research Schools operated for two years than in 2015 Research Schools operated for a year in CL and SDL ability. There is a possibility that the effect decreased due to the fatigue of implementing the program as the operational duration of the research schools lengthened. However, IL skill showed the opposite trend. This suggests that IL skill is likely to show a different trajectory to CL and SDL ability. Therefore, further investigation is needed to identify whether these differences arose from the selection of research schools or the character of dependent variables.

The multi-level analysis conducted to identify whether implementation fidelity had any direct impact on students' competency confirmed that classes with high implementation fidelity had a positive change of improving student competencies. In other words, in classes with higher total scores of implementation fidelity, the three program effectiveness variables of SDL ability, CI ability, and IL skill all improved. In addition, the sub-areas exhibited differences. For dose, all three competencies improved with increasing time and frequency of students' use of digital textbooks. This implies that from the perspective of implementation fidelity, dose is one of the crucial factors. That is, how often students use digital textbooks of their own accord affects changes in their SDL ability and CI ability as effectiveness variables of the program. This is similar in context to the framework of Carroll et al. (2007) who presented program adherence as scope, frequency, and duration from the aspect of dose. However, the use of digital textbooks according to student-level was a significant factor explaining SDL ability, CI ability, and IL skill changes, but teacher's time of using digital textbooks was not. It suggests that the use of digital textbooks by students has more influence on the improvement of student competence than does the use of digital textbooks by teachers. The ICC results of the multi-level analysis of changes in student competencies show that around 8% of changes in student competencies were explained at the teacher level, and the remaining 92% at the student level. This suggests that the effects of the digital textbook program depend on how much the students utilize this resource themselves.

Also, participant responsiveness, which was defined as the level of teachers' participation and enthusiasm, had a significant impact on improving students' IL skills, but not on SDL ability and CI ability. This suggests that IL skill is more easily affected by teachers' participation and enthusiasm than is SDL or CI ability. In the study, compared with SDL and CI ability, IL skill had a larger effect size in terms of total score of implementation fidelity.

Conclusion

The study results suggest that ease of use of digital textbooks should be prioritized in order to improve the implementation fidelity. Easy use of digital textbooks enhances the recognition of the positive effects of the use of digital textbooks. In turn, this enhanced recognition increases the frequency and level of the use of digital textbooks. The higher the level of technology utilization and the higher the level of computer use for teaching purposes, the higher the performance capability of the digital textbooks. In order to

improve the usability of digital textbooks, it is important to improve not only the user interface, such as ease of use and accessibility of digital textbooks themselves, but also the teachers' recognition of the use of ICT and basic ICT abilities. Furthermore, the issue of digital textbooks is not a question of using or not using them, but one of changing the approach of teaching and learning activities in the classroom. In order to provide students with the opportunity to use digital textbooks in the classroom, teachers need to reorient the existing classes into more student-centered and interactive lessons. This requires a policy plan to increase the competency of teachers in terms of implementing teacher training and a professional learning community between teachers.

However, this study had two limitations. First, it could not sufficiently explore diverse indicators to measure the implementation fidelity of the digital textbook program. For example, it is necessary to use qualitative data including observations of digital textbook-based lessons from the aspect of diversification in order to confirm adherence; however, such an assessment of implementation fidelity could not be conducted in this study. Second, follow-up studies are needed to examine the extent of deviation between schools and classes regarding the implementation fidelity of digital textbooks and to identify the context variables of schools and teachers that affect implementation fidelity.

This study is differentiated from existing studies on the effectiveness of digital textbooks in that it examined the digital textbook program from the perspective of implementation fidelity, that is, how faithfully the program has been implemented. This was achieved by examining the digital textbook program as a long-term educational program rather than by identifying whether or not the digital textbook intervention has any effect. Considering that digital textbook research schools are operated for more than a year on a relatively long-term basis, whether the digital textbook program is faithfully implemented according to the intentions of the program developer is a very important factor. In particular, increasing the time and frequency of students' use of digital textbooks had a significant impact on the program performance.

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Footnotes

1. In the multi-level analysis, the effect size was calculated as Cohen's f^2 (Selya, Rose, Dierker, Hedeker, & Mermelstein, 2012).

$$f^2 = \frac{R_{AB}^2 - R_B^2}{1 - R_{AB}^2}$$

Where R_{AB}^2 : the proportion of variance accounted for by A(the variable of interest) and B(all other variables).

R_B^2 : the proportion of variance accounted for by B.

Structural relationships between career barriers, social support levels, ego-resilience, job search efficacy, and career preparation behavior of middle-aged unemployed men

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Abstract

The purpose of this study was to analyze the structural relationships between the variables of middle-aged unemployed men's career barriers, social support, ego-resilience, job search efficacy and career preparation behavior. To achieve this goal, a sample of men (N = 513) was drawn from data on middle-aged unemployed men at three employment service centers in Seoul and Gyeonggi-do, Korea. The collected data were analyzed using a structural equation model. This study verified that career barriers and social support were possible intervening variables in career preparation, identified that ego-resilience was the most important variable for overcoming career barriers and lack of social support. Programs are needed to help passive middle-aged unemployed men with positive attitudes to look for work in harsh employment environments. If programs aimed at improving ego-resilience and job search efficacy are developed and used in the field at actual training centers and in counseling areas, the men's career preparation behavior would increase.

Keywords: career barriers, social support, ego-resilience, job search efficacy, career preparation behavior

Introduction

With today's developments in medicine and living standards, life expectancies have extended, and middle age is considered an active stage. As Korea's corporate and employment markets have recently been negatively affected by both the Korean financial crisis of 1997 and the global financial crisis of 2008, the issue has arisen of high unemployment among adults. Korean companies are constantly adjusting their structures based on efficiency, productivity, and cost savings, and many adult workers are being forced to resign either voluntarily or through lay-offs involuntarily. These adult workers who have been laid off earlier than retirement age are unlikely to reenter the labor market because of age restrictions. Even if they do, they have to accept lower and/or irregular positions in most cases (Shin, 2006). Meanwhile, adult workers who fail to find new work experience extreme difficulties financially, physically, and mentally due to long-term unemployment (Ahn et al., 2005). For these people, middle age (between 40 and 64 years of age) is not a stage of completion and maturity but a stage of insecurity and loss.

Considering these changes in Korea's employment environment and the various adverse effects of unemployment, it is necessary to conduct career-related studies to increase the possibility of re-employing unemployed adults, and in this process career preparation behavior has emerged as an important variable in adult career studies. This refers to unemployed adults' preliminary career searches for re-employment and their specific efforts to find work. Career preparation behavior is critical for unemployed adults' career development because they are required to perform more of this direct career behavior than anyone else. Therefore, a multifaceted study of the variables that affect unemployed adults' individual career preparation behavior is necessary in order to support their career counseling or re-employment (C. H. Choi, 2011).

Career barriers and social support are the two most widely studied variables in studies on career preparation behavior. Recently, the social cognitive career theory (SCCT) which is based on the social cognitive theory of Bandura (1977) has received the most interest in career development studies. According to SCCT, people are limited in their career choices and decisions or have wider choices if they are affected by the environment (e.g., career barriers, social support, etc.) (J. H. Lee, 2010). At this time, depending on how much influence the social environment has, it may or may not be possible to realize their career choice, career decision, or achievement of their goal. According to the results of other research related to career barriers which is an important topic in the social cognitive theory, people who recognize many career barriers have difficulty in career development or decision-making (Luzzo, 1993). Career barriers, the variable with the most negative impact on career development, has the most significant effect on career preparation behavior by interfering with individual career plans and career development (Lent & Brown, 2000). In this regard, research has reported that career barriers have a direct impact on career preparation behaviors (S. H. Choi, 2007; H. J. Lee & Kim, 2010) and indirect effects on it through self-efficacy or career decision self-efficacy as the media (You, 2013). Social support is another key environmental variable that affects unemployed adults' career preparation behavior, and it includes all human and material support for career preparation. Some studies have reported that social support directly affects career preparation behaviors (Ha, 2018; D. H. Lee, 2011) and career-related self-efficacy, job

search efficacy and ego-resilience indirectly affect career preparation behavior (Ko, 2008).

Intrinsic factors are variables that affect individuals' abilities to flexibly adapt to or overcome stress, adversity, and hardships and conduct career preparation behavior, and ego-resilience has recently been reported as another important variable (B. H. Kim, 2010; Son & Son, 2005). B. H. Kim (2010) reports that ego-resilience directly influenced career preparation behavior. Eo (2010), J. Y. Kim and Lee (2014), and Roh, Hur, and Jeon (2012) note that there is a positive relationship between ego-resilience and job search efficacy. In addition, job search efficacy that has applied the concept of self-efficacy to job search behaviors have been reported as an intrinsic key variable that has a positive effect on career preparation behaviors either as a direct or indirect mediator variable (Chun, 2001; Kanfer & Hulin, 1985; M. R. Lee, 2013).

These findings suggest that career barriers, social support, ego-resilience, and job search efficacy are important variables that have a great influence on career preparation behaviors of middle-aged and elderly unemployed people. However, most of the domestic studies on the above-mentioned related variables mainly focus on college students and remain at the level of identifying the simple relationship that career barriers and social support each directly has an influence on career development behaviors or with self-efficacy or ego-resilience as a mediating variable. In addition, some studies (Ahn et al., 2005; Chun, 2001; M. U. Kim & Roh, 1998) on unemployed adults only deal with the effects of national employment policies, employment programs, personality factors, and job search efficacy on career preparation behavior. It is difficult to find research that analyzes the structural effect relationship between the career preparation behaviors of the middle-aged and elderly unemployed and the related variables.

The purpose of this research is to analyze the structural relationship between career barriers, social support, ego-resilience, job search efficacy, and career preparation behavior of middle-aged and elderly unemployed men. Specifically, the research questions to achieve the purpose of this study are first, how is the structural relationship among career barriers, ego-resilience, job search efficacy, and career preparation behaviors of middle-aged and elderly unemployed men? Second, how is the structural relationship among social support, ego-resilience, job search efficacy, and career preparation behaviors of middle-aged and elderly unemployed men? The results of this research could contribute not only to theorizing the multifaceted relationship among the variables that affect the level of career preparation of the middle-aged and elderly unemployed men, but also to suggesting a meaningful implication for the career research of unemployed adults.

Variables and their relationships

The concept of career barriers, social support levels, ego-resilience, job search efficacy, and career preparation behavior and its sub-factors, and the relationships between the variables were dealt with in this section.

Career preparation behavior

Career preparation refers to substantial and specific behavior related to pursuing a career. In other words, it refers to people's decisions and subsequent behavior to make reasonable career decisions (B. H. Kim & Kim, 1997). In this study, career preparation is defined as a wide range of behavior, including preliminary career searches that a person conducts until actual employment. Kopelman, Rovenpor, and Millsap (1992) suggested that it is very important to conduct career preparation behavior in the mid-term stage in order to plan and achieve career goals. Most studies in Korea that were related to careers before the concept of career preparation behavior was introduced focused on the cognitive or emotional aspects of job searches, but many studies related to career preparation have been conducted as the importance has been identified of substantial and specific behavior for pursuing career goals (Krumboltz, 1996). Career preparation is a major variable that substantially affects employment possibilities and speed (Kanfer, Wanberg, & Kantrowitz, 2001), and it is closely related to other career variables.

Career barriers

Career barriers refer to all intrinsic and extrinsic experiences or events that interfere with or block an individual's career goals or achievements. This term had been used mixed with "thwarting condition", "barriers", "perceived barriers", "career-related barriers", and "career barriers", but since Swanson and Tokar (1991) have developed the Career Barrier Inventory, these terms have become increasingly unified as the term career barriers (Son, 2004). Previous studies (S. H. Kim, 2007; J. H. Lee, 2010) that have investigated barriers related to career have mainly used the term career barriers, but there are some problems as the terms, career search barriers, career decision barriers, school barriers, job market barriers, work experience barriers, and job search barriers are used mixed within the broad category of career barriers. This study, following the argument of Jeong and Tak (2011), defines career barriers as an obstacle that could be perceived as the barriers among the career barriers experienced by adults.

According to Swanson and Woitke (1997), career barriers have a major negative impact on career development because they interfere with people's career plans and development. According to the latest SCCT of Lent, Brown, and Hackett (1994), people's career selections and decisions are limited or broadened based on environmental factors, such as career barriers and social support (D. H. Lee, 2011). Those who are highly conscious of career barriers reportedly face difficulties in decision-making and in achieving career development and goals (Lent et al., 2001). Ko (2008) has reported that career barriers have a negative impact on career preparation behavior.

Social support

Social support refers to all forms of positive resources that can be acquired through social interactions. This study, following the argument of Betz (1989), defines social

support as all forms of positive resources that could be gained through social interactions, particularly in the context of career preparation behavior. Blustein (1997) noted the importance of personal support when performing work-related tasks and said that college students who were highly conscious of social support were better prepared for in-depth career search behavior and career selection. S. H. Lee (2006) said that social support actively helps individuals with career preparation behavior. Cauce, Hannan, and Sargeant (1992) clarified that high social support reduces and mitigates negative impacts, such as stress and is a positive element that enhances the motivation to achieve goals. You (2013) also found that social support had a positive effect on career preparation behavior, and that groups with high social support showed high levels of career preparation behavior such as planning and decision-making.

Ego-resilience

Lazarus (2000) said that people can achieve strength and positive power not just negative emotions when they face hardships in the developmental stage. The ability to adapt through hardships and risks is called ego-resilience, and it helps people to flexibly face and adjust to stressful situations. Ego-resilience has a wide variety of definitions, and in Korea, there are also many other terms for it, such as resilience, recovery, recovery resilience, psychological soundness, restorability, flexibility, and adaptation flexibility (Y. S. Lee, 2013). Block and Block (1980) defined ego-resilience as the personal ability to flexibly adapt to or overcome intrinsic and/or extrinsic stress, crises, and risk factors. In addition, people with high ego-resilience tend to experience less anxiety and depression and to show positive emotions even when they face stressful situations. In a similar vein, Newman (2005) defines ego-resilience as the ability to confront and overcome everyday stress, hardships, adversities, and unexpected events. We follow Newman's (2005) definition of ego-resilience. J. Y. Kim and Lee (2014) determined that improving college students' ego-resilience plays an important role in nurturing their career preparation behavior. Ego-resilience and career preparation are organically correlated and may have implications for studying the variables related to unemployed adults' career preparation behavior.

Job search efficacy

Job search efficacy incorporates the concept of self-efficacy that Bandura (1977) introduced in his social cognitive theory as assuming that a person's belief or confidence in the ability to do a task well determines his or her actual behavior. This study, following the argument of Wanberg, Watt, and Rumsey (1996), defines job search efficacy as the belief or confidence in the personal ability to successfully select a career and conduct job search behavior. C. H. Choi (2011) found that self-efficacy was closely related to conducting career-related behavior, and Kanfer and Hulin (1985) also found that higher job search efficacy among unemployed adults contributed to high expectations for re-employment and had both direct and indirect positive impacts on career preparation behavior. For

these reasons, job search efficacy is an important motivational variable for unemployed adults to actively prepare for re-employment, and it is predicted to have a significant impact on unemployed adults' career selection, decision-making, and preparation.

Relationships between the variables

Relationships between career barriers, ego-resilience, job search efficacy, and career preparation behavior

A study on college and graduate students has found that career barriers and career preparation behavior have no correlations (Cho, 2007) although M. S. Lee (2003) did find that college students with high career self-efficacy perceived fewer career barriers. Jeon (2013) also reported that career barriers had a negative impact on job search efficacy, and Ko (2008), after analyzing the impacts of career barriers on college students' career self-efficacy and career preparation behavior, found that more perceived barriers decreased the students' preparation behavior and career barriers. Separately, J. Y. Bae (2008) reported that college students' ego-resilience had a direct positive impact on their job search efficacy. J. Y. Kim and Lee (2014), with college students, identified that the students' ego-resilience had a significant positive impact on their career preparation behavior. In terms of job search efficacy, Chun (2001) reported, in a study on unemployed people's job search behavior, that job search efficacy had a positive impact on general career preparation behavior, supporting the findings of Kanfer and Hulin (1985) that unemployed people with higher job search efficacy conduct more active career preparation behavior. These findings suggest that job search efficacy has a significant impact on career preparation behavior. However, there are contrasting findings that job search efficacy showed no significant correlation with career preparation behavior (Wanberg et al., 1996), and it is also necessary to specifically study unemployed men.

Relationships between social support, ego-resilience, job search efficacy, and career preparation behavior

There are few studies in Korea on how social support directly affects ego-resilience and job search efficacy among adults. U. N. Kim (2014) reported that social support had a positive impact on adaptation flexibility among North Korean refugees, and Lyu (2012) suggested a positive correlation between social support and family flexibility of college students. Therefore, it is possible to predict that social support for unemployed men would have a positive impact on ego-resilience. Considering the findings of Garriott (2012) who applied the SCCT model to college students, and You (2013) who reported that social support and career self-efficacy had significant positive correlations among Korean college students, it is possible to predict that job search efficacy is a variable with significant positive correlations with social support and self-efficacy. College students with more social support show more intensive and effective career preparation and search behavior than do those with less social support (Blustein, 1997; Lyu, 2012).

Method

The research model on the relationship between career barriers, social support levels, ego-resilience, job search efficacy, and career preparation behavior was proposed. In addition, research participants and measures were also presented.

Research model

The research model was basically based on SCCT which states that an individual's career should be understood in the context of the inclusive interactions between the individual's intrinsic and extrinsic characteristics in order to predict unemployed men's career preparation behavior. As a result, the research model was set with five variables: the men's career barriers and social support as the potential extrinsic variables, and ego-resilience, job search efficacy, and career preparation behavior as the intrinsic variables. The research model is shown in Figure 1 below.

Figure 1. Research Model
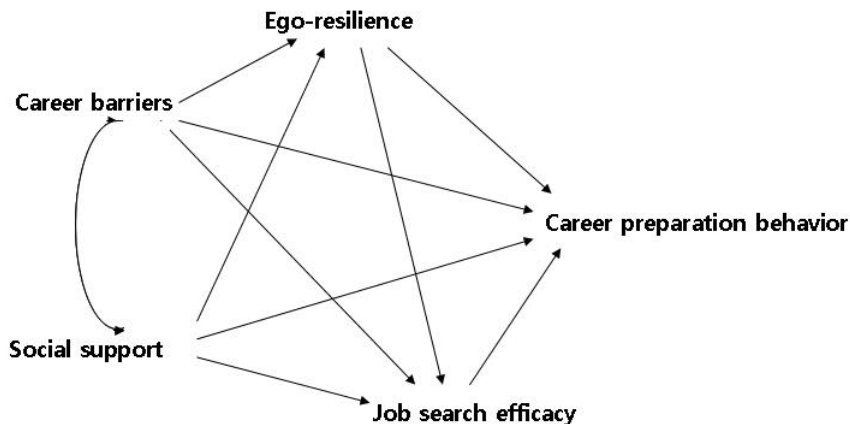
Participants

The population for this study was unemployed men between 40 and 64 years of age who had involuntarily lost jobs and applied for unemployment allowance at the Ministry of Employment and Labor as of June 2015. The data were collected between June 24 and July 13, 2015 by distributing surveys to men who had applied for the unemployment allowance at one of the Ministry's three employment centers (Dongbu, Gwanak, and Namyangju) in Seoul and Gyeonggi areas. This study applied non-probability quota

sampling (Seong & Si, 2006) which is widely used for social science studies because quota sampling is the most precise method of non-probability sampling, and it was desirable to randomly sample the quotas for each group based on the sizes of the centers, the distribution of groups, and diversity. Five hundred fifty survey forms were distributed and collected, and after the exclusion of surveys with incomplete or missing responses, 513 remained for analysis. The men's demographics are shown in Table 1.

Table 1. Participants' Demographics

Variables	Items	*N*	%
Age	40-49	135	26.3
	50-59	221	43.1
	60-64	157	30.6
Education	Graduated from elementary school	16	3.1
	Graduated from middle school	55	10.7
	Graduated from high school	215	41.9
	Graduated from a two-year college	64	12.5
	Graduated from a four-year college	129	25.1
	Graduate school or higher	34	6.6
Unemployment period	Less than 1 month	143	27.9
	1 month ~ 3 months	137	26.7
	3 months ~ 6 months	145	28.3
	6 months ~ 1 year	63	12.3
	1 year or longer	25	4.8
Occupation before unemployment	Simple labor	104	20.3
	Agriculture, fishery, livestock	3	.6
	Mechanical or assembly technician	85	16.6
	Technician	35	6.8
	Service or sales	50	9.7
	Office worker	85	16.6
	Engineer	71	13.8
	Specialist	10	1.9
	Senior executive or manager	32	6.2
	Self-employed	2	.4
	Other	36	7.0
Reason of unemployment	Resigned for personal reasons	25	4.9
	Lay-off	121	23.6
	Company's bankruptcy or dissolution	64	12.5
	Honorary resignation	122	23.8
	Retirement	84	16.4
	Other	97	18.9
	Total	513	100.0

Measures

Career preparation behavior

In this study, career preparation was operationally defined as various ranges of activities, including continuous career selection, such as career preparation, job selection, and career change or career exploration behaviors in advance or job search efforts until the actual employment in the series of decision-making processes. Among the 14 questions developed by Blau (1989) to measure career preparation behavior, this study used 12 that were translated and modified by Kwak (2011) for feasibility; they consisted of six questions on career preparation and six questions on job search. The items were rated on a scale of 1 through 5 with 1 = not at all and 5 = strongly agree. The overall Cronbach's α was .81, and those for the sub-factors were .69 for career preparation and .78 for job search.

Career barriers

The definition of career barriers, in this study, is the barrier that can be perceived during job search among the career barriers experienced by adults. This study used the measurement tool developed and modified by Jeong and Tak (2011) to measure unemployed men's career barriers. The tool consists of 41 questions in 10 categories: personality and psychological characteristics and attitudes (6 questions), difficulty maintaining current lifestyle (2 questions), difficulty supporting the family (2 questions), company and employment market issues (6 questions), lack of preparation for change (3 questions), lack of re-employment support programs (6 questions), lack of management experience (4 questions), lack of skills in searching for job information and completing job applications (7 questions), lack of interview skills (2 questions), and lack of external systems (3 questions). The Likert scale of 1 through 5 was used for the ratings in the questions with 1 representing 'not at all' and 5 representing 'strongly agreed', and the higher the rating is, the more negative the career barrier will be. After conducting confirmatory factor analysis (CFA), we discarded the items of 'difficulty maintaining current lifestyle' and 'difficulty supporting the family' because these they had low standardized factor loadings. The overall Cronbach's α was .93, and the Cronbach's α for the sub-factors ranged between .76 and .88.

Social support

In this study, social support was given the operational definition as referring to the entire resources, including supporting all human and material resources so that individuals can actively perform career behaviors in relation to all types of positive resources and careers. Social support was measured using a tool developed by Park (1985) and modified by Hwang (1996). The tool consists of a total of 25 questions in four categories: information, emotional, material, and evaluation support. The Likert scale of 1 through 5 was used for the ratings in the questions with 1 representing 'not at all' and 5 representing 'strongly agreed', and the higher the rating, the more positive the social

support will be. The overall Cronbach's α in this study was .96, and the values for each sub-factor were .87 for emotional support, .88 for information support, .85 for material support, and .86 for evaluation support.

Ego-resilience

Ego-resilience was operationally defined as the ability to cope with and overcome stress, suffering, adversity, and unexpected events in everyday life. Ego-resilience was measured using a tool that was developed and modified by Shin, Kim, and Kim (2009). The tool consists of a total of nine questions in three categories: control, positivity, and social skills. The Likert scale of 1 through 5 was used for the ratings in the questions with 1 representing 'not at all' and 5 representing 'strongly agreed', and the higher the rating, the more positive the ego-resilience will be. The overall Cronbach's α was .92, and those for the sub-factors were .81 for control, .83 for positivity, and .82 for social skills.

Job search efficacy

The definition of job search efficacy was the belief in the individual's ability to successfully perform various job search behaviors. Job search efficacy was measured using M. U. Kim, Chang, Cho, and Roh's (2003) survey, which was based on the translated and modified JOBS Ⅱ Survey by Vinokur and Price (1991) of the University of Michigan Social Survey Center. The Likert scale of 1 through 5 was used for the ratings in questions 1 to 4 with 1 representing 'not at all' and 5 representing 'strongly agreed', and the higher the rating, the more positive the job search efficacy will be. This tool consists of six questions that measure self-efficacy in job searches, and its overall Cronbach's α for this study was .85.

Results

SPSS 18.0 was used for the statistical analysis, and AMOS 18.0 was used to analyze the structural equation modeling (SEM)'s fit and the causality among variables. Additionally, bootstrapping was used to verify the validity of the indirect effects.

Measurement variable statistics and correlations among the variables

The variables means, standard deviations, skewness, and kurtosis were measured in regard to the unemployed men's career barriers, social support, ego-resilience, job search efficacy, and career preparation behavior. Each variable's standard deviation was evenly distributed from .435 to .919, skewness was ±1.0, and kurtosis was ±2, reflecting that all variables had no problems with assumed regularity; the details are shown in Table 2. The correlation analysis of the variables arrived at an acceptable correlation matrix, and those details are shown in Table 3.

Table 2. Statistics of Measurement Variables

Potential variables	Test variables	Mean	Standard deviation	Skewness	Kurtosis
Career barriers	Job searching	2.929	.799	-.224	-.629
	Job market issues	3.888	.588	-.835	1.682
	Psychological characteristics	2.878	.744	-.097	-.283
	Re-employment support programs	3.465	.620	-.328	.028
	Management experience	3.046	.762	-.372	-.303
	External systems	3.520	.687	-.470	.404
	Maintaining current lifestyle	2.685	.847	.332	-.407
	Supporting the family	3.079	.919	-.232	-.705
	Preparation for change	3.319	.758	-.468	.307
	Interview skills	2.973	.863	-.062	-.531
Social support	Emotional support	3.192	.604	-.262	.218
	Information support	3.235	.618	-.391	.468
	Material support	2.897	.618	-.106	.166
	Evaluation support	3.308	.598	-.434	.054
Ego-resilience	Control	3.489	.435	-.203	-.087
	Positivity	3.404	.482	.012	.453
	Social skills	3.318	.461	-.211	.048
Job search efficacy	Persuasion of appropriate people	3.327	.692	-.040	-.107
	Vocational skills	3.152	.836	-.091	-.689
	Filling out application forms	3.173	.788	-.004	-.306
	Searching job information	2.922	.714	.179	.277
	Appearance and communication skills	3.267	.794	-.185	-.124
	Enough technical skills	3.103	.775	-.105	-.106
Career preparation behavior	Preparation for job search	3.365	.554	-.589	.691
	Job search	3.054	.654	-.253	-.445

Table 3. Correlations among Variables

Item	Career barriers										Social support				Ego resilience			Job search efficacy						Career preparation behavior	
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
1. Job searching	1																								
2. Job market issues	.312	1																							
3. Psychological characteristics	.492	.446	1																						
4. Re-employment support programs	.453	.446	.449	1																					
5. Management experience	.507	.324	.528	.418	1																				
6. External systems	.323	.390	.350	.599	.383	1																			
7. Maintaining current lifestyle	.161	.038	.282	.160	.223	.072	1																		
8. Supporting the family	.134	.093	.202	.183	.202	.074	.387	1																	
9. Preparation for change	.391	.237	.371	.363	.469	.263	.218	.257	1																
10. Interview skills	.415	.188	.464	.289	.443	.204	.251	.261	.441	1															
11. Emotional support	-.153	-.108	-.206	-.141	-.202	-.109	-.069	.018	-.098	-.186	1														
12. Information support	-.165	-.136	-.238	-.126	-.209	-.086	-.047	.031	-.059	-.181	.867	1													
13. Material support	-.102	-.119	-.149	-.139	-.144	-.127	.005	.007	-.077	-.160	.803	.797	1												
14. Evaluation support	-.151	-.065	-.207	-.107	-.248	-.067	-.093	.006	-.068	-.211	.853	.785	.719	1											
15. Control	-.255	.059	-.223	-.076	-.183	.010	-.091	-.066	-.158	-.273	.384	.396	.302	.408	1										
16. Positivity	-.179	-.010	-.241	-.172	-.201	-.063	-.014	-.055	-.121	-.248	.457	.451	.421	.442	.674	1									
17. Social skills	-.289	.009	-.246	-.074	-.249	-.035	-.004	-.007	-.180	-.342	.399	.380	.338	.381	.717	.622	1								
18. Persuasion of appropriate people	-.244	-.011	-.232	-.028	-.211	-.007	-.015	-.013	-.227	-.297	.223	.224	.169	.231	.433	.355	.498	1							
19. Vocational skills	-.229	-.011	-.230	-.113	-.281	-.042	-.040	-.049	-.281	-.254	.203	.198	.181	.205	.255	.299	.288	.437	1						
20. Completing applications	-.399	-.073	-.239	-.176	-.267	-.052	-.015	-.058	-.278	-.387	.206	.222	.199	.225	.399	.349	.419	.487	.476	1					
21. Searching for job information	-.382	-.149	-.296	-.206	-.260	-.104	.001	-.038	-.261	-.254	.256	.220	.211	.240	.339	.340	.399	.416	.435	.524	1				
22. Appearance and communication skills	-.318	-.031	-.223	-.140	-.251	-.014	-.049	.000	-.250	-.386	.304	.282	.260	.292	.508	.471	.565	.591	.386	.573	.544	1			
23. Adequate technical skills	-.245	-.117	-.275	-.135	-.322	-.096	-.001	.002	-.175	-.272	.291	.293	.242	.291	.402	.406	.471	.440	.434	.489	.562	.562	1		
24. Preparation for job search	-.173	.056	-.078	-.011	-.132	.026	.001	-.052	-.054	-.202	.190	.190	.171	.178	.302	.240	.335	.234	.208	.228	.243	.260	.242	1	
25. Job search	-.212	-.036	-.074	-.088	-.180	-.070	.023	.003	-.113	-.150	.096	.071	.125	.058	.183	.186	.217	.164	.179	.228	.217	.206	.270	.469	1

Structural relationships in the research model

Structural regression model fit and structural path validity

The results of estimating the initial structural equation model's fit were: χ^2 = 737.655 (*df* = 220, *p* = .000), Tucker-Lewis Index (TLI) = .903, Comparative Fit Index (CFI) = .916, and Root Mean Square Error of Approximation (RMSEA) = .068 (90% CI: .062~.073). RMSEA was between .05 and .08, which was suitable, and CFI and TLI were greater than .90, which also confirmed that the test model was suitably fit to the data. Therefore, the initial model was selected as the final model without correction (see Table 4).

Table 4. Final Structural Regression Model Fit Indices

χ^2	*df*	*p*	TLI	CFI	RMSEA		
					AVE	LO90	HI90
737.655	220	.000	.903	.916	.068	.062	.073

Note. TLI = Tucker-Lewis index; CFI = comparative fit index; RMSEA = root mean square error of approximation; AVE = average variance extracted.

The results of the standardized parameter estimation of the final structural regression model are shown in Figure 2, and the results of the significance tests are shown in Table 5.

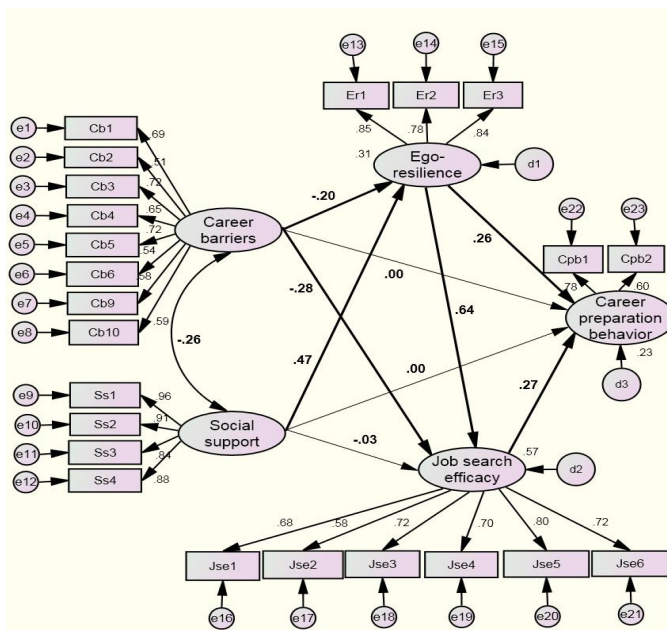### Figure 2. Structural Regression Model (Standardized Coefficients)

Table 5. Model Parameter Estimation and Significance Verification

Path	Non-standardized coefficient	Standardized coefficient	S.E.	C.R.
Career barriers → Ego-resilience	-.156	-.204	.037	-4.210[***]
Career barriers → Job search efficacy	-.302	-.277	.052	-5.860[***]
Career barriers → Career preparation behavior	.004	.005	.055	.075
Social support → Ego-resilience	.348	.472	.034	10.101[***]
Social support → Job search efficacy	-.031	-.030	.048	-.655
Social support → Career preparation behavior	-.003	-.003	.051	-.049
Ego-resilience → Career preparation behavior	.288	.258	.107	2.676[**]
Ego-resilience → Job search efficacy	.911	.637	.084	10.796[***]
Job search efficacy → Career preparation behavior	.208	.267	.075	2.768[**]

Note. C. R. = critical ratio.
[**]$p < .01.$ [***]$p < .001.$

Verifying the significance of the model's indirect effects

This study used bootstrapping to verify the statistical significance of the indirect effects. The results for significance at the minimum of .05 are shown in Table 6.

Table 6. The Significance of the Indirect Effects

Path	Non-standardized coefficient	S.E.	p
Career barriers → Ego-resilience → Career preparation behavior	-.045	.022	.010
Career barriers → Job search efficacy → Career preparation behavior	-.063	.026	.006
Career barriers → Ego-resilience → Job search efficacy → Career preparation behavior	-.029	.013	.004
Social support → Ego-resilience → Career preparation behavior	.100	.041	.011
Social support → Ego-resilience → Job search efficacy → Career preparation behavior	.066	.026	.006

The indirect effect in the relationship between unemployed men's career barriers and their career preparation behavior mediated by ego-resilience was -.045 at .01 significance. The indirect effect between the men's career barriers and career preparation behavior mediated by job search efficacy was -.063 at .01 significance. The indirect effect between the men's career barriers and their career preparation behavior mediated by ego-resilience

and job search efficacy was -.029 at .01 significance. The indirect effect between unemployed men's social support and their career preparation behavior mediated by ego-resilience was .100 at .05 significance. The relationship between the men's social support and their career preparation behavior mediated by job search efficacy showed no significant impact. Finally, the indirect effect between the unemployed men's social support and their career preparation behavior mediated by ego-resilience and job search efficacy was .066 at .01 significance. Based on these findings, unemployed men's career barriers and social support do not directly affect their career preparation behavior, but they do so indirectly through ego-resilience and job search efficacy.

Discussion

The relationships between career barriers, ego-resilience, job search efficacy, and career preparation behavior

Unemployed men's career barriers had significant, direct negative impacts on both ego-resilience and job search efficacy. This finding supports the previous reports that college students and North Korean male refugees who perceive more career barriers show less ego-resilience (H. R. Bae, 2012; U. N. Kim, 2014), and that more career barriers have a negative impact on job search efficacy (Jeon, 2013; M. S. Lee, 2003; You, 2013). Therefore, it is necessary to remove or mitigate individuals' internal and external barriers so that they can overcome the difficulties of having lost a job. However, the study also showed that unemployed men's career barriers had no direct impact on their career preparation behavior, and this finding differs from previous findings that career barriers directly and negatively affected this behavior (Ko, 2008; You, 2013). The finding does support Cho's (2007) result that career barriers had no relationship with college and graduate students' career preparation behavior.

We could think of the reasons for the difference between the results of this study and the preceding research (Ko, 2008; You, 2013) as follows. Most of the respondents in this study are middle-aged and elderly unemployed men whose average age is between 40 and 59 and under less than six months of unemployment. In fact, in the case of middle-aged and elderly unemployed men in Korea, some may give up the job search due to the actual difficulties in the job market. However, it seems that most of the unemployed have the intention to start new job search activities after having a certain period of rest (at least six months) due to the after effect of a long career. For this reason, it will be necessary to proceed with a study by separating the short-term (less than six months) and long-term unemployed (six months and more) in terms of unemployment periods. This is likely because most unemployed adults begin the job search following a certain period of time, but this study was conducted with adult males who had lost their jobs within the last six months.

Career barriers did, however, have indirect impacts on career preparation behavior through ego-resilience, through job search efficacy, and through both ego-resilience and

job search efficacy. This finding corresponds to previous findings that career barriers and career preparation behavior are mediated by ego-resilience and job search efficacy (J. Y. Kim & Lee, 2014), and it shows that it is necessary to improve unemployed men's ego-resilience and job search efficacy in order to enhance their career preparation behavior. Specifically, the findings suggest that unemployed men who can adapt to reality with positive mind-sets and reset their career goals despite the difficulties can actively develop ego-resilience and job search efficacy, which will nurture their confidence that they can successfully achieve re-employment by increasing their career preparation behavior. For this purpose, it is necessary to establish government policies to lower unemployed men's barriers to new employment, including developing specific training and counseling programs to improve ego-resilience and job search efficacy. These findings are consistent with SCCT.

The relationships between social support, ego-resilience, job search efficacy, and career preparation behavior

Social support for unemployed men was the only factor that had a positive correlation with ego-resilience and had no direct correlation with job search efficacy or career preparation behavior. This finding was different from previous findings that social support for college students had a positive impact on self-efficacy related to the job search (Garriott, 2012; You, 2013). However, it supports Chun's (2001) finding of no significant relationship between social support and career preparation behavior, which contrasts with studies that reported significant direct impacts on social support and career preparation behavior (Blustein, 1997; Cho, 2007; Lyu, 2012). The reason for these contrasting results, as observed above, is that social support from friends, family members, etc. becomes passive when the supporters just vaguely expect unemployed men to resume their career preparation behavior after a certain period of time. However, these men's social support did have indirect impacts on career preparation behavior through ego-resilience and through both ego-resilience and job search efficacy. In other words, social support enhances ego-resilience, ego-resilience enhances job search efficacy, and job search efficacy encourages active career preparation. This finding supports J. Y. Kim and Lee's (2014) results that, among college students, there was no direct correlation between social support and career preparation behavior, but there was an indirect positive impact on this behavior mediated by ego-resilience and job search efficacy. These findings demonstrate that complicated psychological factors are involved between the ego-resilience and job search efficacy in the process of increasing unemployed men's career preparation behavior. In addition, the specific areas of emotional, material, and information support had positive impacts on these men's career preparation behavior by helping them flexibly respond to current adversity and gain confidence in their job searches. It is also necessary to provide strong social support to decrease unemployed men's mental and physical pain from their unemployment and overcome the pressure of their financial issues and their anxiety related to re-employment in order to increase their career preparation behavior. Government-provided counseling and training would also

help these men improve their ego-resilience and increase their career preparation behavior with confidence.

In this regard, the Ministry of Employment and Labor currently operates an educational and group counseling program that trains job search efficacy and job search skills for low-income, middle-aged and elderly unemployed people over 40. In this study, we attempted to apply social support in the SCCT model to establish the theoretical foundation that the social support, which is the environmental background factor surrounding the middle-aged and elderly unemployed men, influences the career preparation behavior of middle-aged and elderly unemployed people with ego-resilience or job search efficacy as the mediating variables. However, the results of this study showed that SCCT was not supported in the channel relationship between social support and career preparation behavior, unlike the positive study results in the relationship between career barriers and career preparation behaviors. The reason for this is due to the connection between social support which is an environmental context factor that is viewed as important in SCCT, and self-efficacy which is a personal cognitive factor, and the analysis result that does not show direct or indirect influence between social support and career preparation behavior variables. This result is more convincing from the perspective that career barriers are more effective in terms of the career theory than social support, and it is more effective to cover career barriers rather than social support in order to improve actual career preparation behaviors.

Conclusion

This study analyzed how unemployed men's career barriers and social support affect their career preparation behavior mediated by ego-resilience and job search efficacy. The conclusions that follow are based on the findings. First, the factors that have direct and indirect effects on unemployed men's career preparation behavior are career barriers, social support, ego-resilience, and job search efficacy. Specifically, career barriers and social support did not have direct effects on career preparation behavior of the unemployed but had indirect effects through ego-resilience and job search efficacy. Thus, the impact of unemployed men's career barriers and social support on their career preparation behavior cannot be directly explained by the two variables, but intrinsic psychological factors, such as ego-resilience and job search efficacy are involved in this behavior.

Second, high ego-resilience and job search efficacy were very important factors for unemployed men's successful job search behavior. Ego-resilience directly affected job search efficacy for the unemployed men by giving them the confidence to face their current difficulties and have positive expectations for the future. Ego-resilience originally referred to the individual ability to flexibly adapt to or overcome stress, crises, and risks, and it is essential for unemployed men who wish to overcome the hardships related to unemployment and to resume their career preparation behavior. Separately, job search efficacy refers to one's belief or confidence in the ability to successfully conduct a job search; it is closely related to successfully achieving career goals. This study confirmed

that job search efficacy is a critical intrinsic factor that motivates unemployed men to prepare for and execute new career goals and positively affects their career preparation behavior.

As discussed here, it is necessary to motivate unemployed men who are affected by involuntary unemployment to regain their confidence and resume career preparation behavior with the expectation that they will be able to secure successful re-employment. In this context, it is necessary to improve both ego-resilience and job search efficacy for unemployed men to increase their career preparation behavior. Developing unemployed men's ego-resilience and job search efficacy and offering appropriate environmental support would increase these men's career preparation behavior and contribute their successful re-employment.

Actually, the Ministry of Employment and Labor operates achievement programs, job search programs, and sincerity programs for middle-aged and elderly unemployed people as part of the reemployment support policy for middle-aged and elderly unemployed people as of 2017. The main contents of these programs are focused on utilization of job seeking skills to cultivate job information and job search skill capabilities, such as life insight and interpersonal skills, resume, self-introduction, interview, job information collection methods, and job search skills to improve job search efficacy of middle-aged and elderly unemployed people. However, the results of this study show that in order for middle-aged and elderly unemployed men to prepare for the actual reemployment-related career preparation, it will be more effective that they first have to improve their self-resilience to alleviate negative reactions, such as stress, denial, and depression by unwanted unemployment. Therefore, it will be more practical and effective to conduct training and counseling if career training and counseling through the development of educational programs that simultaneously link the career variables of ego-resilience and job-efficacy that were shown in this study. Also in recent years, the Ministry of Education has also provided adult education and job support policies linked together through lifelong learning-oriented colleges, so if the results of this study are actively used in the field of lifelong education, the researchers believe it will also be possible to establish and operate more effective adult education policies.

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Pre-service special educators' perceptions about collaboration with general educators in Korea: Implications for personnel preparation programs

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Abstract

The purpose of this study is to identify the core competencies that pre-service special educators (PSEs) should possess in order to collaborate effectively with general educators and to investigate their perceptions regarding the importance of and their confidence in the competencies. Based on the review of the literature, this article suggests four core competencies that all PSEs should acquire: instructional expertise, understanding the collaboration process, collaboration skill development, and character building for collaboration. A survey composed of 22 items was developed and distributed and 108 PSEs responded. The results showed that the PSEs' ratings of the importance of collaboration competencies were significantly higher than their confidence in all subdomains. Finally, practical implications are provided to enhance special educator preparation programs.

Introduction

Collaboration between general and special educators is one of the most critical elements in giving students with disabilities meaningful learning experiences at inclusive education settings. Collaboration skills have been referred as one of the core competencies that special educators should be equipped with and are included in the teacher standards developed by the Council for Exceptional Children (CEC, 2012) and the Interstate New Teacher Assessment and Support Consortium (INTASC, 2011).

Collaboration is an interactive process that enables individuals with different expertise to identify needs and problems, plan to meet the needs, and generate creative solutions to the problems (Westling & Fox, 2009). Research has demonstrated that collaboration has a strong influence on students' success in school, including academic performance and social interactions with peers (Choi, 2009; Hunt, Soto, Maier, & Doering, 2003; Hunt, Soto, Maier, Muller, & Goetz, 2002; S. Park & Shin, 2009), engagement in classroom activities (Gettinger & Stoiber, 2006; Hunt et al., 2002), and desirable behaviors (Gettinger & Stoiber, 2006).

However, many teachers receive little training in collaboration practices in their pre-service education programs. Numerous schools and colleges of education tend to deliver separate programs to prepare pre-service general educators, pre-service special educators, pre-service school psychologists, and so on (Griffin & Pugach, 2007). As a result, pre-service educators learn many of the strategies needed to address the diverse academic and developmental needs of students in their coursework, but they often do not have the opportunities to work together with the pre-service educators in different disciplines (Geer & Hamill, 2007). Many researchers have pointed out that pre-service education programs lack courses on collaboration practices in Korea (D. Lee, 2007; Lim & Jeon, 2014; J. Park, 2012). Considering that collaboration is a process that takes time and practice, pre-service special educators (PSEs) need to learn how to collaborate in their teacher preparation programs before they start their first year of teaching.

In Korea, inclusive education has been expanded rapidly since it began in 1971. Only 30 students with disabilities (0.57% of all students who were eligible for special education) attended general schools in 1971, but as of 2017, as many as 63,154 students (70.7% of all eligible students) are included in general schools (Ministry of Education, 2017). Following this phenomenon, skills in collaborating with general educators became one of the major competencies that special educators should have in Korea. Although Korean special educators have positive perceptions on collaboration and acknowledge its importance (Bang & Lim, 2009; Byun, 2011; Kim, Jang, & Choi, 2012), they still confront the difficulties in collaborating with general educators (J. Kwon, 2004; Lim & Jeon, 2014). It indicates that skills in collaborating with general educators should be addressed in pre-service special education program curricula (H. Kwon, 2010; Lim & Jeon, 2014). However, there is a lack of studies on collaboration competences that pre-service educators need to acquire and their perceptions about collaboration with general educators in Korea. As an initial effort to confront this challenge, this article investigated Korean PSEs' perceptions regarding the importance of and their confidence in the competencies required for collaborating with general teachers. To begin with, the core competencies of collaboration are briefly outlined from the literature review.

Core competencies for collaboration

Collaboration is included as one of the key elements of *the CEC Initial Level Special Educator Preparation Standards* (CEC, 2012, p. 10). Based on the literature review, we identified four core competencies that PSEs should acquire: (1) instructional expertise based on knowledge of students with disabilities, (2) understanding the collaboration process, (3) collaboration skill development, and (4) character-building for collaboration (Ford, 2004; Paulsen, 2008; Richards, Hunley, Weaver, & Landers, 2003; Sayeski, 2009). Below are condensed explanations of each competency.

Instructional expertise based on knowledge of students with disabilities

This competency is twofold: knowledge of students with disabilities and instructional expertise. Understanding students with disabilities has been emphasized in many teacher collaboration models and university teacher preparation programs (Sayeski, 2009). The 10 standards developed by INTASC address the importance of understanding students' physical, social, emotional, moral, and cognitive development and cultural differences in order to provide them with challenging learning opportunities based on their characteristics and needs (Blanton, Sindelar, & Correa, 2006). The seven CEC (2012) standards also indicate that PSEs should understand learners' developmental characteristics and individual learning differences and use this knowledge to provide meaningful learning experiences for students. In addition, it is equally important to understand the ecological characteristics, such as linguistic, cultural, and family backgrounds that surround students with disabilities (Murray & Curran, 2008).

In order to collaborate effectively, PSEs should possess instructional expertise in addition to knowledge of students with disabilities and their families. Instructional expertise includes the following: (1) evidence-based instructional strategies to effectively teach the content knowledge of core subject areas, and (2) instructional and curriculum adaptations to meet the individual learning needs of students with disabilities (Brownell, Sindelar, Kiely, & Danielson, 2010; Richards et al., 2003; Sayeski, 2009).

As access to the general education curriculum of students with disabilities has been supported by the Individuals with Disabilities Educational Improvement Act (IDEIA) and the No Child Left Behind (NCLB) Act, teachers' competencies in understanding and applying content knowledge of core subject areas have also been emphasized. In this respect, it has become critical for PSEs to be highly qualified in order to collaborate with general educators based on their subject matter knowledge (Banks, 2012).

INTASC and CEC standards also include instructional strategies and evidence-based practices to teach students the subject content, considering their characteristics and needs in addition to the content and curriculum knowledge (Brownell et al., 2010). According to NCLB, evidence-based practices refer to instructional strategies that have been proven effective for students' learning achievements based on rigorous scientific research (Cook, Tankersley, & Harjusola-Webb, 2008). Therefore, PSEs need to acquire and apply verified effective instructional strategies for students with disabilities in order to teach them the essential content knowledge in collaboration with general education teachers. Recently, a

number of instructional practices have been considered as best practices in teaching students with disabilities, such as universal design for learning, education and assistive technology, positive behavior support, and response to intervention (Brownell et al., 2010; Schalock et al., 2010). Instructional expertise also includes the capacity to modify instructional approaches to content knowledge based on the individual needs and characteristics of students with disabilities (Friend & Bursuck, 2012; S. Lee, Soukup, Little, & Wehmeyer, 2009; Sayeski, 2009).

Understanding the collaborative process

The second component is related to the degree to which the PSEs understand the collaborative process, including (a) understanding the participants (i.e., general educators) who will be involved in the collaboration process, and (b) extensive knowledge of various collaboration models.

General educators and special educators must take different training paths, and as a result, they may hold varied perspectives regarding education and support for students with disabilities. It is essential that PSEs be provided with opportunities in the course of their preparation programs to learn the orientations and perspectives of various individuals who have the potential to be collaboration partners in the future. For instance, PSEs may need to learn terms and expressions that are frequently used in general education and how they are related to special education. Sometimes, PSEs would be amazed at the fact that many different words used in different areas have the same meaning and that the same words are understood differently depending on a person's background. For example, Robinson and Buly (2007) suggested that terms, such as diagnosis, assessment, evaluation, explicit instruction, and fluency have been conceptualized differently by special versus general education professionals.

Collaboration models, including multidisciplinary, interdisciplinary, and transdisciplinary approaches are well articulated in a number of articles (Crais et al., 2004; Smith, 2010). Traditionally, each professional worked with students with disabilities and their families independently from other professionals (i.e., the multidisciplinary approach); however, this model has limitations particularly in service coordination. For example, problems such as duplication of services or conflicting messages delivered to families were highlighted. As a way to overcome these limitations, interdisciplinary approaches have been suggested whereby professionals from multiple disciplines work together toward a common goal and transdisciplinary approaches whereby one person is designated the primary service provider under supervision by other professionals who have released their own roles. Although one of the unique merits of the transdisciplinary approach is its ability to provide coordinated and integrated services for students with disabilities and their families, the process of releasing one's professional expertise accumulated through many years of experience to other professionals can be a challenge for both parties. In order for this approach to be successful, team members are required to be equipped with open and flexible minds, positive attitudes towards new learning, and effective consulting skills.

Collaboration skill development

The third component is the actual collaboration skills. Practical collaboration skills needed by special educators include the skills to moderate conferences, involve others in effective communication (e.g., natural initiation, active listening, negotiating, clear expression of opinions, and appropriate use of gestures), and document the collaboration process as well as address administrative affairs (e.g., procedures required to invite professionals from agencies other than schools). In order to have PSEs practice these skills, course assignments that use specific vignettes and scenarios would help them improve awareness and practical techniques related to collaboration.

Specific examples and suggestions of collaboration skills have been proposed in numerous research articles (Conderman, Johnston-Rodriguez, & Hartman, 2009). For example, McNaughton, Hamlin, McCarthy, Head-Reeves, and Schreiner (2008) proposed the "LAFF don't CRY" method as a strategy for exercising active listening skills. The name of this strategy includes both the dos and don'ts of active listening. LAFF stands for "Listen, empathize, and communication," "Ask questions and ask permission to take notes," "Focus on the issues," and "Find a first step." In contrast, CRY stands for "[don't] Criticize people who aren't present," "[don't] React hastily and promise something you can't deliver," and "[don't] Yakety-yak-yak." Through this strategy, PSEs will learn how to demonstrate listening behaviors that convey respect and empathy.

Character-building for collaboration

The fourth component is character-building. Paulsen (2008) observed that teachers are trained to work with students but may have difficulties in working with adults, especially those who have differing instructional or behavioral philosophies. Although character is not something that can be built through a single means, it is indisputable that it is one of the most fundamental and critical ingredients that special educators should possess because collaboration is accomplished through relationships among people. In order for special educators to understand the collaborative process and develop collaboration skills (i.e., accomplish the second and third components), they should be able to demonstrate responsive and sensitive attitudes toward establishing and maintaining relationships with collaboration partners. These attitudes (e.g., consideration, respect, responsibility, and cultural sensitivity) come from an honest and sincere character. The Council for Learning Disabilities (CLD) suggested six principles of ethical practice: (a) respecting the rights of individuals with disabilities and their families, (b) maintaining high standards in work, (c) promoting research efforts that will benefit individuals with disabilities, (d) applying education practices that will benefit individuals with disabilities, (e) participating in collaborative work, and (f) advocating for policies and practices that will benefit individuals with disabilities and their families.

One of the important roles of the special educator preparation programs would be to provide knowledge and information on factors that place students with disabilities and their families at risk for social disadvantages, such as cultural diversity and poverty. In addition, the programs should be able to propose what services and supports are

currently available and which should be available in the future for this population. Further, the programs should foster knowledge and awareness of ethical guidelines to be kept in mind when working with students with disabilities and their families. Case studies, role-plays, issue analyses, and discussions would be effective instructional strategies that teacher educators could use in their university lectures. Skinner, Gurganus, and Watson (2009), for example, presented six case studies that matched with the six principles presented by the CLD. They also described two ethical issues for each case which can be useful for teacher educators.

Methods

Participants

The participants of this study were 108 PSEs who attended three universities located in Seoul, Gyeonggi-do, and Jeollabuk-do, Korea. The average age of the participants was 21.2 years (SD = 1.54). The participants' certification areas, grades, and number of semesters of field experience are presented in Table 1.

Table 1. Respondent Demographics (N = 108)

Variable		n	$\%$
Grade	3rd (Junior)	71	65.7
	4th (Senior)	37	34.3
Certification areas	Early Childhood and Elementary Special Education	36	33.3
	Secondary Special Education	72	66.7
Field experience[a]	3rd grader: less than 4 semesters	45	41.7
	3rd grader: more than 4 semesters	26	24.1
	4th grader: less than 6 semesters	15	13.9
	4th grader: more than 6 semesters	22	20.4

[a] "A semester of field experience" means a minimum of 40 hours of volunteer work or a practicum.

Measures

The survey for this study was developed in the following four stages: (a) identifying core collaboration competencies and relevant indicators, (b) developing sample items and a draft of survey, (c) testing content validity, and (d) conducting a pilot test. First, a literature review was conducted in order to establish a basic framework and list of items. Electronic database searches were conducted using ERIC, PsychInfo, and Riss4U (Korean database). The search focused on studies that had been published over the last 20 years.

Combinations of the following keywords were used for the searches: disabilit*, special education, collaborat*, pre-service, and teacher program*. The review of the articles identified from the search revealed four core competencies and indicators related to collaboration between general and special educators, which we described in the introduction of this article.

Second, sample items related to each collaboration competency were developed based on the relevant indicators identified in the literature review along with the CEC and INSTAC standards. The authors had an intensive discussion about overall sample items and revised or removed items that were unclear or failed to gather the intended information. Through this process, 24 items regarding the four core competencies of collaboration were identified to develop a draft of the survey. The survey asked respondents to rate both importance and confidence using a 5-point Likert scale. There were also four demographic questions.

Third, the content validity of the survey was tested by four special educators (two elementary and two secondary schools) with more than 10 years of teaching experience. They provided extensive feedback on the clarity of items and the comprehensiveness of the survey. Based on their feedback, some items were separated into two, and two or three similar items were combined into one. Through this process, the survey was revised resulting in a questionnaire composed of four demographic questions and 22 items related to each of the four collaboration subdomains.

Finally, a pilot test of the draft survey was conducted. Two prospective graduates were asked to respond to the survey and review the clarity of the items and the ease of the survey format. Based on their feedback, minor adjustments were made to the questionnaire. Table 2 shows the structure of the final survey.

Table 2. Structure of the Survey

Section			Content
Demographic information (4 items)			Age, grade, certificate area, students' field experience
Collaboration with general educators (22 items)	Knowledge and instruction	Item 1-6	Ability to convey instructional knowledge appropriate to students with disabilities in inclusive classrooms to general educators based on the understanding of students with disabilities
	Collaborative process	Item 7-12	Ability to understand general education systems and respect general educators' expertise and viewpoints
	Collaboration skills	Item 13-17	Ability to moderate conferences, involve others in effective communication, and document collaboration processes
	Character-building	Item 18-22	Ability to demonstrate responsive and sensitive attitudes in establishing and maintaining relationships with general educators

Procedures and data analysis

Envelopes containing a survey and a small gift were distributed to 126 PSEs; it took approximately 15 minutes to complete the survey. The surveys were received from 112 of the 126 PSEs within two weeks, an 88.9% response rate. Three surveys were removed from the data analysis because they included missing data for the importance scale across all items, and one survey was removed because it was completed by a student who was a sophomore. The collected data from 108 surveys were analyzed using SPSS 21 software. The Cronbach's alpha overall reliability value for a total of 22 items was .93, with the importance scale at .87 (.58 for KI, .62 for CP, .75 for CS, and .82 for CB) and the confidence scale at .91 (.82 for KI, .77 for CP, .72 for CS, and .84 for CB). Means and standard deviations were calculated for the students' importance and confidence ratings, and the highest- and lowest-rated items were then examined. Second, a paired t-test was performed to determine whether there were differences between the importance and confidence perceived by the PSEs across the mean ratings for all subdomains and for each of the four subdomains. Then, repeated-measure ANOVA was performed to determine whether there were significant differences in importance and confidence across the four subdomains, Finally, six paired-samples t-tests using a Bonferroni adjustment were used to make post-hoc comparisons.

Results

Descriptive statistics: Highest and lowest rated items

The mean ratings and standard deviations for each item were calculated to identify the highest- and lowest-rated items as presented in Table 3.

Table 3. Means and Standard Deviations of Each Item

Items	Import. M(SD)	Confi. M(SD)
1 Explain the characteristics, strengths, and weaknesses of students with disabilities in inclusive classrooms to general educators	4.81(.46) H1[a]	4.18(.77)
2 Explain to general educators the difficulties that students with disabilities in inclusive classrooms may experience related to subject matter characteristics	4.79(.43) H2	4.07(.78)
3 Understand the core knowledge and skills that are covered in general education curricula	4.18(.64) L3	3.52(.79) L1
4 Explain evidence-based teaching strategies for students with disabilities to general educators	4.48(.69)	4.04(.78)
5 Discuss how to adapt the contents of general education curricula to students with disabilities with general educators	4.76(.47) H5	4.01(.84)

Items	Import. M(SD)	Confi. M(SD)
6 Discuss how to adapt general education teaching methods to students with disabilities with general educators	4.78(.46) H3	4.03(.77)
7 Understand general education systems (e.g., curriculum, administration, issues)	4.26(.69) L4	3.53(.88) L2
8 Understand the teaching strategies and teaching models employed in general education	4.03(.70) L2	3.63(.86) L3
9 Explain the terms used in special education to general educators	4.01(.90) L1	4.08(.82)
10 Be willing to learn the professional knowledge and skills of general educators that would be helpful with students with disabilities	4.57(.60)	4.26(.84)
11 Understand the administrative procedures (official document drafts, approval systems) necessary to collaborate with general educators	4.29(.72) L5	3.97(.89)
12 Work with general educators to ask for consultations from external experts, if necessary, to resolve any problems related to students with disabilities in inclusive classrooms	4.48(.62)	3.88(.83) L4[b]
13 Lead effective meetings of general educators and other professionals	4.50(.66)	3.88(.84) L4[b]
14 Have the communication skills (e.g., natural initiating, active listening, nonverbal communication) necessary for collaboration with general educators	4.68(.54)	4.28(.73)
15 Be able to resolve conflicts and coordinate different opinions when there are disagreements between general and special educators	4.71(.58)	3.97(.81)
16 Document collaboration processes to help general educators understand and manage the content of any agreements	4.34(.71)	3.95(.87) L5
17 Maintain the basic etiquette (e.g., be on time for meetings, respect others) required for collaboration	4.81(.39) H1[a]	4.68(.61) H1
18 Understand and sympathize with the difficulties general educators may experience related to educating students with disabilities in inclusive classrooms	4.67(.51)	4.45(.70) H2
19 Make an effort to become reliable allies to general educators	4.77(.42) H4	4.39(.76) H4
20 Devote time and efforts to collaborating with general educators	4.54(.62)	4.38(.72) H5
21 Respect the cultures, philosophies, and perspectives of general educators during collaboration	4.40(.66)	4.19(.76)
22 Support general educators genuinely with responsibility	4.64(.56)	4.43(.69) H3
Total	4.52(.31)	4.08(.47)

Note. H1~H5 were the five highest-rated items, and L1~L5 are the five lowest rated.
[a]Item 1 and Item 17 were tied for H1 in importance. [b]Item 12 and Item 13 were tied for L4 in confidence.

The Korean PSEs gave their highest importance ratings to item 1 (explain the characteristics, strengths, and weaknesses of students with disabilities in inclusive classrooms to general educators) (M = 4.81, SD = .46) and item 17 (maintain the basic etiquette [e.g., be on time for meetings, respect others] required for collaboration) (M = 4.81, SD = .39). Among the five highest ratings, four items (1, 2, 5, and 6) were all related to the competency for knowledge and instruction. This indicates that the PSEs put special emphasis on knowledge and instruction as one of the critical competencies for collaboration. In contrast, the PSEs perceived the collaboration process as the least important competency; none of the collaboration process was among the five highest-rated items, but four items (7, 8, 9, and 11) of the same subdomain were included in the lowest-rated items. In particular, item 9 (explain the terms used in special education to general educators) was given the lowest importance rating (M = 4.01, SD = .90).

With regard to the degree of confidence, the PSEs also gave their highest ratings to item 17 (M = 4.68, SD = .01). Four of the five highest-rated items (18, 19, 20, and 22) were under the subdomain of character-building. This indicates that the PSEs felt the most confident about their character-building skills.

The PSEs gave their lowest confidence ratings to item 3 (understand the core knowledge and skills covered in general education curricula) (M = 3.52, SD = .79). Given that item 3 was also one of the five lowest-rated items in importance, this finding is not surprising. The PSEs also felt less confident about items 7 and 8 in the collaboration process subdomain and also considered them less important. They also felt less confident about items 13 and 16 under subdomain of collaboration skills although the students did not rate them among the five least important skills.

Differences between the importance and confidence of core competencies for collaboration

The mean ratings of the two scales were compared through the paired t-test to determine if there were differences between importance and confidence. The mean ratings for importance and confidence were 4.52 (SD = .31) and 4.08 (SD = .47), respectively, and the difference was statistically significant (t = 12.59, p < .001). This indicates that the PSEs' perceived importance of collaboration competencies was higher than their perceptions of their confidence. In addition, the mean ratings of perceived importance for every subdomain were higher than those of confidence; the differences between importance and confidence were statistically significant for every subdomain. The means and standard deviations of each domain and the results of the paired t-test are presented in Table 4.

Table 4. Differences between Importance and Confidence (*N* = 108)

	Importance M (*SD*)	Confidence M (*SD*)	*t*
Total	4.52 (.31)	4.08 (.47)	12.59[***]
Knowledge and instruction (KI)	4.63 (.30)	3.97 (.57)	13.23[***]
Collaborative process (CP)	4.27 (.42)	3.89 (.58)	7.47[***]
Collaboration skills (CS)	4.61 (.41)	4.15 (.54)	10.39[***]
Character-building (CB)	4.60 (.42)	4.37 (.56)	4.89[***]

[***] *p* < .001.

Differences across the subdomains of the collaboration competencies

Differences across the four subdomains of collaboration competencies in the degree of importance and confidence were analyzed using repeated-measures ANOVAs as shown in Table 5.

Table 5. Differences in Importance and Confidence across Subdomains

Variables	Domain KI M(SD)	Domain CP M(SD)	Domain CS M(SD)	Domain CB M(SD)	F	Post-hoc comparisons
Import.	4.63(.30)	4.27(.42)	4.61(.41)	4.60(.42)	41.58[***]	KI, CS, CB> CP
Confi.	3.97(.57)	3.89(.58)	4.15(.54)	4.37(.56)	36.35[***]	CB> CS> KI, CP

Note. KI = knowledge and instruction; CP = collaboration process; CS = collaboration skills; CB = character-building.
[***] *p* < .001.

With regard to the degree of importance, the mean ratings were 4.63 for KI, 4.27 for CP, 4.61 for CS, and 4.60 for CB. The ANOVA results indicated that there were significant differences in the degree of importance across the subdomains of collaboration competencies, *F* (3, 321) = 41.58, *p* < .001. Six paired-sample *t*-tests using a Bonferroni adjustment (*p* =.05/6 =.008) were used to make post-hoc comparisons, and the results showed that the PSEs rated the degree of importance of collaboration competencies significantly higher for KI, CS, and CB than for CP (KI vs. CP: *t* = 10.6, *p* < .008; CP vs. CS: *t* = -8.11, *p* < .008; CP and CB: *t* = -7.66, *p* < .008). There were no significant differences in other comparison pairs.

The same analyses were conducted for PSEs' perceived confidence. The confidence ratings were 3.97 for KI, 3.89 for CP, 4.15 for CS, and 4.37 for CB. The ANOVA results showed significant differences in perceived confidence across the four subdomains, *F* (3, 321) = 36.35, *p* < .001. Six paired-sample *t*-tests using a Bonferroni adjustment showed that the PSEs rated themselves as significantly more confident about their skills in CB than

about the other domains (KI vs. CB: $t = -7.05$, $p < .008$; CP vs. CB: $t = -9.40$, $p < .008$; CS and CB: $t = -4.72$, $p < .008$). The PSEs also rated themselves as significantly more confident about their CS skills than about KI or CP (KI vs. CS: $t = -3.45$, $p < .008$; CP vs. CS: $t = -5.47$, $p < .008$) although they felt less confident in CS than in CB. However, there were no significant differences in the degree of confidence between KI and CP (KI vs. CP: $t = 1.82$, $p > .008$).

Discussion

In this study, we identified four core competencies that PSEs should possess in order to collaborate effectively with general education teachers based on a literature review and developed a survey to investigate 108 Korean PSEs' perceptions regarding the importance of and their confidence in the four core competence domains for collaboration. The analysis of the responses found significant discrepancies between their importance and confidence ratings and also showed that the PSEs perceived the collaborative process to be less important than any other domains. Moreover, they had higher confidence in their character-building and collaboration skills than in knowledge and instruction and collaborative process. Among all of this study's results, we have selected some points that we think are important to discuss.

First, the PSEs rated their confidence in their collaboration competencies lower than they rated importance based on the mean ratings for all subdomains and for each of the four subdomains. The fairly high mean ratings (over 4.0) for both importance and confidence indicate that the Korean PSEs in this study fully understood the importance of collaboration with general educators and possessed at least some confidence in their collaboration skills. However, the significant discrepancies between their ratings for importance versus confidence indicate that the PSEs were not sufficiently confident in their collaboration competencies compared with their ratings of the survey items' perceived importance. This result is partly due to the reality of the Korean special education field in which most special educator preparation programs have depended on special schools for the PSEs practicum and volunteer activities because of the limited access to inclusive schools as practicum sites. In this respect, it is necessary to reconstruct special educator preparation curricula by providing PSEs with opportunities to enhance and practice core competencies for collaboration with general educators across various courses and during practicum as well as by including inclusive education settings as practicum sites.

Second, the Domain CP was rated lowest in both importance and confidence. This implies that the Korean PSEs were not familiar with the Domain CP which includes understanding general education systems and terms used in the field, comprehending instructional models and strategies, and being willing to learn the professional knowledge and skills of general educators. This finding is also related to the problem of current Korean pre-service that lack courses on collaboration with general educators and other professionals in different fields. The domain CP is mostly related to inclusive education practices. Thus, Korean special educator preparation programs need to move their focus

from disability-specific knowledge and individualized intervention for students with disabilities to preparation for collaboration process in order to expand a PSE's role as an inclusion facilitator. In contrast, the Domain CB was rated higher than any other domains in both importance and confidence, and this indicates that PSEs perceived character-building for collaboration as highly important and also had some degree of confidence in this competency.

Third, in contrast with the results above, one domain showed a large discrepancy between the PSEs' importance and confidence ratings; the Domain KI was rated highest in importance but lowest for confidence among the four subdomains. Considering that participants were third- and fourth-grade PSEs, it is not surprising that they perceived understanding students with disabilities and having the instructional expertise necessary to effectively teach them to be important. However, it is a matter of concern that PSEs were not particularly confident in this domain which is a foundation for collaboration even though they were juniors and seniors. This finding implies that Korean PSEs acquire knowledge of students with disabilities and a variety of instructional strategies, but they lack opportunities to apply their knowledge and skills to inclusive education settings in Korean special educator preparation programs.

From the discussion above, we assert that these programs need to provide PSEs with more opportunities to practice collaboration based on their knowledge of students with disabilities and their instructional expertise. Moreover, given that core collaboration competencies cannot be fostered just one time, PSEs need to practice collaboration skills persistently through a variety of assignments and projects in different related courses, which enable them to increase their understanding of students with disabilities and their knowledge of instructional strategies, learn how to collaborate with general educators, and experience collaborating with families and other professionals.

To accelerate this process, we suggest some implications for practices. First, restructuring 60-hour educational service which is a requirement for every pre-service teacher in Korea can be considered. Currently, any kind of education setting is allowed as a site for the service, but a rule such as 'at least 20-hour service in inclusive settings' can be added so that PSEs have a chance to learn general education system and general education classes. Second, the content of the two required classes for all PSEs (i.e., curriculum and teaching strategies) need to be reconsidered. Currently, the management of these two classes vary across teacher preparation programs, especially in terms of the extent to deal with inclusive settings. Minimum standards can be set in order to encompass understanding of general education and inclusion. Third, the system of PSE educational practicum needs to be strengthened. Presently, most Korean PSEs complete their 4-week practicum in special schools. Considering 70% of students with disabilities are studying in inclusive settings, the practicum should include at least 2-week practicum in general schools. However, this cannot come true without administrative support from the Korean Ministry of Education and strong determination of teacher preparation programs. We believe this is the time that all stakeholders put their heads together to search for the best ways to realize this.

Conclusion

The findings of this study suggested ways to enhance collaboration competencies in special educator preparation programs. However, this study has a limitation stemming from its small sample size. Accordingly, it was not possible to analyze the differences across subgroups (i.e., grade level, certification area, lengths of field experience). Also, there was a lack of additional efforts to validate the survey using more rigorous ways such as confirmatory factor analysis although content validity of the survey was tested.

It is no exaggeration to say that the success of many students with disabilities in inclusive education settings depends on the collaboration between special and general educators. In this study, however, we did not deal with collaboration competencies of pre-service general educators who run the inclusive classrooms. Considering that collaboration is a reciprocal process, enhancing competencies for collaboration for PSEs does not automatically guarantee the collaboration between general and special educators. In order to facilitate the reciprocal relationships between these two groups, more opportunities to think and practice collaboration should be provided to both pre-service general and special educators. We wish for this study to provide preliminary information to reform teacher preparation programs in Korea and to serve as an important beginning step in improving special educator preparation programs to enhance PSEs' competency to collaborate worldwide.

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School factors related to high school dropout

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Abstract

In this study, we explore how high school factors influence on students' dropout. Previous studies regarding dropout have focused on students' social background and academic behaviors. The focus on how school factors might to affect students' dropout has received less empirical scrutiny. Using a panel dataset from EduData Service System (2010-2013), we apply ordinary least square regression and a two-way fixed effect model to explore the relationship between school factors and dropout rates in high school. Findings indicate that school size, student-teacher ratio, and academic achievements have a significant relationship with the dropout rate of individual schools. Implications of these findings and limitations for further research are discussed.

Keywords: high school dropout, school factors, fixed effect model, EduData service system, school accountability

Introduction

The negative impact of school dropout at the individual and social levels is almost universally acknowledged. Studies of school dropout often found that students who dropped out of high school lose educational opportunities to develop their potential talent and capability. Students who dropped out of high school are more likely to be unemployed and involved in criminal activities (Belfield & Levin, 2007; Rumberger, 2011). Also, failure to complete high school results in serious economic and social problems. Therefore, the issue of school dropout is a serious concern for educators, policy-makers, and the public (Freeman & Simonsen, 2015, p. 205).

Given the nationwide attention to the dropout issue, it is critical to implement effective policy and practices preventing dropout. Preventing dropout has also been a priority for the Korean Ministry of Education (MoE) since the 1990s. In 2003, the MoE started to be more proactive and aggressive in legislating dropout prevention practices (e.g., Wee-project, National Center for Prevent Dropout and Support Alternative Education) (Kang et al., 2014). While these efforts had an effect in reducing dropout rates nationally, there were still more than 60,000 students dropping out of school in 2014. Furthermore, the rates of dropout vary significantly by school level. The dropout rates of elementary and middle schools are 0.57 % and 0.79%, respectively; however, the dropout rate of high school is 1.60% (MoE, 2014). Nationwide, estimates of the percentage of high school dropouts is nearly two times higher than that of elementary and middle school.

In comparison with an average of the dropout rate in Western countries, such as the U.S., it is apparently true that the status of high school dropout rates in Korea is low. Though, lower rates than Western counterparts do not necessarily mean less interest in high school dropout itself. Due to social and cultural characteristics of Korea, such as zeal for education, personal and social damages caused by dropping out of high school are quite significant. The population who experienced high school dropout remained less educated, which caused them privately the life cycle income loss at around 80,000 U.S. dollars per year (Nam, 2011). Furthermore, in accordance with MoE (2014), the number of dropout students with multicultural and low socioeconomic families gradually increases in the total number of high school, which leads to the deepening socio-economic polarization. In addition, Nam (2011) has revealed that the socioeconomic cost of school dropout approximately comes to 364.5 million U.S. dollars in Korea.

To date, previous studies indicate the practical, conceptual, and empirical foundations of the high school dropout phenomenon. Emerging studies on dropout prevention dealt with various aspects of dropout, including risk factors (Mann, 1986; Rumberger, 1995, 2011; H. Y. Kim, 2002; Sung, 2005; A. M. Cho, 2002), status attainment (S. G. Kim, 2009; Yun, Park, Jeon, & Jin, 2002), and related policies and practices (Dynarski et al., 2008; Freeman & Simonsen, 2015; D. M. Kim et al., 2003; Choi, Yang, & Nam, 2010). These studies indicated that the dropout rate is higher for low-income, low-achieving, and minority students than for middle and high-income, high-achieving, and majority students. Although school dropout is closely related to multiple risk factors, such as personnel, social, and academic background implying no single risk factor can accurately predict dropout (B. G. Kim, 2012), most prior research has focused exclusively on personal characteristics to predict dropout. Little attention has been given to school characteristics

that might contribute to dropout (V. E. Lee & Burkam, 2003, p. 354).

Also, recent research has already begun to examine a typology of high school dropout (Bowers & Sprott, 2012), life course framework of dropout (Dupéré et al., 2015), locating the high school dropout (Balfanz & Legters, 2004), and school district context (Bowers, 2015). Nonetheless, in contrast to advanced research, much of Korean literature on high school dropout has little scholarly consideration to the wider categories. Especially, several aspects at the school factors, such as school process and structure are often ignored.

In this paper, we focus on the school factors affecting students' decisions to stay in school or leave before graduating. The unit of analysis of this study is individual schools. Data for this study were collected and analyzed at the school level, and only the data that could be obtained on individual schools were examined. The purpose of this study is to both systematically investigate the factors related to high schools with more dropout students and examine the impact of those school factors on high school dropout rates. Thus, this study is guided by the following research questions: Q1. In accordance with school factors, are there significant differences of dropout rates among schools? Q2. What are the school-level factors that lead to the dropout rates for each individual school?

Theoretical background

School factors of dropout

School dropout has been given public attention as well as scholarly interests in Korea since late 1990s. In the late 1990s, Korea reached over 90% of access rates to secondary education, and the government started to emphasize qualitative development of national education system which goes beyond quantitative growth. In the 2000s, there was a concern for the failure of the public education system called 'school collapse,' which called attention to the school dropout phenomenon (Keum, 2008, p. 302-303). School dropout means a situation where students leave their schools without completing a course of study (S. Y. Cho, Lee, & Park, 2009, p. 392). There are terms with similar meanings, such as dropouts, school leaving, truancy, adolescents outside schools, and students leaving schools. Each term has a slightly different meaning in terms of whether students leave schools voluntarily or involuntarily and whether students leave schools or stop studying at schools. School leaving is that students leave schools against their will, while school dropout is defined as a social failure in keeping students in schools (Keum, 2008). In May 2000, MoE held a public hearing for discussing school dropouts and began using 'school dropout youth' as an official term (Lee, 2002, p. 177). In 2004, the Youth Law was revised and its Article 24 used 'school dropout' as a legal term. Since then, various terms have been unified as 'school dropout'. It emphasizes the role of schools and the society in solving the school dropout issue rather than blaming individual students (H. J. Lee & Kim, 2012, p. 152).

To date, much of the literature on high school dropout indicated that there may be

multiple factors influencing dropout decisions. Multiple factors have been identified as being associated with high school dropout at the individual level, family level, community level, policy level, school level, and others. For instance, there are location, size, climate, curriculum, relationship between teacher and student, and academic abilities (Rumburger, 1995; Rumberger & Larson, 1998; Rumberger & Thomas, 2000; V. E. Lee & Burkam, 2003; Christle, Jolivette, & Nelson, 2007). However, in comparison with previous studies, school factors have been overlooked as contributing to the risk of dropping out of school in Korea. As a result, only a few studies identified school factors associated with high school dropout. Given research attention to the school level, there is surprisingly little information about school factors affecting high school dropout in Korea.

Status on school dropout rate

According to MoE, the number of students who dropped out of schools has decreased since 2011. The rate of middle school dropout decreased from 0.96% in 2011 to 0.79% in 2014, and the rate of high school dropout declined from 1.98% to 1.60% during the same period. Although the rates of school dropout decreased in recent years, a significant number of students are still leaving middle and high school each year.

Table 1. Dropout Students from Middle School and High School, 2010-2014

Year	Middle school			High school			Total		
	Current students	Dropouts	Rate	Current students	Dropouts	Rate	Current students	Dropouts	Rate
2014	1,804,189	14,278	0.79	1,893,303	30,382	1.60	3,697,492	44,660	1.20
2013	1,849,094	16,426	0.89	0,920,087	34,934	1.82	3,769,181	51,360	1.36
2012	1,910,572	17,811	0.93	1,943,798	37,391	1.92	3,854,370	55,202	1.43
2011	1,974,798	18,866	0.96	1,962,356	38,887	1.98	3,937,154	57,753	1.47
2010	2,006,972	15,736	0.78	1,965,792	34,540	1.76	3,972,764	50,276	1.27

Note. From "*A fall in the school dropout rate: Accomplishment by the school and the government*," by Ministry of Education, 2014, p. 7.

In 2014, a total of 25,187 high school students left school for various reasons other than illness (1,272 students) and overseas departure (3,923 students) (Table 2). In detail, 8,092 students (26.63%) left high school due to academic maladjustment, 6,589 students (21.69%) left voluntarily, and 6,320 students (20.80%) left for other reasons.

Table 2. Status on High School Dropouts in 2014

Total	Voluntary withdrawal										Expulsion			
	Maladjustment								Behavior			Expel	Suspension	Exemption
	Illness	Housework	Academic	Relationship	Rules	Misc.	Departure	Free will	Violence	Violation				
30,382	1,272	1,572	8,092	354	906	6,320	3,923	6,589	119	669	395	151	20
100.0 (%)	4.19	5.17	26.63	1.17	2.98	20.80	12.9	21.69	0.39	2.20	1.30	0.50	0.07

Note. From "*A fall in the school dropout rate: Accomplishment by the school and the government*," by Ministry of Education, 2014, p. 8.

In middle school, a total of 14,278 students left school due to suspension and exemption. About half dropped out of schools due to illness, unrecognized study abroad, and overseas departure. A total of 7,007 students were found to leave school for long-term absence (3,913 students) and other reasons (3,094 students).

Table 3. Status on Middle School Dropouts in 2014

Total	Suspension				Exemption		
	Illness	LT Absence	Study Abroad	Misc.	Illness	Departure	Misc.
14,278	549	3,913	4,482	2,912	17	2,223	182
100.0 (%)	3.85	27.41	31.39	20.40	0.12	15.57	1.27

Note. From "*A fall in the school dropout rate: Accomplishment by the school and the government*," by Ministry of Education, 2014, p. 7.

Policies on school dropout are divided into two categories: policies preventing school dropout for at-risk students, and policies supporting studying and living outside schools for dropout students. Unlike previous school dropout policies to prevent from dropping out of school (Kang et al., 2014, p. 28), policies on school dropout in recent years have expanded its scope to identify students outside schools, to provide medical care, protection, and welfare, to support return to schools, and to prepare vocational education through cooperation among MoE, Ministry of Gender Equality and Family, and the National Police Agency. The policies on school dropout implemented in 2015 are explained in Table 4 below.

Table 4. Policies on Supporting Youth outside Schools

Major tasks	Detailed tasks
Prevention on school dropout	- Ensure reconsideration on school dropout - Strengthen various alternative educational programs - Support psychological and emotional care with family and friends - Strengthen the public protection in compulsory education
Identification on youth outside schools	- Prepare the support system based on surveys - Provide information on school dropouts and make connections - Strengthen the connection with school dropouts
Customized guidance counseling	- Establish the support system for youth outside schools - (Academic) Counseling for earning the diploma - (Vocational) Effective vocational education and stable jobs - (Focused) Encouragement by door-to-door service
Medical care, protection, welfare	- Support the healthy development of youth outside schools - Strengthen the support for youth who needs protection - Support runaways who are at risk - Support activities for creating positive thinking
Cooperation with local community	- Prepare customer-focused feedback system - Establish the cooperation among the government, local community, and private institutions - Improve the social recognition on youth outside schools

Note. From "*Polices to support youth outside schools*," by Ministry of Education, 2015. Retrieved from http://www.moe.go.kr/boardCnts/view.do?boardID=339&boardSeq=59302&lev=0&searchType=null&statusYN=W&page=15&s=moe&m=0201&opType=N

Review of previous studies

For several decades, many studies regarding students who drop out of school have been conducted. Researchers have focused on dropout rates in the search for an explanation and prevention of this phenomenon (Lamote, Van Damme, & Van Den Noortgate, 2011). Recent research of high school dropouts widens the practical, conceptual, and empirical horizon of knowledge. Balfanz and Legters (2004) have studied the federal data concerning student dropout and graduation rates. The study reveals not only where the schools facing the dropout crisis are located, but also the economic and racial characteristics of those high schools. They found that about 2,000 high schools in the United States where graduation is not the norm are located in about 50 large cities and overwhelmingly attended by minority students. In addition, Bowers and Sprott (2012) conducted empirical research using latent class analysis controlling for multiple background and demographic variables to identify a typology of high school dropouts. They identified three different types of dropouts: quiet, jaded, and involved. These findings are novel and provide significant implications for future dropout research. Also, Dupéré et al. (2015) focused on the long-term vulnerabilities and proximal disruptive events and contingencies. As a result, this study proposes a stress process, life course model of the dropout issue. This model has significant implications for understanding the determinants of the dropout phenomenon.

In comparison with recent literature, the debate over the high school dropout issue in Korea is limited, and research conducted has failed to consider multiple aspects of the

issue. Previous literature on school dropout in Korea has been conducted under three themes: 1) factors influencing school dropouts, 2) supports and measures for school dropouts, 3) status on school dropouts (B. G. Kim, 2012; Y. H. Kim & Huh, 2012). Most studies looked for factors influencing the reasons why students drop out of school. According to B. G. Kim (2012), among 62 articles on youth school dropouts published between 1992 to 2011, 28 articles (45%) analyzed factors related to school dropout rates at middle and high school levels. Twenty-one articles (34%) dealt with support and prevention policies for school dropouts, and the remaining nine articles (15%) were written on the current status of dropouts, including policies and practices dealing with students who choose to dropout. Additionally, the types of school dropouts and characteristics of dropping out students were examined. As most studies on school dropouts were conducted to find ways to support dropping out students and to prevent dropouts, the primary aims of these studies were to explore factors related to youth's school dropout.

Studies to investigate the reasons for school dropout can be divided into two categories (H. J. Lee & Kim, 2012). The first category represents studies that investigate student level characteristics, including academic achievement (Combs & Cooley, 1968), socio-economic status (Hahn, 1987), self-esteem and motive (Yoo, Lee, & Kwon, 2000), and parent's educational expectation and support (Howell & Frese, 1982). While most studies fall into the first category, studies in this category are not enough to cover various aspects of the school dropout issue, especially given that youth school dropouts are mostly resulted from a complicated relationship among individuals, schools, and social problems (B. G. Kim, 2012; Franklin, 1992; Levin, 1984). Moreover, their results may unintentionally limit the school dropout issue to problems of individual youth and their family, making it difficult to approach the school dropout issue at the social or national level (H. J. Lee & Kim, 2012).

The second category of school dropout studies, which appeared recently, attempted to find reasons for school dropout at the school level (V. E. Lee & Burkham, 2003; Rumberger, 1995). B. H. Lee (2007) asserted that a direct reason for school dropout came from schools, and similarly Jee, Lee, Lee, Choi, and Jeong (2003) suggested that students' dissatisfaction in their schools is possibly related to school dropout. S. G. Kim (2009, 2011) identified school-related factors as the most serious reasons for school dropout, insisting that youth's school dropout should be considered as an issue of schools and the society rather than individual students. According to the studies, the high rate of dropout is correlated with school factors, such as the large proportion of low-income students (H. J. Lee & Kim, 2012; Rumberger, 1995), school's low academic achievement level (H. J. Lee & Kim, 2012; Montmarquette, Viennot-Briot, & Dagenais, 2007), location either far from the downtown or close to economically deprived regions (Seo et al., 2007), large school size (V. E. Lee & Burkam, 2003; V. E. Lee & Smith, 1997), vocational high school rather than general high school (Korean Educational Development Institute, 2011), large student-teacher ratio (McNeal, 1997; Rumberger & Thomas, 2000), high frequency of absence, and passive participation in school extracurricular (B. G. Kim, 2012) as shown in Table 5.

Table 5. School Factors Affecting School Dropout

Research	Main results
V. E. Lee & Burkam (2003)	- No or little effect of school sector (public, private, catholic), school level SES and academic achievement on school dropout - Lower school dropout rate for small size schools, schools with challenging curriculum (in-depth curriculum), and schools with a positive teacher-student relationship
Rumberger & Thomas (2000)	- Large class size, low teacher quality, low school level SES, and high absence rate are related to high school dropout - Lower school dropout rates found in small, suburban schools, catholic and private schools
McNeal, Jr. (1997)	- Lower school dropout found where extra-curricular activities in arts (school band, instrument playing, dance, play) and athletics (athletes, cheer-leading) are available - Lower school dropout found when participating in vocational courses
Bryk & Thum (1989)	- Lower school dropout for at-risk students with higher teacher's commitment, organized environment, emphasis on academic achievement, and small school size
H. J. Lee & Kim (2012)	- Higher school dropout in vocational schools and schools with lower academic achievement - Lower school dropout in schools with lower student-teacher ratio, more ability grouping classes, and teacher incentives policies
S. R. Lee (2001)	- School dropout is related with extra-curricular activities, flexible school management, and class size - No impact were found for the number of classes, rigor of school rules, emphasis on college entrance, and fairness
B. G. Kim (2012)	- Negative effect of resistance to teachers, school policies, learning, and schools - Positive effect of extra-curricular activities, academic interest, and positive/cooperative attitude of teachers
Y. T. Cho & Bae (2003)	- Found an impact of low academic achievement, negative relationships with teachers, attitude toward learning, tardiness, leaving early, truancy, punishment record, rule violation, attitude to school education, etc.

   With regard to school factors affecting high school dropouts, regional or national level policy factors also have a critical impact on the phenomenon. As mentioned above, policies preventing school dropout for at-risk students and supporting school dropout youth outside schools might have a direct effect on reducing high school dropout. Even though those effects are not empirically verified yet due to the problem of data accessibility, which needs substantial policy variation between regions or countries, the statistical trend of the rate of dropout students in Korea gives us a humble estimation regarding the effect of those policies.

   In an indirect manner, meanwhile, governments can exert policy efforts to reduce school dropout rate based on school factors. Typically ethical/economic school composition, school size, student-teacher ratio can be addressed by the decision and volition of policy-makers as identified through Tiebout sorting model (Tiebout, 1956). In terms of academic achievement factors related to high school dropout, the Educational Accountability Policy might be effective in a direct way to reduce high school dropout. Based upon the 'Principal-Agent model', Elmore (2004) understood educational accountability as a way of which agents (individual schools) with responsibilities could

provide explanation for their behaviors to principals (governments) who have official authorities. Wößmann, Luedemann, Schütz, and West (2009) associated the follow-up actions or feedback to the agents with the measured educational attainment, thus, he defined educational accountability as providing rewards or sanctions based upon educational attainment measured by standardized tests. The Educational Accountability Policy can not only assure a minimum academic achievement level, but also affect the educational facilities and environment that related to the educational activities. This results in lowering the rate of high school dropout. Even though the role of government is substantial to the high school dropout issue, in this study, we focus on school level factors due to the limitation of available dataset with a sufficient policy variation to estimate those governmental effects.

Although school dropout studies with a focus on school level factors have increased recently, they tend to put an emphasis on the relationship between school dropout and students' individual characteristics by using the mean value of students characteristics as school characteristics rather than school level factors. As a result, effects of other school level characteristics were not thoroughly investigated. In addition, previous studies usually utilized cross-sectional data, which are not enough to infer the effect of school factors on school dropout and eventually limit the analyses on relationship among various factors. Exceptionally, H. J. Lee and Kim (2012) used a 3-year panel data from the Korean Education and Research Information Service (KERIS) and analyzed school factors relevant to high school dropout. However, their results did not reveal a causal relationship due to methodological limitations (multilevel growth model). To this end, we analyzed a 4-year panel dataset using a panel analysis model to overcome the limitations of previous studies. In addition, we attempted to find a causal effect of school factors on school dropout.

Methodology

Data source

This study mainly used a longitudinal Korean high school dataset from the EduData Service System (EDSS) collected over a 4-year-period (2010-2013) in conjunction with the school level results of the National Assessment of Educational Achievement. EDSS has collected, integrated, and processed annual educational data of every domestic educational institution in Korea since 2010. EDSS's public-use dataset used in this study provides extensive information on Korean elementary and secondary schools including curricula, student/staff demographics, fiscal data, human resources, school facilities, and student achievement data. The public-use data enables access to the full-scope of data, thereby ruling out selection bias issue. The unit of analysis of this study was the school given that school dropout has been approached as a school-level issue. Therefore, a total of 5,655 cases subsumed under 1,718 schools from four waves of EDSS panel data collected between 2010 and 2013 were used in the analyses.

Variables

School dropout rate, the outcome variable of this study, was modeled as a function of a set of school-level predictors. More specifically, dummy coded predictors, such as the school's community location, school type, school sector, open recruiting principal employment, subject classroom system, ability-grouping class, autonomous school, and English study programs were entered into the model. The school size, student-teacher ratio, free or reduced lunch recipient, merit pay differential rates for teachers, expenditure per pupil, the number of school club activities per pupil, and academic achievement variables were also included in the model. Table 6 presents the names, explanations, and descriptive statistics of the variables included in the empirical model. To verify the normality of the continuous variables used in this research, the authors performed a Jarque-Bera normality test. As two continuous variables (free or reduced lunch recipient and school-mean expenditures per pupil) violated the assumption of normality, we transformed those two variables into log and utilized the rest of the continuous variables as a raw form for the regression analyses.

Table 6. Descriptive Statistics of Variables

	Variables	Description	Obs.	Mean	Std. Dev.	Min.	Max.
Outcome Variable	Dropout rate	Dropout rate of each high school (%)	5,655	2.355	2.599	0.053	38.709
School Characteristics Variable	School's community location	Metropolitan (reference group)	5,655	0.363	-	0	1
		City	5,655	0.354	-	0	1
		Rural	5,655	0.253	-	0	1
		Isolated areas (including islands)	5,655	0.030	-	0	1
	School type	General high school: 1, vocational high school: 0	5,655	0.821	-	0	1
	School sector	Public high school: 1, Private high school: 0	5,655	0.578	-	0	1
	School size	Total number of students	5,655	889.342	464.872	7	2,238
	Student-teacher ratio	Number of student per teacher	5,655	13.878	3.625	0.583	25.958
	Free or reduced lunch recipient	Per pupil cost of free or reduced lunch (in 1,000 won)	5,655	658.008	1483.815	0	58,000
	Open recruiting principal employment	Open recruiting principal employment system implemented	5,655	0.102	-	0	1
	Subject classroom system	Classrooms tailored by subjects implemented	5,655	0.358	-	0	1
	Ability grouping class	Grouping students according to their talents or achievement implemented	5,655	0.415	-	0	1
	Autonomous school	Regulation-free high school implemented	5,655	0.810	-	0	1
	English study program	Extra programs for English study implemented	5,655	0.505	-	0	1
	Merit pay system	Merit pay differential rates for teachers	5,655	50.965	4.818	0	100
	Expenditure per pupil	Educational expenditure per pupil (in 1,000 won)	5,655	6051.401	3811.448	652.638	90,960.84
	School club activity	Number of school club activity participation per pupil	5,655	0.546	0.475	0	7.031
	Academic achievement	School-mean of student achievement score on National Assessment on Educational Achievement (Reading, Math, English)	5,655	197.817	21.001	145.40	261.83

Analytic model

Equation 1 specifies the relation between the high school dropout rate and school level predictors.

$$Eq.\ 1.\ DROP_{it}\ =\ a\ +\ SCH'_{it}\ \beta\ +\ \varepsilon_{it}$$

Specifically, the dropout rate of school i at time t ($DROP_{it}$) was modeled in terms of a vector representing the characteristics of school i at time t (SCH_{it}) and error term for school i at time t(ε_{it}). First of all, to estimate parameters, we used pooled ordinary least square (OLS) regression, which ignores the panel structure of the data. Panel design, given that it carries both characteristics of cross sectional and time-series data, is susceptible to endogeneity, heteroscedasticity, and autocorrelation issues. Thus, applying pooled OLS regression to panel data may lead to biased or inefficient estimation. Therefore, in this study, to strengthen causal inference about the impact on school factors and dropout rate, the school specific characteristics were considered constant in the regression model. Also, the time effects on the dropout rate were controlled by, including the time dummy variable in the model. Therefore, we broke down the error term that includes omitted variables into a time-invariant component of school characteristics (u_i), year-specific component (v_t), and pure random component that varies across the panels (η_{it}). Equation 2 represents the final regression model.

$$Eq.\ 2.\ DROP_{it}\ =\ a\ +\ SCH'_{it}\ \beta\ +\ u_i\ +\ v_t\ +\ \eta_{it}$$

A two-way fixed effects model assumes that error terms of u_i and v_t are to be estimated and fixed. On the other hand, the random effects model assumes that panel specific error terms (u_i) are random variable, not parameters (Min & Choi, 2009) where the error terms of u_i and η_{it} are probabilistically independent and each has its own variance. The decision between fixed or random effects model can be made using a Hausman Test where the null hypothesis is that there is no systematic difference between the estimates of these two models. The random-effects estimates are more efficient than fixed-effects estimates if the assumption of exogeneity between school-specific error term (u_i) and random error term (η_{it}) is established. However, if such assumption of exogeneity of predictors is not met, the estimates resulted from random effects model are inconsistent (Min & Choi, 2009). Therefore, we estimated the relation between school-level variables and dropout rates by employing both a two-way fixed effects model and the random effects model for the purpose of increasing internal validity. Additionally, a Hausman Test was performed to examine if there is a systematic difference between the estimates resulted from these two models, thereby deciding the final model.

Results

Descriptive analysis

Prior to analyzing factors affecting school dropout at the school level, we investigated a course of change in school dropout by year, followed by analyses of school factors related to school dropout. This was a preliminary process for multi-variable analysis of school factors, and its result eventually revealed how the difference in school factors are related to school dropout.

A course of changes in school dropout rate by year
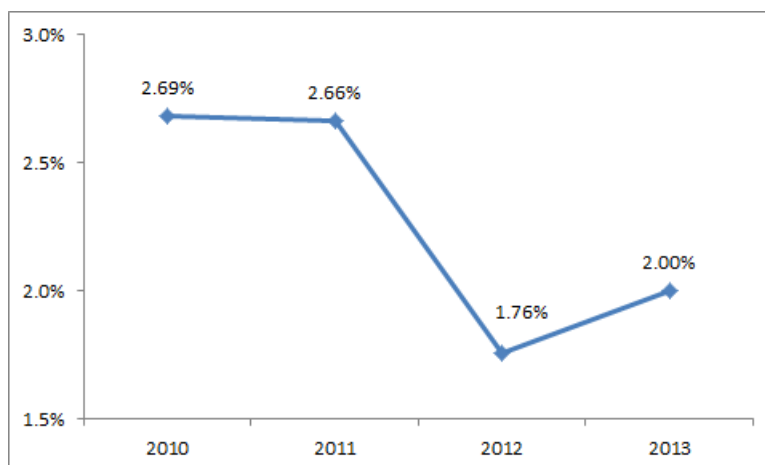
Figure 1. High School Dropout Rates by Year

Figure 1 above shows changes in the average hereinafter school dropout from 2010 to 2013. The average rate of school dropout at the sample high schools was 2.69% in 2010, reduced to 1.76% in 2012 with government policies in effects, and increased again to about 2% in 2013. Overall, the dropout rate at high schools was decreasing with the government's continuous efforts, but almost 2% of high school students were still experiencing school dropout, leaving it as a serious social issue.

Relationship between school factors and school dropout

Table 7. One-Way ANOVA on School Dropout by School's Community Location

	N	Average	*SD*	*F*	Scheffe
Total	5,655	2.355	2.599		
1. Metropolitan	2,051	1.957	1.920		
2. City	2,003	1.801	1.878	180.04***	3,4 > 1
3. Rural	1,430	3.484	3.528		3,4 > 2
4. Isolated areas	171	4.178	3.807		4 > 3

*** $p < .001.$ ** $p < .01.$ * $p < .5.$

We conducted a preliminary analysis on the relationship between school factors and school dropout prior to examining the effects of school factors on each school's dropout rate. Table 7 shows the results from the *F*-test, analyzing how dropout rates vary by school location. The dropout rates were statistically different by school location. To put it concretely, the dropout rates of schools in the rural and isolated areas were significantly higher than those in metropolitan and city regions, with the highest dropout rate shown at schools in the isolated areas.

Table 8. *T*-Test Results on School Dropout by School Factors

Category	General high school	Vocational high school	Public high school	Private high school	Open recruiting principal	None	Subject classroom system	None
Rate. Dropout	2.033	4.505	2.850	2.528	2.540	2.735	1.857	3.122
t	-32.060***		4.321***		1.658		16.270***	

Category	Ability grouping class	None	Autonomous school	None	English study program	None		
Rate. Dropout	2.585	2.804	2.255	4.189	2.315	3.108		
t	2.884**		22.800***		10.666***			

*** $p < .001.$ ** $p < .01.$ * $p < .5.$

Table 8 shows the *T*-test results comparing the rates of dropout by school factors. The rate of school dropout tends to be higher in vocational high schools and public high schools compared to general and private high schools. Schools operating the subject classroom system, ability grouping classes, autonomous schools, and English study

programs also showed lower dropout rates. At last, this study analyzes the relationship between continuous variables of school characteristics and school dropout, as shown in Table 9. The rate of school dropout is found to have statistically significant relationship with the following variables: the total number of students, student-teacher ratio, expenditures per-pupil, academic achievement, and free or reduced lunch recipients. This result supports the validity of analyzing the effect of school factors on school dropout.

Table 9. Correlation Analysis Result between Continuous Variables

	Dropout rate	School size	Student -teacher ratio	Merit pay system	Expenditure per pupil	School club activity	Academic achievement	Free or reduced lunch
Dropout rate	1							
School size	-0.377*** (0.000)	1						
Student-teacher ratio	-0.441*** (0.000)	0.790*** (0.000)	1					
Merit pay system	-0.014 (0.279)	0.056*** (0.000)	0.044*** (0.000)	1				
Expenditure per pupil	0.137*** (0.000)	-0.432*** (0.000)	-0.335*** (0.000)	0.043*** (0.000)	1			
School club activity	-0.079*** (0.000)	-0.188*** (0.000)	-0.225*** (0.000)	-0.019 (0.164)	0.189*** (0.000)	1		
Academic achievement	-0.537*** (0.000)	0.267*** (0.000)	0.264*** (0.000)	0.010 (0.446)	0.045*** (0.001)	0.330*** (0.000)	1	
Free or reduced lunch	0.369*** (0.000)	-0.753*** (0.000)	-0.721*** (0.000)	-0.061*** (0.000)	0.334*** (0.000)	0.205*** (0.000)	-0.191*** (0.000)	1

Analysis on factors affecting school dropout

To analyze factors affecting school dropout, we conducted pooled OLS examining the relationship between variables of school characteristics drawn from the literature review and school dropout. The results are shown in the first column in Table 10.

Table 10. Analysis on the Relationship between School Factors and Dropout Rate

Variables		Pooled OLS	Fixed effect	Random effect
Location	City	-0.180** (0.066)	-	-0.186 (0.115)
	Rural	0.012 (0.089)	-	0.074 (0.147)
	Isolated areas	-0.245 (0.180)	-	-0.053 (0.266)
General high school		-0.524*** (0.091)	-	-0.806*** (0.132)
Public high school		-0.448*** (0.092)	-	-0.101 (0.114)
School size		0.000*** (0.000)	-0.002*** (0.000)	-0.000** (0.000)
Student-teacher ratio		-0.203*** (0.015)	-0.070*** (0.021)	-0.146*** (0.016)
Free or reduced lunch recipient		0.386*** (0.047)	0.057 (0.037)	0.139*** (0.035)
Open recruiting principal employment		-0.099 (0.093)	-0.070 (0.091)	-0.130 (0.083)
Subject classroom system		-0.234*** (0.060)	0.039 (0.058)	-0.070 (0.055)
Ability grouping class		-0.049 (0.059)	-0.020 (0.058)	-0.055 (0.053)
Autonomous school		-0.230*** (0.078)	-0.040 (0.073)	-0.120 (0.067)
English study program		-0.146** (0.056)	0.018 (0.045)	-0.028 (0.043)
Merit pay system		-0.001 (0.006)	0.004 (0.004)	0.003 (0.004)
Expenditure per pupil		-0.111 (0.069)	0.091 (0.053)	0.070 (0.051)
School club activity		-0.022 (0.064)	0.061 (0.055)	0.021 (0.051)
Academic achievement		-0.049*** (0.002)	-0.022*** (0.003)	-0.041*** (0.002)
Year 2011			0.072 (0.049)	0.169*** (0.045)
Year 2012			-0.037 (0.061)	0.092 (0.056)
Year 2013			-0.134* (0.066)	0.035 (0.058)
Constant		14.352*** (0.852)	8.044*** (0.887)	12.169*** (0.722)
N		5,655	5,655	5,655
R^2		0.409	0.300	0.396
F test		8.06***		
Hausman test(X^2)			180.41***	

*** $p < .001.$ ** $p < .01.$ * $p < .05.$

The rate of school dropout was slightly higher at schools in metropolitan areas, vocational schools, and private schools than at schools in cities, regular schools, and public high schools. As the total number of students was larger and the number of students per teacher was lower, the school dropout rate became higher. Schools operating subject classrooms had a lower school dropout rate than ones not operating subject classrooms. Autonomous schools and schools operating English study programs also had a lower school dropout rate. A higher rate of school dropout appeared in schools with lower academic achievement in Korean, English, and Math in National Assessment on Educational Achievement and schools with larger amounts of financial support for lunch per student. These results are similar to H. J. Lee and Kim's (2012) research showing higher rates of school dropout in vocational high schools, schools with high rates of under-achievement, larger amounts of afterschool class support, and schools operating ability grouping classes.

Meanwhile, the results above did not account for the unique characteristics of each high school or time specific effects of the specific year because pooled OLS cannot differentiate the effect of both panel-unique characteristics and specific time invariant effects from the overall rate of school dropout. Thus we ran two additional analyses as following. First, a two-way fixed effect model was fitted to account for the unique characteristics of individual school and to control the time effect of the specific year. Second, a random effect model was fitted to include the yearly time effect as a fixed effect and each panel's unique characteristics as a random effect. The results are shown in the second and third columns of Table 10.

Results of the two-way fixed effect model were quite different from the results of pooled OLS. School characteristics variables, which were statistically significantly related to dropout rate in the pooled OLS, appeared to have no statistical significant relationship with dropout in the two-way fixed effect model. All variables, which were negatively related to the rate of school dropout from pooled OLS, were not statistically significant as related to dropout based on the two-way fixed effect model, except for student-teacher ratio and the average academic achievement. And the total number of students, which was positively related with the school dropout from pooled OLS, was found to be negatively related to the dropout rate in the two-way fixed effect model. In conclusion, the more the total number of students, the more the number of students per teacher, and the higher the average academic achievement was, the lower the rate of school dropout was. At the end, the F-test was performed to confirm the exogeniety of analysis model, and the results from the two-way fixed effect model were confirmed to be valid ($F = 8.06$[***]).

The panel analysis model designed in this study can be divided into the fixed effect model and the random effect model by a hypothesis on the individual data's error ui, as explained above. After the Hausman test was implemented to compare results between the fixed and the random effect model, results from the two-way fixed effect model were found to be more reliable ($X^2 = 180.41$[***]). Therefore, we concluded that school size (the total number of students), student-teacher ratio, and average student academic achievement do matter for school dropout.

Conclusion

This study investigated the relationship between high school factors and dropout rates using the two-way effect model. The data used for this study provided us with an opportunity to explore school factors explaining dropout rates. The findings of this study provide a deeper understanding of the school factors contributing to dropout rates and offer new insights in developing strategies for reducing school dropout rates.

First, we found that the overall trend of dropout rates has gradually decreased since 2010, implying that preventative policies and intervention practices reduced the high school dropout rate. But about 2% of high school students are still experiencing school dropout. Thus, there is still a need for policy makers to address the issue and pay continuing attention to the high school dropout issue.

Second, the estimation results from the two-way fixed effect model indicated that school size, student-teacher ratio, and academic achievements have a significant relationship with dropout. Schools with higher academic performance showed lower a dropout rate as expected. It is consistent with the results of previous studies (Christle et al., 2007; H. J. Lee & Kim, 2012). In accordance with the above result, schools should be held accountable for those who might drop out of school due to the low academic achievement. A school accountability policy, which makes schools guarantee every student to achieve a minimum level of academic achievement, such as Head Start program, ESS Act (U.S.), Education Action Zone, Sure Start Program (U.K.), Zones d'Educations Prioritaires, and Programme de Réussite Éducative (France) can be effective in reducing the rate of high school dropout. These initiatives may include not only academic performance, but school climate, culture, and other policy endeavors. In addition, government supports should be provided to expand academic ability improvement-oriented schools and to promote school level efforts to prevent dropouts. To resolve this problem, two methods are recommended; 1) incentive design to close the gap of interests between principal and agent, 2) principal's monitoring of agent's behavior for reducing the moral hazard situation. In the case of adopting those tools in the conceptual framework of educational accountability, governments can have a chance to establish monitoring systems forcing individual schools or teachers to act according to principals' interests and design incentives making agents maximize the principals' profits.

Surprisingly, large school size and high student-teacher ratio were related to low dropout rates. However, these results need to be interpreted with caution as this is not consistent with the previous literature, indicating small school size and low student-teacher ratio is related to low dropout rate. This may be resulted from the regional difference where the high schools are located, limited interaction between teachers and students in the small-sized schools. To be able to argue more about an optimal school size and student-teacher ratio, further in-depth studies need to be done.

There are several limitations restricting inferences from the study. First, reverse causality is possible. Although the result of the study reveals that lower academic achievement is related to higher dropout, it is entirely possible in reverse. That is to say, it can be argued that higher dropout rates causes lower academic achievement. Second, it is needed to conduct in-depth interviews or focus group interviews to verify the result of this study and induce the policy implications to guarantee educational opportunities for

at-risk high school students. However, due to the problem of the panel dataset provided by MoE, there was a critical limitation adopting a mixed methods approach. Therefore, more strict empirical research design correcting reverse causation issue and a mixed method approach intensifying the findings are recommended for future research regarding school dropout.

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The status of academic advising in Tanzanian universities

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Abstract

The need to enhance students' participation, retention, and academic success has compelled universities to provide student advisory services. This study examines the status of academic advising in Tanzania, focusing on the significance, structure and incentives provided. Faculty members, students, and institutional documents informed the data generation process. The findings show that the academic advising programme is generally perceived as significant in enhancing students' academic and social integration into the university life. The shared model is used to provide the advisory service based primarily on the prescriptive approach. Training and incentives are not provided to advisors, something which rendered the advisory service to operate in a haphazard fashion. The study offers recommendations to help higher education policy makers and practitioners to improve the delivery of student advisory services to attain higher retention, participation, and graduation rates.

Keywords: student advising, student retention, prescriptive advising, developmental advising, higher education

Introduction

The need to enhance students' participation, retention, and academic success has compelled many higher education institutions (HEIs) across the globe to provide academic advisory services to their students (Amador & Amador, 2014; He & Hutson, 2016). Academic advising denotes on-going deliberate interactions between institutional representatives (i.e., professional advisors, faculty members) and students that aimed at facilitating students' understanding, development, and realisation of personal, educational, and career goals through better and maximal use of institutional resources (He & Hutson, 2016; Kot, 2014). As such, academic advisors offer guidance to students on appropriate courses to study, key expected learning outcomes, effective and prudent use of the university teaching and learning resources, including time and meeting of other academic requirements to improve academic performance and keep one on track for graduation. Suvedi, Ghimire, Millenbah, and Shrestha (2015) highlight that academic advisory service is an essential element within HEIs that can assist students to address academic challenges and succeed in their academic and professional endeavours.

Academic advising can be traced back to the inception of the world's early universities in the 1200s when senior university leaders and academic staff members informally advised students on moral issues, intellectual habits, and extracurricular activities. In the 1970s, European and North American universities began to systematically define and adopt academic advising as a discipline and activity worthy of undivided attention (Lemire, Snyder, & Heuertz, 2005). The formal acceptance of academic advising in HEIs was a result of several social, political, and economic factors, such as government higher education policies, performance-based funding policies, explosion of the student population, and high student attrition rates. Higher education accreditation and quality assurance bodies in countries, such as England, Saudi Arabia, and Scotland, for example, have established policies and guidelines to ensure that students are provided with the academic advisory support to improve their academic performance (Kingdom of Saudi Arabia National Commission for Academic Accreditation & Assessment, 2013; The Quality Assurance Agency for Higher Education Scotland, 2014).

Similarly, governments in the United Kingdom, the United States, the Netherlands, Australia, Denmark, and New Zealand, for example, have reduced their budget allocation to HEIs and have linked public funding to institutional outcomes rather than student enrolments (Dougherty, Natow, Bork, Jones, & Blanca, 2013; Kot, 2014). The system of performance-based funding tends to shift the responsibility of student success to the institutions as the rate of student retention and graduation determines the quantity of (monetary) rewards the institutions receive (European Union, 2015). As a result, many HEIs have charted out systematic and coordinated academic advisory services to improve their student performance and graduation rates. These HEIs have instituted and expanded student advising centres in their respective campuses and hired full-time professional academic advisors (Kot, 2014; Nel, 2014). The University of Johannesburg (South Africa), for example, has established the Academic Development Centre, which has since 2009 been implementing a systematic academic advising intervention for students (Nel, 2014). Similarly, Habley's (2004) survey on academic advising conducted in America found a substantial increase from 14% in 1979 to 73% in 2003 of institutions with

academic advising centres.

Despite the formal recognition and increase in numbers of academic advising programmes, many HEIs are failing to retain and graduate their undergraduates at a significant level (European Union, 2015; Kot, 2014). The graduation rate in countries, such as Belgium, Argentina, Chile, Indonesia, China, Mexico, Estonia, Greece, South Africa, and Saudi Arabia is less than 25% which is below the OECD's 39% average (OECD, 2014). In Chile, for example, three out of 10 undergraduates drop out of their HEIs (OECD, 2012). The headache of student dropout prompted the European Union (2015, p. 13) to state that, "too many students in Europe drop out before obtaining a higher education diploma or degree."

Even though there is no comprehensive data on higher education students' dropout at national level, the rate of undergraduate student dropout has been increasing over the years in some Tanzania's HEIs. For example, Table 1 shows the number of undergraduate students who were discontinued for failing to attain the required grade point average (GPA) at one public HEI in Tanzania.

Table 1. Number of Discontinued Students on Academic Grounds at One Tanzania's HEI

Academic year	Number of discontinued students
2012/2013	14
2013/2014	12
2014/2015	91
2015/2016	161
2016/2017	199

Note. From Mkwawa University College of Education, 2018.

The researcher also learned that the first-semester performance of first-year science-based education students in 2015/2016 at the reported institution was dismal. Almost half of the students (46% of 338) failed one course, and 11% failed three to five out of six courses offered in the first semester. Three students failed all the six courses offered in that first semester.

For the discontinued students, appropriate academic advice could have helped to make a difference in their academic lives at the reported institution. The discontinuation implies a waste of students' investments of money, energy, and time as well as the nation's future skilled personnel and tax base following the employment of these students in the post-graduation period.

Previous studies on the contribution of academic advising to promoting student academic success in terms of student retention, academic performance and graduation, have largely been based in developed and middle-income countries in Europe, North America, Asia and the Pacific (c.f., Al-Ansari, Tantawi, AbdelSalam, & Al-Harbi, 2015; Cahill, Bowyer, & Murray, 2014; Egege & Kutieleh, 2015; Gudep, 2007; He & Hutson, 2016;

Kot, 2014; Lemire et al., 2005; Ng, 2014; Young-Jones, Burt, Dixon, & Hawthorne, 2014; Suvedi et al., 2015). These studies, regardless of the methodology employed, have found an improvement of examination performance for students who received academic advising. However, findings of these studies cannot be extended to a developing world's context.

Nonetheless, a few studies on the issue exist in developing economies particularly in Africa, for instance, in South Africa (e.g., Nel, 2014), Kenya (e.g., Muola, Maithya & Mwinzi, 2011), and Tanzania (e.g., Mkumbo, 2013; Sima, 2007, 2010). These African-based studies have some limitations as their focus was on secondary education and on general guidance and counselling services commonly offered by the Dean of Students' Offices and the University Guidance and Counselling Units (e.g., Mkumbo, 2013; Sima, 2007, 2010). Guidance and counselling services are usually found wanting in tackling effectively academic issues because they tend to focus on social, emotional, and psychological issues upsetting students (Bitew, 2016; Muola et al., 2011).

Although there are some African-based studies focused on academic advising in higher education (e.g., Muola et al., 2011; Nel, 2014), such studies are few and were not based in Tanzania where this study was specifically conducted. Thus, academic advising as a discipline of enquiry and more particularly in post-secondary education (higher education) has received little attention in Africa. Given the contextual variation of countries educational policies and practices and the diverse needs of student populations (Bitew, 2016), this paper adds knowledge to the academic advising literature from Tanzania. The paper sought answers from the following three research questions: (1) How significant is the academic advising programme in the eyes of students and faculty in the institutions under review? (2) How is the academic advising programme being structured and delivered? And, (3) what kind of training and incentives do academic advisors receive?

In addition to the advancement of knowledge frontiers, this study also sought to provide empirical-based data that could help higher education planners and practitioners, both locally and globally, to revisit and improve student advisory services to attain higher retention, participation, and graduation rates. Student retention and success are fundamental to improving the academic and financial bases not only of the institution but also of the nation (Egege & Kutieleh, 2015; He & Hutson, 2016). Empirical literature suggests a strong positive association between higher education participation rates and levels of development (Bloom, Canning, Chan, & Luca, 2014). The higher education participation rates in many high-income countries, such as Korea, Australia, Denmark, Finland, the United States, the Netherlands, Spain, Sweden, and the United Kingdom, are 50% and above. Whilst in low-income countries, such as those found in Africa, the higher education participation rates often fall below 5% (Bloom et al., 2014; OECD, 2012).

Theoretical framework and summary of the literature

A retention theory developed by Tinto's (1975, 2007) was adapted to guide this study. Tinto's retention theory focuses on the integration of students into the academic and social

systems of the educational institution through the use of advisory and support services. The retention theory maintains that the integration of students, both academically and socially, into the college community increases students' commitment to their institutions and educational expectations which, in turn, increases the likelihood of students' retention and ultimately graduation (Tinto, 1975, 2007). Social and academic integration occurs fundamentally through formal and informal interactions with faculty members, administrative personnel, peer group associations, and through participation in extracurricular college activities (Tinto, 1975, 2007), which in their totality have been found to influence directly student retention and completion (Habley, 2004; He & Hutson, 2016). In light of this, Tinto (1975, 2007) proposed that improving student retention and completion requires HEIs to offer accessible and affordable academic and social support services.

For academic advising to operate successfully, advisors should be provided with training opportunities to enable the acquisition of new knowledge and skills. Additionally, there should be a systematic approach to recognise and reward the advisors' performance (Lemire et al., 2005). Empirical evidence shows that training and rewards provided to advisors, such as monetary, external recognition, and promotions, enhance the importance and success of academic advising in the institution (Lemire et al., 2005; Muola et al., 2011; Nel, 2014). The Emporia State University (USA) and Flinders University (Australia), for example, have been successfully offering the academic advisory service because they have factored in rewards and training elements in their respective academic advising programmes (Egege & Kutieleh, 2015; MacDonald & Aman, 2014).

Similarly, research has found that the academic advisory service has consistently been contributing to students' performance, retention, and completion in HEIs (Haught, Hill, Walls, & Nardi, 1998; Kot, 2014). Moreover, academic advising has been reported to foster the fiscal stability of the institution as a result of student retention and performance, particularly in countries that apply performance-based funding policies to fund their universities (Dougherty et al., 2013; Kot, 2014). Thus, the benefits accruing from academic advising have resulted in the growth of academic advisory services in universities as they now utilise both institutional representatives, such as professional academic advisors and online platforms, such as social media and computer-assisted programmes.

The structure and organisation of academic advising tend to vary from one institution to another. This variation is determined by several variables, such as student populations, the institutional administrative structure and capacity, the willingness and interest of academic staff members to participate in academic advising, the institution's vision, mission, and academic policies as well as degree programmes on offer (Lemire et al., 2005; Pardee, 2004). As such, academic advising is structurally categorised into three models: centralised, decentralised, and shared (Habley, 2004; Pardee, 2004). The centralised model entails the use of professional advisors in one centralised office or unit at the institutional level. The decentralised model involves using academic staff members and/or professional advisors in offering academic advisory services in the institution's academic units or departments. The shared model combines both the centralised and decentralised models as it provides students with opportunities to use both professional advisors in a centralised unit and faculty in their respective units or departments. The shared model also involves the use of trained students as peer-advisors who complement

the advisory services of professional advisors and faculty members.

The shared model is preferred by many HEIs in the world as it has been a source of success in the provision of better academic advisory services (Habley, 2004; Kot, 2014; Lemire et al., 2005; Pardee, 2004). The University of Johannesburg (South Africa), Flinders University (Australia) and the Emporia State University (USA), Seoul National University, and Yonsei University (South Korea), for instance, employ this shared model whereby a selected number of trained students, faculty members, and full-time professional advisors advise students on academic matters. Studies conducted in these universities (c.f., Cahill et al., 2014; Nel, 2014) have found that the shared model has resulted in an effective delivery of the academic advisory services. As indicated in the previous research, the shared model has been applied across the world, however data regarding which model of academic advising is currently being used in Tanzanian universities is limited. This study, therefore, seeks to fill this knowledge void.

In delivering the academic advising programme, universities tend to use mainly two approaches: prescriptive approach and developmental approach (He & Hutson, 2016). The advising process in the prescriptive approach involves advising students on institution-specific information, such as programme requirements, registration processes, class scheduling, courses on offer, core and optional courses, calculation of GPA, institutional policies, and graduation processes. The prescriptive approach usually tends to be one-way communication and focuses on procedural or descriptive knowledge, which is equated to the way a doctor (advisor) prescribes medication for a patient (student) after diagnosis. As such, the prescriptive approach is widely criticised for its narrowness of attending to student needs and affairs (National Academic Advising Association [NACADA], 2013; Suvedi et al., 2015).

Conversely, the developmental advising approach is holistic and flexible as advisors and students together discuss student learning needs that go beyond prescriptive information and share student learning responsibilities and success (He & Hutson, 2016). This approach encourages independence as students become an integral part of the goal-setting and decision-making regarding their learning. Previous research has found that students favoured developmental advising and found advisors who employed the prescriptive approach to be impersonal and authoritarian (Hale, Graham, & Johnson, 2009; Muola et al., 2011; NACADA, 2013). However, such empirical evidence is inconclusive as little is known about the preferred approach used to operate the academic advising programme in Tanzanian universities and the motive for employing such an approach, which this study intends to fill this gap.

Research design and methodology

This study was conducted in two Tanzanian universities. To observe ethical issues in empirical research, names of the two universities will not be identified, instead letters A and B have been used to represent the two universities. Institution A is a private university based in Arusha region/province. During data collection, Institution A had enrolled 3,200 students and 62 faculty residing in five faculties that make up the university: the Faculty of

Law, the Faculty of Business and Economics, the Faculty of Theology, the Faculty of Education, and the Faculty of Humanities and Social Sciences. Institution B is a public university located in Iringa region/province. It is made up of three faculties: the Faculty of Education, the Faculty of Science, and the Faculty of Humanities and Social Sciences, with a total student enrolment of 3,691 and 154 faculty.

A set of two criteria, namely teacher education element and institutional foundation types, were used to select the two universities. Both public and private universities were involved in this study to enhance the diversity and richness of data from private and public institutional foundation types. Moreover, the teacher education element was purposively used as a selection criterion because the teacher education programme involves training student-teachers, who by virtue of their professional training are going to work with various learners and, at one point, may be needed to advise them. These student-teachers are, therefore, expected to be imbued with academic advising values and skills through their interaction with their academic advisors and the general university learning environment which could also be an invaluable asset in their eventual work environment. As the number of universities in Tanzania was 47 during data collection, the choice of only two universities for this study was driven by the need to collect in-depth knowledge regarding how the academic advisory service is being valued and exploited, rather than collecting many views for generalising the findings.

Before accessing individual institutions and participants, the author obtained a permit to undertake the study from the relevant university authorities. The Director of Research at the author's institution granted this permit, which was then used to access individual institutional leaders for further authorisation to reach the study's participants. Each participant was then requested to participate either through a verbal or written invitation explaining the voluntary nature of their participation after they had been briefed about what the study entailed. The participants were also assured of confidentiality as the researcher used codes instead of actual names in data presentation and analysis to avoid disclosing their identities and that of their institutions.

The study involved a total of 38 participants, comprising four faculty deans, 12 members of academic staff and 22 undergraduates, selected using both purposive and stratified sampling techniques. Purposive sampling was used to select the faculty deans by virtue of their leadership position while stratified sampling was used to select faculty members and students based on the faculty, work experience/year of study, and sex. In order to meet the purpose of the study as stated elsewhere in this section, only teacher education-related faculties from the two institutions were involved, that is, the Faculty of Humanities and Social Sciences, the Faculty of Education, and the Faculty of Science. Faculty members who were selected from different faculties also had at least three years' work experience – assumed to be familiar with the institutional vision, mission, and various courses on offer. Similarly, student participants involved both males and females and at least five students from each year of study out of the three-year undergraduate education programme operating in the two institutions under review. The use of a variety of participants from different faculties and of different sex and work experience/year of study was intended to collect diverse and rich data.

Data were collected using semi-structured interviews, focus group discussions (FGDs), and documentary review. Semi-structured interviews were used to collect data

from the faculty deans and faculty members whereas FGDs were used with students. All the interviews and FGDs were conducted in the participants' offices and lecture rooms, respectively, areas considered convenient for both the participants and the researcher to interact comfortably in a relaxed manner for the generation of rich data. Interviews took between 20 and 30 minutes, and FGDs took between 30 and 50 minutes. A total of 16 interviews and four FGDs were conducted at the two institutions under study. With the participants' consent, interviews and FGDs were audiotaped to supplement manual note-taking.

A documentary review method was also used to collect data available in documents—institutional prospectuses, policies, strategic plans, and circulars. These documents were accessed through the internet—from the respective institutions' websites—and upon requests of hard copies during data collection. The documentary review method enabled the researcher to learn about the institutions' and participant academic advising behaviour, actions, and events over a span of years. Specifically, the review of those documents helped the researcher to ascertain the kinds of academic advisory services available, how students were encouraged to access and utilise these services, and how the institutions under study organise, monitor, and evaluate the academic advising programme. The use of a variety of data collection methods in this study—interviews, FGDs and documentary review—helped the study to benefit from the strengths of each method and to offset their weaknesses in collecting valid and reliable data.

Thematic analysis was used to analyse data, as the method involves examining and classifying qualitative textual-formatted data according to patterns/themes and making sense of the evolving thematic structures by looking for similarities, differences, relationships, central patterns, theoretical and analytical constructs (Braun & Clarke, 2006; Creswell, 2009). Thematic analysis in this study has followed three steps as provided by Creswell (2009). First, audio data recorded from the interviews and FGDs were transcribed to produce written text. Then, the textual data including documentary review information were repeatedly read through to establish a general understanding and to reflect on their overall meaning. Second, the author organised the data into segments of text and generated themes and sub-themes for analysis. Third, the author conveyed and clustered the findings stemming from the analysis whereby similar and related ideas were put together to form three major themes: significance of academic advising, approaches to academic advising, and training opportunities for academic advisors, as presented in the findings section. Then, the author discussed and interpreted the findings by relating them to the theoretical framework guiding the study and empirical literature. Although presented in steps, the process of data analysis was not a linear process, but rather a recursive one, which involved moving and returning to the analysis throughout the various steps.

Findings

During data analysis, three major themes were identified: significance of academic advising, approaches to academic advising, and rewards and training opportunities for academic advisors. These findings are presented in the three subsections that follow.

Significance of academic advising

Participants were asked during interviews to explain the benefits of academic advising as their perception can predict the kind of efforts and energy dedicated to offer the academic advising programme. The findings show that the participants perceived academic advising as significant in enhancing the students' academic performance. Participants maintained that many students during their first year of studies tend to apply the high school experience (the immediate home for direct university entrants) while the university life is complex and quite different from that of high school. In this regard, if the academic advising programme is being delivered effectively, it can reduce many snags towards elevating academic performance. The following statement confirms this view:

It is very important to have academic advisory service as this will make students better understand how the teaching and learning process is being conducted and how should they behave so that they can achieve academically as they are expected to. (Faculty Member: Institution B)

Another participant offered a similar view:
Academic advising came into being due to the recognition of the fact that students might have different academic needs and problems, but they have no one to share them with. (Faculty Dean: Institution A)

Participants added that for the period that academic advising has been operating within their institutions, it has shown some benefits as captured in the following statements:

The programme [academic advising] has aided my performance. I am in the third year now, and I have not failed any course in the second year. (Student: Institution A)

Another participant added the following view:
The establishment of this service has impact on students' academic achievement as the students become informed of a lot of issues concerning their studies and university life. (Faculty Member: Institution A)

The findings also indicate that academic advising offered an opportunity for faculty members and students to interact and establish a close relationship outside the classroom

setting or academic matters. Students sought advice related to not only academic matters but also social issues, something that has helped these students to fare well in their studies:

> I even ask my advisor how she manages to take care of her children while studying when I was raising my first born in the first year. (Student: Institution B)

A similar view was proffered in the following statement:
> Students come here with a number of issues, so they need guidance. Academic advisors often advise students if they have social problems, as well. (Faculty Member: Institution A)

The implication is that academic advising serves as a bridge to help students deal with the university's social and academic life, as most of the students are coming from high school where the culture and structure of academic life is different from that of the university.

Approaches to academic advising

Data related to the modality used to organise and deliver the academic advising programme was also sought in this study. The study has found that the institutions under review employ both faculty members and students to deliver academic advisory services. The practice is that each student is allocated an academic advisor from a pool of faculty members. The allocation of advisors is based on the degree programme pursued by the student. For example, students in the Bachelor of Arts in Education are allocated advisors from the Faculty of Humanities and Social Sciences, students in the Bachelor of Education are allocated advisors from the Faculty of Education, and students in the Bachelor of Science in Education get advisors from the Faculty of Science. Names of faculty advisors are posted on the noticeboards together with the names of their advisees/students. This arrangement was mainly reported at Institution B and around 35 students were allocated to one academic advisor per annum. Conversely, Institution A does not allocate advisors to students. Instead, it has liberalised the advisory service by directing students to consult any faculty member when the student feels a need for advice. Indeed, students in Institution A are also directed to consult the special advisory office established to provide both academic and non-academic advice. The office is overseen by two advisors both appointed for that purpose from a group of faculty members.

Moreover, the institutions under study have formally recognised students' associations (one for each institution), which act as a platform for students' academic advising and for bridging communication between students and their respective university administration, as explained in the following statement:

> Our students' union office helps us to solve a lot of our academic problems, especially when we need to write letters for postponing university examinations or appealing against examinations results. (Student: Institution B)

This statement suggests that the students' organisation is one of the key organs at the university that guides students in academic matters. As such, the use of both students and faculty members to provide academic advisory services in the institutions under review suggests that these institutions employ a shared model of academic advising that allows for peer advisors (students) and faculty advisors (academics) to provide such services.

Furthermore, the study's participants explained that the academic advisory services delivered either through peer advisors or faculty advisors mostly centred on a student's problem, as advisory meetings between the two parties (the advisor and the advisee) are usually convened after the student has presented a problem. It was further clarified that the advisory meetings are mostly conducted at the end of the semester when the course assessment results have been released. Thus, students, particularly those who did not perform at a required average, are then flocking to the advisors' office to seek advice:

> In a normal situation, there is no regular interaction between the academic advisor and the student. What I have experienced is that if the student has a problem is when he/she begins to look for his/her academic advisor. (Faculty Member: Institution B)

Another participant further added this:
> Many students pop in our offices after the coursework results are out. Some of them come in crying seeking advice because they have failed, and they do not know what to do. (Faculty Member: Institution A)

These findings suggest that the prescriptive advising is the most prevalent approach in the provision of academic advisory services in the two institutions under study. Given the findings that it is the students who frequently initiate the advisory meetings and they do so only when faced with a problem, the question arises what role do academic advisors play? Most faculty members were found to be rather unconcerned about academic advising, as these faculty advisors admitted that they were not taking initiatives to find students who do not initiate or show up for the advisory meetings. In fact, if the student does not show up, then there is a high probability for not conducting an advisory meeting between the two parts (the advisor and the advisee) until the student graduates, as confirmed in the following statement:

> It has been a tendency that you are given students to advise, but they spend three years you don't even know their faces. After three years, a student graduates without even knowing each other. (Faculty Member: Institution B)

Another participant offered this similar view:
> It is fortunate that my colleague knows some of his advisees, on my side I do not know them. It is just recently that one student came to my office and say madam you know that you are my academic advisor. (Faculty Member: Institution B)

Some participants, particularly finalist students added that they had never met with their academic advisors since they started their undergraduate studies, and they did not

even know their advisors' names:

> I have not faced a problem related to academic issues, probably had I faced such a problem I would have consulted my advisor. (Student: Institution B)

These findings indicate that there is more reactive than proactive advising. The emerging of the problem on the part of students dictates the operation of the academic advising, something which necessitates the domination of the prescriptive advising approach. Even for the advisory meetings that were reported to have been conducted, the findings show that records of these meetings were not formally kept. The faculty advisors admitted to not keeping the records of their students they had advised or their advisees in general, and neither did they document what had been discussed during the previous student advisory sessions. This raises a fundamental question: why are the academic advising programmes in these institutions under review being treated as a trivial responsibility that many would rather do without? Responses to this question are presented in the following section regarding rewards and training opportunities for academic advisors.

Rewards and training opportunities for academic advisors

Findings regarding training and rewards provided to advisors show that both faculty advisors and peer advisors receive no training prior to the participation in the academic advising activity, and neither are they rewarded for providing academic advisory service. The following statements illustrate the shortcomings of the present setup:

> We play the role of advising, but we do not know what is it in details. (Faculty Member: Institution A)

> We are not being paid or rewarded whatsoever for being a patron or a matron. I just perform the advising activity as a charity. (Faculty Member: Institution A)

Participants further explained that the advisory service is not stated as a compulsory activity in the institutional strategic policies and practices. "There are no institutional documents that provide guidance on what an academic advisor ought to do" (Faculty Member: Institution B). As a result, the advisory service is often taken for granted by both faculty and students. Indeed, in the absence of significant mechanisms to monitor the effectiveness of the programme and ensure compliance, advisors and advisees treat academic advising activity as a leisurely and optional activity, as noted in the following statement:

> Academic advisors are like counsellors. They need to know the scope and limitations of their duty. As advisors in our institution are not prepared for such a role, you find that some reveal secrets of students obtained during advisory sessions. (Faculty Member: Institution B)

The implication is that the academic advising activity within the institutions under study depended mostly on the interest and empathy of the advisors, as there was neither training, policy guidelines nor remuneration for the academic advisors. In such a situation where the academic advising programme gets less institutional support, uncertainty arises as to whether the student advisory services as currently provided in the institutions under review will work for the students and the institutions at large.

Discussion

The study has established that participants perceived academic advising as significant in enhancing the students' academic performance. This finding is consistent with Tinto's theory of retention. Tinto's retention theory advances that academic advisory services enhance the learners' capabilities to function independently and intellectually as individuals and to cope with the institutional socio-cultural and academic fabric. As a result, such academic and social integration of students in their institutions increases the students' commitment to their educational goals and expectations which intensify their academic performance, retention, and graduation rates (Tinto, 1975, 2007). Moreover, the finding is similar to an online survey study conducted for a decade (2005-2013) to capture perspectives of 4,875 students on academic advising at Michigan State University (Suvedi et al., 2015). The online survey study showed that the students were positive about academic advisory services, and the need for and satisfaction with the academic advisory services were higher to the newer and female students than the older and male students.

The finding on the significance of academic advising are also supported by other studies that indicate academic advising plays a significant role in improving students' performance, retention, and the fiscal stability of the institution (c.f., Egege & Kutieleh, 2015; Gudep, 2007; Lemire et al., 2005). In his propensity score-matching study that involved 2,745 first-year undergraduates, Kot (2014) found that students who received the academic advisory service experienced a GPA increase both in the first and second semesters and first-year aggregate GPA. This implies that HEIs ought to use academic advisory services to make students understand how the teaching and learning process is conducted at the university and how they should approach social and academic issues to perform better and realise their educational and career goals.

Similarly, the findings of the present study show that the institutions under review use a shared model of academic advising – peer advisors (fellow students) and faculty advisors (academics) in the academic advising endeavour. The shared model has been a source of success in the provision of better academic advisory services across many HEIs globally (Habley, 2004; Kot, 2014; Pardee, 2004), and thus, many HEIs have adopted this model. Peer advising allows students to talk and get advice from someone with first-hand and shared experience but with a better grasp of academic and social matters at their institution (MacDonald & Aman, 2014). Additionally, faculty advisors are invaluable and complement peer student advisors yet to become professionals and hence without career experience that reinforces advisory skills. Faculty advisors are often familiar with the

institutional mission and vision, programmes and courses on offer, study techniques, academic and career advancement issues, characteristics which are vital in the effective offering of the academic advisory activities.

Although the institutions under study use a shared model in the provision of academic advising, membership composition of the current shared model creates uncertainty whether the academic advisory service can be effectively and professionally delivered. In its present arrangement, members involved in the academic advising programme are sourced from a group of students and faculty members only, which is contrary to the current development in the use of the shared model where professional academic advisors are also used to enhance the effective operation of the academic advising activity. For example, the University of Johannesburg (South Africa), Flinders University (Australia), the Emporia State University (USA), Seoul National University and Yonsei University (South Korea), employ the shared model whereby a selected number of trained students, faculty members, and full-time professional academic advisors advise students on academic matters (Egege & Kutieleh, 2015; MacDonald & Aman, 2014; Nel, 2014).

Moreover, despite the significance attached to the academic advising programme as presented in the findings and discussed in this section, the findings of the present study also indicate that academic advising in the institutions under study is more reactive than proactive. The prescriptive advising approach is prevalent, where the emerging of the problem on the part of students determines the operation of the academic advising. Indeed, the faculty advisors admitted to not keeping the records of the student advisory sessions, which is essential for the advisors to follow up and establish whether the students had benefited from the advice or simply check on their general student progress. Previous research has also reported a similar tendency of operating the academic advising activity based on students' problems that need immediate resolution (Hale et al., 2009; NACADA, 2013). Undergraduate students in Saudi Arabia and Kenya, for example, tended to seek academic advice from faculty advisors after receiving their examination transcripts and were unhappy with their performance (Al-Ansari et al., 2015; Muola et al., 2011). Seeking or providing advice only when the student faces a problem as the present study and other studies have established could not bring about the desired effect because earlier intervention could have stopped the problem.

As such, the body of literature on academic advising encourages the use of both the prescriptive and developmental approaches in providing the academic advisory service, as they both have a fundamental role to play and tend to be complementary. Prescriptive advising functions as the icebreaker for developmental advising to take place (NACADA, 2013), as this prescriptive advising familiarises students with the basic institutional information, such as institutional procedures and processes. On the other hand, the developmental approach extends to letting students know about the broad crucial outcomes of a university education and how one can benefit from it and make rational use of resources available for academic success (Hale et al., 2009; He & Hutson, 2016).

Furthermore, the present study has established that the institutions under review did not offer training to academic advisors nor incentives for providing the academic advisory service. Lack of advisors' training and incentives is also experienced in the United Arab Emirates, Kenya, and Saudi Arabia (Al-Ansari et al., 2015; Gudep, 2007; Muola et al., 2011).

Conversely, institutions such as Seoul National University and Yonsei University (South Korea), the Emporia State University (USA), the University of Johannesburg (South Africa), and Flinders University (Australia) provide systematic training and resource development for their advising personnel including peer advisors which have resulted in an effective delivery of the academic advisory service (Egege & Kutieleh, 2015; MacDonald & Aman, 2014; Nel, 2014). Although the institutions under study refrain from providing training and incentives to their academic advisors, again experience from the Emporia State, Johannesburg, and Flinders universities indicate that advisors' training and rewards uplift the status of the academic advising programme and enable the advising programme to operate more professionally (Egege & Kutieleh, 2015; MacDonald & Aman, 2014; Nel, 2014). The implication is that the absence of training and rewards for academic advisors often leads to chaotic and ad hoc advisory services as established in the present study whereas the presence of rewards and training could enhance the professional delivery of academic advising and produce desired outcomes.

Conclusion and recommendations

This study has examined the status of academic advising in Tanzanian universities. The findings show that the academic advising programme is generally perceived as significant in enhancing students' academic and social integration into the university life. The shared model of academic advising is used to provide the academic advisory service. However, the composition of members who participate in this shared model is reduced to only students and faculty members, which is contrary to the current development in the use of the shared model elsewhere where professional academic advisors are also used to enhance the effective delivery of the academic advisory service. Indeed, the current use of the shared model as reported in the findings is based primarily on the prescriptive approach where the emerging of the problem on the part of students determines the delivery of the academic advising. Moreover, the institutions under study did not offer training to academic advisors nor incentives, something which reduced academic advising into a trivial responsibility that many would rather do without. In this regard, the way the academic advising programme is currently offered in the institutions under review may not only bring the desired outcomes but also constitutes a waste of even the little resources these institutions continue investing in managing the programme.

In conclusion, the findings of this study add knowledge to the academic advising literature from Tanzania where from the available literature there was any study of this nature that had been conducted locally. In addition to the advancement of knowledge frontiers, this study also sought to provide empirical-based evidence that could help higher education policy makers, planners, and practitioners, both locally and globally, to revisit and improve the delivery of student advisory services to attain higher retention, participation, and graduation rates.

Based on the foregoing discussion and conclusion, the study offers the following recommendations. First, higher education accreditation bodies and universities should institute academic advisory policies to guide the practice of academic advising

programme. In the absence of policies, academic advisory services tend to operate in a haphazard fashion as the case in the present study. Second, stakeholders and members of HEIs should be sensitised on the importance of academic advisory services and the required level of investment needed to operate such services in a professional manner to achieve the desired outcomes. Third, effective training and incentive programmes should be developed in HEIs to motivate academic advisors to perform the advising task effectively and equip them with necessary advisory knowledge and skills to become more resourceful advisors to students. Forth, further research on academic advising should be undertaken in the developing world as there is currently a dearth of knowledge in this area. More studies may serve as stimulants to the effective provision of academic advising, as such studies have the potential of bringing about more conclusive empirical evidence about which approaches and models work well in the developing world context.

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Does merit-based aid promote degree attainment?*

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Abstract

This study examines whether receiving merit-based aid affects the bachelor's degree attainment in the fourth, fifth, and sixth year of initial enrollment in the case of Tennessee. Using the fuzzy frontier discontinuity method, I compare graduation rates of students who initially received the state's merit-based aid to those of students who did not. Results show that receiving merit-based aid increased the probability of earning a bachelor's degree in the fourth year. However, it did not affect degree attainment in the fifth or sixth year. This paper also discusses possible explanations regarding why merit-based aid may not influence degree attainment.

Keywords: merit-based aid, degree attainment, graduation, time to degree, regression discontinuity

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* This study is a chapter from Lee's (2014) doctoral dissertation which has not been published elsewhere.

Introduction

Statewide merit-based aid has been prevalent across the United States since the early 1990s. Statewide merit-based aid generally covers more than half of tuition and required fees for in-state public colleges and universities although the exact aid amount and eligibility requirements vary across states (Domina, 2014). Statewide merit-based aid is eligible for students with solid academic records (based on standardized test scores and/or high school grades) who attend one of the in-state colleges and universities. That is, if students are academically prepared, a substantial portion of tuition costs is subsidized by their state government.

Merit-based aid aims to keep the best and brightest students within their states and increase the number of college graduates that are crucial for the state economy (Hu, Trengove, & Zhang, 2012). Previous research consistently shows that merit-based aid increases college enrollment (e.g., Cornwell, Mustard, & Sridhar, 2006), but relatively fewer studies have examined its effect on graduation (Dynarski, 2005; Scott-Clayton, 2011). Considering that college graduation is crucial not only for individual students but also for the state economy, it is important to examine whether the state's effort has translated into persistence and degree attainment.

This study examines whether merit-based aid affects the probability of earning a bachelor's degree within six years in the case of Tennessee. I use the regression discontinuity method that minimizes selection bias by comparing scholarship recipients to non-recipients who are very similar to each other. This study adds to the literature by empirically examining the relationship between merit-based aid and graduation. Results from this study will inform policy makers who might consider adopting merit-based aid for improving college graduation rates.

Tennessee Educational Lottery Scholarships

In the fall of 2004, the Tennessee Educational Lottery Scholarships (TELS) were first awarded for the incoming cohort. There are five programs under the Scholarships based on a student's family income, academic achievement, and institution type: HOPE base, ASPIRE, GAMS, Access award, and Wilder-Naifer technical skills grant. Table 1 shows the eligibility requirement and aid amount for all these programs. Some of these rules and aid amount have changed over time. In this paper, I only describe the rules applied to the fall 2004 entering cohort, which is the main focus of this paper.

Table 1. Tennessee Education Lottery Scholarship Eligibility and Aid Amount

	HOPE base	ASPIRE	GAMS	Access	Wilder-Naifeh
Amount (for 4-year college students)	$3,000	$4,000	$4,000	$2,000	N/A
Minimum HS GPA	3.0	3.0	3.75	2.75	N/A
Minimum ACT composite score	or 19	or 19	and 27	and 18	N/A
Family income requirement	N/A	$36,000 or less	N/A	$36,000 or less	N/A

Note. Rules and aid amount here were applied to the 2004 entering cohort only. The only eligibility requirement for Wilder-Naifeh is to enroll in a certificate or diploma program at a Tennessee Technology Center.

The HOPE base program was awarded to students who met either the minimum high school GPA of 3.0 or ACT scores of 19. If students met one of these criteria and came from a low-income family (with an annual family income below $36,000), they were eligible for ASPIRE. For highest-achieving students with a 27 ACT score and a 3.75 high school GPA or above, they were eligible for GAMS. Students who were eligible for ASPIRE or GAMS received an additional $1,000 in addition to their HOPE base aid. Students who failed to meet the academic criteria for the HOPE base program, but came from a low-income family were eligible for the Access award if their ACT score was at least an 18 and their high school GPA is at least a 2.75. These four programs were eligible for students enrolled in a public or private college within the state, while the Wilder-Naifer Techinical Skills Grant was eligible for students enrolled in one of the state's technology centers. Once students receive any of these scholarships (except the Widler-Naifer grant), they must renew their scholarship eligibility by maintaining a 3.0 cumulative GPA in the semesters when they complete 24, 48, 72, 96, and 120 course credits. The scholarships can be renewed for up to five years or until students earn 120 college credits, whichever comes first.

Of these five programs, this study only looks at the first two programs (HOPE base and ASPIRE) that were available for college students who met at least a 19 on the ACT or a 3.0 GPA in high school. GAMS recipients were excluded because they were highest-achieving students compared to HOPE or ASPIRE students. Access recipients were excluded because it was difficult to find a counterfactual for these students given the lack of detailed data for family income. I also excluded the Wilder-Naifer recipients because this grant was available only for students enrolled in a certificate or a diploma program at one of the state's technology centers.

TELS has relatively lower cut-off scores and a bonus award for low-income students. As opposed to other states that require both standardized test scores and high school GPAs, Tennessee only required either one of the criteria. The ACT cut-off score in the first year of the implementation was as low as 19 in Tennessee, while its neighboring states had relatively higher cut-off scores (e.g., 20 in Florida and Louisiana or 22 in West Virginia). In addition, low-income students who failed to meet the base criteria were still eligible for TELS. For low-income students who slightly miss the base criteria, the Access grant is eligible. When low-income students meet the base criteria, an additional aid ($1,000 for the

2004 entering cohort) is provided as a supplement (ASPIRE).

The income supplements as well as the relatively lenient academic standards are designed to address one of the key limitations of merit-based aid: the disproportionate distribution of merit-based aid to students from wealthy families (Heller & Marin, 2002, 2004). Approximately 27% of scholarship recipients who started at public 4-year colleges in the fall semester of 2004 came from families with a family income of $36,000 or less (Tennessee Higher Education Commission [THEC], 2011, p. 65). However, it is not yet clear if receiving these scholarships leads to degree attainment. The 6-year graduation rates of the Access grants and ASPIRE recipients are 30% and 44%, respectively. These rates are lower than the state's average graduation rates by more than 10 percentage points.

Theoretical background and literature review

This study is grounded on human capital theory. According to human capital theory, students are assumed to be rational. They weigh benefits to costs of college enrollment and decide to enroll in college only when the benefits are greater than the costs (Schultz, 1961). According to the theory, receiving statewide merit-based aid will increase the probability of getting another year of college education by reducing the direct costs of college education, when other things are held constant.

Financial aid can increase college enrollment and graduation in the following ways. First, financial aid decreases the direct costs of college education that students pay. This monetary support allows students to postpone participating in the labor market and spend more time on campus. When students spend more time on campus, they are academically and socially more integrated into their institutions, which increases their odds to re-enroll in college until graduation (Tinto, 2010).

In addition to the monetary and social frameworks, state merit-based aid provides students with an incentive to work hard in college. In West Virginia, students are required to complete at least 30 credits per year with a minimum of 3.0 cumulative GPA to renew their scholarship eligibility. Using regression discontinuity and cohort analysis methods, Scott-Clayton (2011) finds that scholarship recipients were more likely to meet these renewal requirements and graduate compared to non-recipients. Interestingly, recipients were not more likely to meet the renewal requirements after their junior years because they could receive the merit-based aid for only four years. This evidence suggests that students are well aware of scholarship eligibility and respond to incentives embedded in it.

Some researchers find a positive effect of receiving merit-based aid on college completion. For example, receiving a Cal Grant, which is eligible for California state residents who meet high school GPA and family income criteria, increases the probability of completing college (Bettinger, Gurantx, Kawano, & Sacerdote, 2016). In Georgia, Henry, Rubenstein, and Bugler (2004) found that HOPE scholarship recipients completed more credits, received higher grades, and were more likely to graduate compared to non-recipients. However, the positive effect of HOPE scholarships disappeared if students failed to renew their scholarship eligibility and lost them while in college.

The effect of merit-based aid varies depending on the amounts awarded. In Florida, there are two types of merit-based scholarships that cover either 100% tuition and fees (the Florida Academic Scholars) or 75% of tuition and fees (the Florida Medallion Scholars). The former one is eligible to highest-achieving students (e.g., 1270 on SAT and 3.5 high school GPA in 1997), while the latter one targets students with solid academic records (e.g., 970 on SAT and 3.0 GPA in 1997). According to Castleman (2013), receiving the Academic Scholars increased the probability of degree attainment more than not receiving scholarships, while receiving the Medallion Scholars made no difference.

Recently, there are two empirical studies that examine the effect of the Tennessee HOPE base scholarship on college completion. Welch (2014) examines the effect of receiving the HOPE base scholarship on community college students and finds that the scholarship had no significant effect on students' persistence, degree attainment, or post-graduate earnings. Similarly, Carruthers and Özek (2016) demonstrate that losing the HOPE scholarship (failing to renew the scholarship eligibility) had no significant impact on on-time graduation although it slightly decreased the probability of re-enrolling in the subsequent semester. Both studies suggest that the Tennessee HOPE scholarship has a small or null effect on college persistence and completion although they focus on a population (community college students) or a treatment (losing aid as opposed to initially receiving it) that are slightly different from those in my study.

At the state level, there are mixed results about the effect of merit-based aid on average completion rates. Employing the difference-in-differences method, Dynarski (2005) shows that the percentage of young adults with college degrees in Arkansas and Georgia has increased since the inception of their merit-based aid. The positive impact was observed in all racial groups. Zhang (2011) also demonstrates that the number of bachelor's degree holders increased in Georgia and Florida since the adoption of merit-based aid in these states. Zhang emphasizes that the adoption of merit aid increased those who majored in science, technology, engineering, and math, as well.

In contrast, Sjoquist and Winters (2014) report that there is no empirical evidence that adopting merit-based aid has increased the proportion of college graduates at the state level. This contrasting result may be attributable to the number of states and the length of time period studied. While Dynarski and Zhang focus on two states, respectively, Sjoquist and Winters examine the impact of merit-based aid for 24 states from 2000 to 2010. One potential limitation of state-level studies is that it is not yet clear how statewide merit-based aid increases degree production, if any. As these studies focus on aggregated outcomes at the state level, they can increase the number or the proportion of college graduates by retaining the best and bright students within their states instead of subsidizing students who would not have gone to and finished college in the absence of merit aid.

To summarize, there are mixed results as to the effect of merit-based aid on college completion. The effect also varies depending on the awarding rules and amounts. Moreover, most of the studies in this area focus only on a few states that adopted merit-based aid in the 1990s. This study looks at Tennessee that implemented its merit aid more recently. In addition, the effect of merit-based aid can be varied depending on the program design. As Tennessee has less rigorous academic requirements and provides low-income students with a bonus award, it would be interesting to explore the impact of

the state's scholarships on college completion. Lastly, my study examines the impact of merit-based aid by looking at students who were at the margins of receiving (or not receiving) merit-based aid due to their academic performance.

Data, sample, and methods

In this study, I use administrative data in Tennessee, focusing on students who started at one of the public 4-year colleges in the state in the 2004 fall semester. I can track students as long as they remained in one of the state's public 4-year colleges. The data provides information on demographics, parental educational levels, Pell Grant eligibility, financial aid, enrollment status, high school grades, and standardized test scores.

My sample is limited to first-time freshman students who graduated from high school in 2003 or later and first enrolled in a public 4-year college in Tennessee in 2004 fall. Non-traditional students such as adult students are excluded from the analysis not only because they are very different from traditional students (Bean & Metzner, 1985), but also because the scholarship eligibility was limited to students who entered college within 16 months of their high school graduation. I also limit the sample to Tennessee state residents those who registered for at least six credits for their first semester. These two conditions (state residency and at least part-time status) are basic eligibility criteria for TELS. Therefore, whether students in my sample were eligible for TELS totally depends on their test scores and high school grades. Fourteen thousand three hundred ninety-one first-time freshmen students (12,669 recipients and 1,722 non-recipients) were included in the analysis.

In Table 2, I provide the descriptive statistics for the sample, which are broken down by their TELS status. Overall, racial minority students, Pell Grant recipients, and first-generation students are overrepresented among those who did not receive TELS. Their test scores and high school grades are much lower than those who received TELS. Each of these covariates (except the proportion of female students) is statistically significant between recipients and non-recipients. Given these differences, it is hard to attribute the average graduation rate gap solely to their TELS status.

Table 2. Descriptive Statistics for the Sample

	Not received	Received	Total	t-value[a]
Female	0.551 (0.498)	0.551 (0.497)	0.551 (0.497)	-0.015
Racial Minority	0.433 (0.496)	0.183 (0.387)	0.213 (0.409)	24.238***
Pell-Eligible	0.591 (0.492)	0.294 (0.456)	0.320 (0.467)	21.586***
College-Educated Parent(s)	0.439 (0.496)	0.689 (0.463)	0.659 (0.474)	-20.86***
High School GPA	2.809 (0.488)	3.329 (0.499)	3.270 (0.525)	-26.799***
ACT score	18.83 (3.686)	22.95 (3.746)	22.47 (3.965)	-42.264***
Graduation rates (within six years)	0.253 (0.435)	0.546 (0.498)	0.511 (0.500)	-23.248***
Sample size	1,722 (11.97%)	12,669 (84.85%)	14,391 (100%)	14,391

Note. When I calculated the average high school GPA, I dropped GED students. In the data set, their high school GPAs actually mean their GED scores.

[a]*T*-value in the last column shows obtained t-values after conducting independent t-test between recipients and non-recipients on each of the covariates. Stars next to t-values are associated *p*-values (*: < .05, **: < .01, ***: < .001).

I use a regression discontinuity model that minimizes both observable and unobservable differences between recipients and non-recipients. The regression discontinuity model is used when a treatment is given on the basis of a pre-determined arbitrary standard, such as the TELS eligibility criteria (Schneider, Carnoy, Kilpatrick, Schmidt, & Shavelson, 2007). To be eligible for TELS, students with a family income of $36,000 or above had to score at least a 19 on the ACT exam or receive a 3.0 high school GPA. If students did not meet the GPA standard, they should have scored at least a 19 in order to receive TELS. This cut-off score of 19 is arbitrary, though. If there had not been the scholarships, there is no reason that students who just passed the cut-off score are more likely to graduate than students who slightly missed it. The former students would do slightly better than the latter students because standardized test scores reflect academic capability to some extent; however, there should not be a sharp gap in graduation rates between the two groups without the scholarships. The continuity in a dependent variable is a major assumption of the regression discontinuity method (Imbens & Lemieux, 2008).

Since we cannot observe what would have happened in the absence of the scholarship, the continuity assumption cannot be directly tested. Instead, researchers are recommended to see whether student characteristics except for the treatment are comparable across a cut-off score (Imbens & Lemieux, 2008; van der Klaauw, 2008). In Figures 1 and 2, I create several plots that examine whether student covariates are comparable across an ACT and GPA threshold, respectively. Because the TELS was awarded to students who met at least one of the academic requirements, I re-grouped my sample into two different groups. Students in Figure 1 are those who failed to meet the GPA requirement, so their TELS eligibility was solely determined by their ACT scores. In

contrast, students in Figure 2 failed to meet the ACT requirement, so their GPA determined whether they received TELS or not. As these figures look at students near the cut-off scores, the number of students included in these figures is much smaller than the total sample size. In figure 1, a total of 1,627 students (1,224 recipients and 403 non-recipients) were included, and a total of 277 students (197 recipients and 80 non-recipients) were used in figure 2. The point zero on the x-axis indicates the cut-off scores, and y-axis shows the proportion of students at each x value. If students on both sides are quite comparable, the plot should not suddenly jump or drop at the threshold. However, if there is a sudden change across the cut-off score, it suggests that recipients are different from non-recipients at least for that covariate.

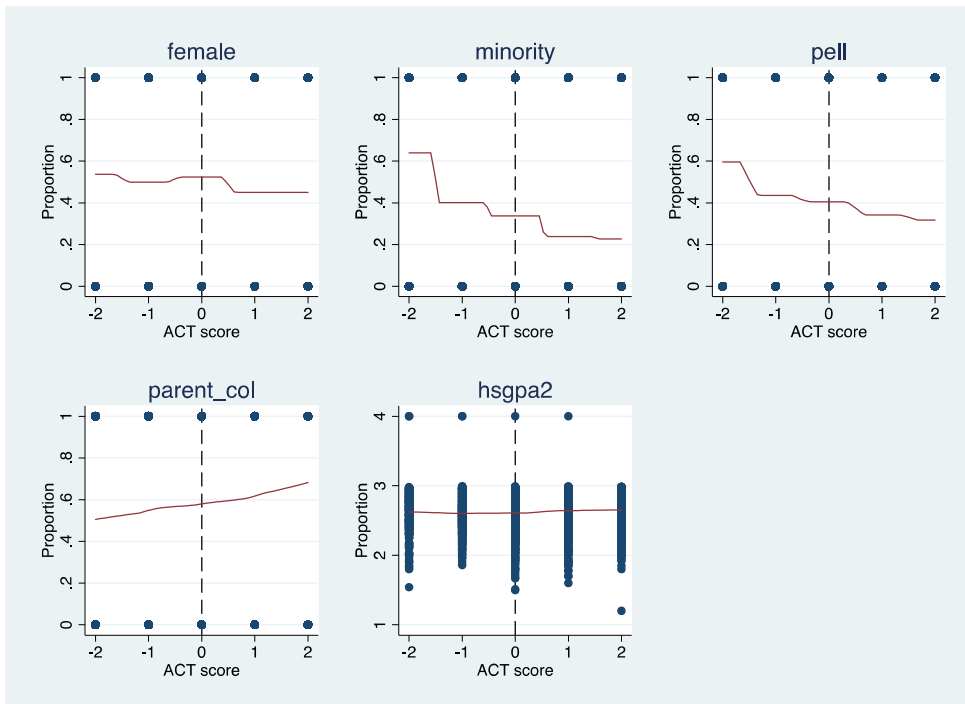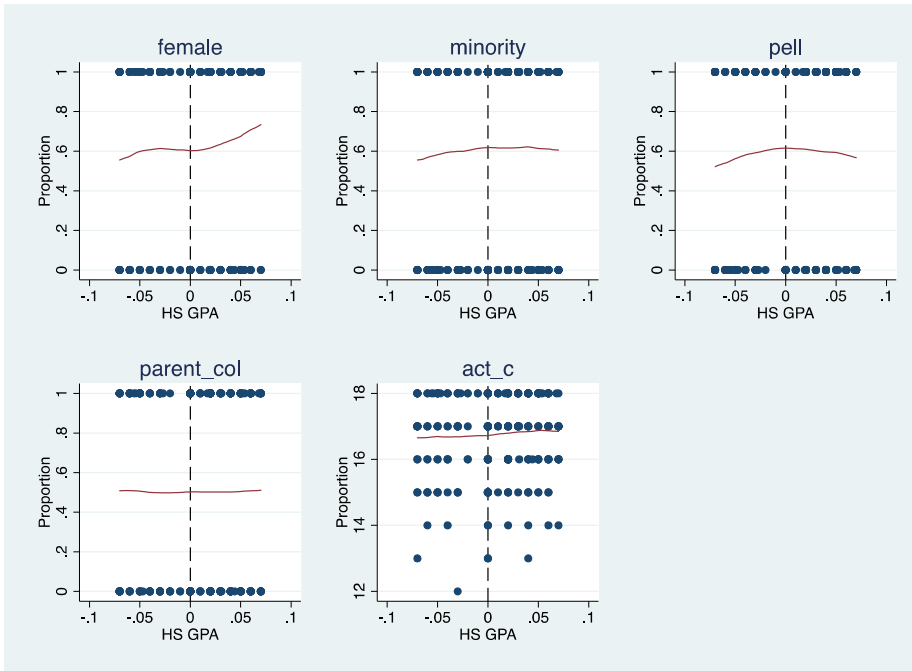Figure 1. Discontinuity in Covariates (ACT)

Figure 2. Discontinuity in Covariates (GPA)

When the award decision was made based on ACT scores, as in Figure 1, there are fewer racial minority students and low-income students among recipients than non-recipients. In addition, the proportion of students who have college-educated parents is higher among recipients than non-recipients. When I ran a *t*-test on each of the covariates, the share of low-income students, underrepresented racial minority students, and students with college-educated parents is significantly different between recipients and non-recipients (results available upon request). This suggests that recipients came from more advantaged backgrounds than non-recipients when the assignment variable was an ACT score. When the award decision was made based on high school GPAs, as in Figure 2, the sample is more balanced. The only significant difference was observed in the proportion of minority students, which is significantly higher among recipients than non-recipients (*t*-test results available upon request). Although the sample is more balanced in Figure 2, it is partly due to the narrow bandwidth used and fewer students included in the analysis.

In addition, students are assumed not to be able to manipulate their assignment variable in a regression discontinuity method (McCrary, 2008). If students were especially determined and motivated to receive the scholarship, they may have worked very hard to meet the criteria and consequentially received them. If so, students who barely met the eligibility requirements would not be comparable to those who failed to meet them by a slight margin. Simply comparing these two students could overestimate the effects of the scholarships. In order to check potential manipulation, I ran a McCrary test on both assignment variables (ACT scores and high school grades) (McCrary, 2008).

Figure 3. McCrary Test Results on ACT Scores (among Students Who Failed to Meet the GPA Cut-Off)
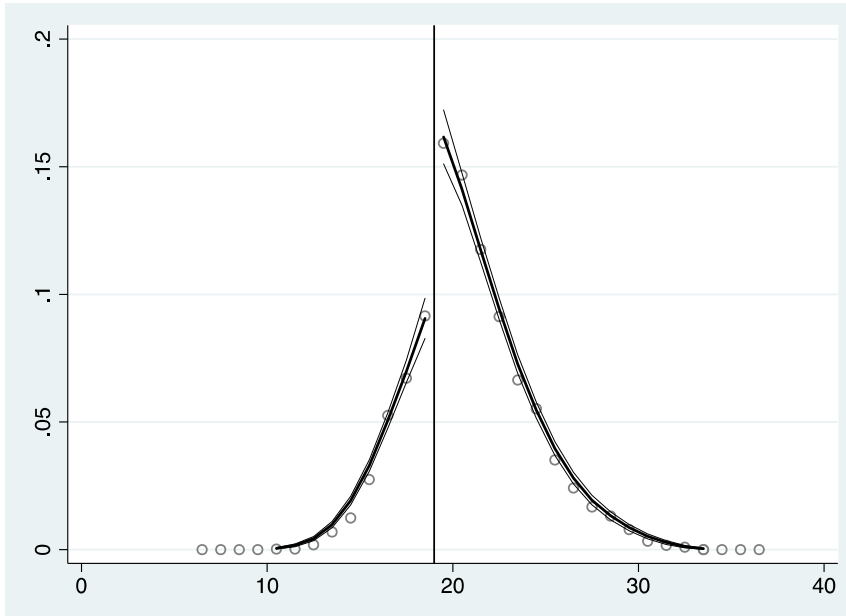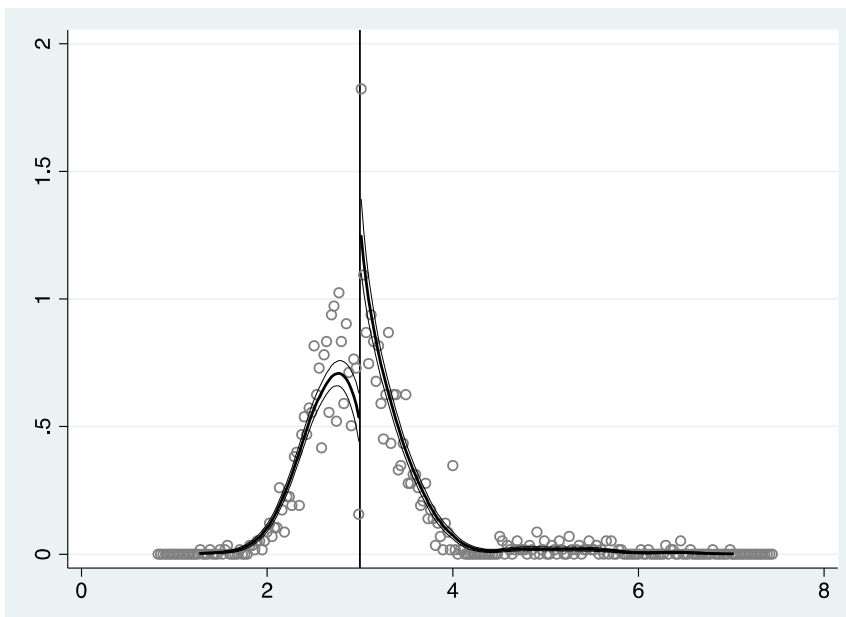

Figure 4. McCrary Test Results on High School GPA (among Students Who Failed to Meet the ACT Cut-Off Scores)

Unfortunately, Figures 3 and 4 show that the number of students increases right after the cut-off scores, and the jump across the cut-off score is statistically significant in both cases. These results suggest possible student manipulation. Although passing the McCrary test is "neither necessary nor sufficient" (McCrary, 2008, p. 701) for causal interpretation, I cannot entirely rule out the possibility that my estimates could be confounded by pre-existing differences between scholarship recipients and non-recipients. The issue of student manipulation is difficult to avoid when the assignment criteria are known to the public, and the treatment is beneficial for recipients, such as merit-based aid (McCrary, 2008). The TELS bill was passed only a few months before students in this study started their college education in January 2004, but it was still possible for some students to take the ACT exam many times until they passed the cut-off score. The regression discontinuity estimates in this study would largely reduce selection bias, but not entirely get rid of it.

In this study, I ran the fuzzy regression discontinuity model using the *xtivreg* command in STATA software. When receiving treatment is not entirely determined by assignment variables, a fuzzy discontinuity model is used (Imbens & Lemieux, 2008). For example, 6% of students in my sample met all requirements, but they did not receive the scholarships. One possibility for this type of noncompliance is due to the fact that some students receive grants from other sources (e.g., the federal government or institutions) that exceed their cost of attendance. If this happened, their state grants could be reduced even to zero. In contrast, 0.1% of students in the sample received TELS although they failed to meet both requirements. As the number is very small, I speculate that this kind of non-compliance would be largely due to data coding error.

The fuzzy model assumes that the academic criteria (ACT score and high school grades) predict whether students received either HOPE base or ASPIRE scholarships, but do not perfectly determine it. The fuzzy model can be estimated using a 2-stage least squares model that is mathematically equivalent to an instrumental variable model (Imbens & Lemieux, 2008). In the first stage, as specified in equation (1), I predict D_i, which is the probability of receiving one of the scholarships. The probability is predicted by whether students met one of the academic criteria ($Above_i$). I include a set of covariates (X_i) including a student's demographic, parental educational level, Pell Grant eligibility, and academic achievement (Adelman, 2006). The model also takes into account students' higher education institutions because graduation rates can be varied across different institutions. Although adding covariates does not change point estimates, it improves precision of the estimates (Imbens & Lemieux, 2008).

Equation (2) represents the second-stage model. In the second stage, I use the predicted probabilities of being awarded one of the scholarships ($\hat{D}_i$) and estimate if receiving the scholarships has any effect on graduation (Y_i). If it has a positive influence on graduation, a_1 will be positive and statistically significant. If it does not have an impact, a_1 will not be statistically different from zero. Again, I include my running variables and a set of covariates (X_i).

$$D_i = B_o + B_1(Above_i) + X_i\delta + \varepsilon_i \qquad (1)$$

$$Y_i = a_o + a_1(\hat{D}_i) + X_i\gamma + u_i \qquad (2)$$

Because TELS eligibility is determined by two assignment variables, I use the fuzzy frontier regression discontinuity model suggested by Reardon and Robinson (2012). I use only two subsets of data. In the first set of data, I limit my sample to those who failed to meet the GPA requirement. In this sample, aid eligibility is solely determined by whether students met the ACT requirement. Estimates from this analysis show the effect of receiving TELS over not receiving TELS among those who failed to meet the GPA requirement. Similarly, in the second sample, I limit my sample to those who failed to meet the ACT requirement, and their aid eligibility is solely determined by whether they met the GPA requirement. Estimates from this analysis show the effect of receiving TELS over not receiving TELS among those who failed to meet the ACT requirement.

Population of my interest is limited to those who received the TELS award by slightly meeting only one of the academic criteria. In other words, results from this research cannot be applied to students who received the TELS award by meeting both academic criteria. I use the fuzzy frontier model not only because it is relatively straightforward, but also because the aid effect can be heterogeneous based on which requirement students meet (Reardon & Robinson, 2012). Bettinger et al. (2016) also estimate the effect of receiving a Cal Grant separately for students who only met the GPA criterion and for students who only met the income criterion. They find that the effect of receiving a Cal Grant different between these two subpopulations.

Regression discontinuity estimates can be sensitive to the bandwidth selection. A narrow bandwidth minimizes bias by limiting a sample to students who are very comparable one another, while a wide bandwidth makes estimates more precise by increasing a sample size. Following Jacob, Zhu, Somers, and Bloom (2012), I use the cross-validation procedure to find an optimal bandwidth. In addition, I also run the model using 50% and 200% of the optimal bandwidths in order to see if my estimates significantly change depending on bandwidths.

This study has several limitations. Most importantly, estimates from this study should not be interpreted as causal because scholarship recipients are not comparable to non-recipients, as seen in the McCrary test results. To the degree that they are different in ways that cannot be observed in this study, the regression discontinuity model significantly reduces, but does not entirely address selection bias. Second, this study's results may not be applied to those at the very bottom or top of the ACT score (or high school GPA) distribution. Because the regression discontinuity model only includes a narrow range of students who barely met or slightly missed the academic eligibility criteria, results from this study may not be applied to highest- or lowest-performing students. In addition, the key independent variable has measurement errors, as discussed above. Although it is fairly accurate for most students, some students who are identified as non-recipients lost their scholarship after their first year. I treat them as scholarship recipients because they cannot lose a scholarship unless they received it in the first place. If there were measurement errors in the identification of scholarship recipients, estimates of this study would be biased downward.

Fourth, when an outcome variable is binary, as in this study, using a 2-stage least squares model can be problematic (Chesher & Rosen, 2013). Because 2-stage least squares models are designed for continuous outcome variables, fitted values for an outcome variable from 2-stage least squares models sometime lie outside the unit interval (which

ranges from 0 to 1). Lastly, data in this study only include students enrolled in one of the public institutions within the state. That is, if students who received the aid transferred to a private or an out-of-state institution and graduated there, they are coded as dropping out (and not graduating) in the data. If this were the case, my estimates may have been biased downward.

Results

I first compared the average graduation rates between recipients and non-recipients within a set of bandwidths (results available upon request). In this case, graduation rates of recipients are always higher than that of non-recipients. However, once I include all covariates in the full discontinuity models as in Table 3, most estimates become statistically not significant, except in the 200% bandwidth which is significant at the 10% level. That is, receiving the TELS award does not significantly affect the probability of graduating within six years. These results suggest that the higher graduation rates of TELS recipients are largely attributable to observable differences between recipients and non-recipients. Of covariates, female students, those not eligible for Pell Grants (an indicator of middle-income students), students with a college-educated parent, and those with higher high school grades are more likely to graduate.

Table 3. Regression Discontinuity Estimates (ACT Scores, Graduation)

Bandwidth	Optimal (2 ACT)	50% (1 ACT)	200% (4 ACT)
Received TELS	0.039 (0.028)	0.043 (0.036)	0.045+ (0.024)
Female	0.034 (0.019)	0.045+ (0.023)	0.053** (0.016)
Racial Minority	-0.005 (0.024)	-0.014 (0.028)	-0.023 (0.020)
Pell Grants Eligible	-0.081*** (0.021)	-0.080** (0.025)	-0.077*** (0.017)
Parental Education	0.061** (0.020)	0.039 (0.024)	0.050** (0.017)
High School GPA	0.615+ (0.335)	0.853* (0.419)	0.760** (0.236)
Squared High School GPA	-0.090 (0.065)	-0.140 (0.081)	-0.117** (0.045)
Sample Size	2,199	1,498	3,132

Note. *p*-value: +: < .10. *: < .05. **: < .01. ***: < .001; institutional dummies were included in all models.

In Table 4, I look at graduation at the fourth, fifth, and sixth years after initial enrollment. Because the scholarships can be renewed up to five years, it may have incentivized students to earn their degree within five years. According to Table 4, scholarship recipients were significantly more likely to graduate than non-recipients were, only in their fourth year. However, receiving the scholarships does not significantly predict graduation in the fifth or sixth year.

Table 4. Regression Discontinuity Estimates (ACT Scores, Graduation in a Given Year)

Bandwidth	Optimal	50%	200%
Fourth-year graduation	0.040[*] (0.016)	0.051[**] (0.019)	0.043[**] (0.014)
Fifth-year graduation	-0.018 (0.022)	-0.019 (0.029)	-0.011 (0.019)
Sixth-year graduation	0.017 (0.016)	0.011 (0.020)	0.013 (0.013)

Note. p-value: +: < .10. [*]: < .05. [**]: < .01. [***]: < .001.

Tables 5 and 6 present discontinuity estimates when an assignment variable is high school GPAs. Consistent with the previous results, receiving TELS does not have an impact on degree attainment anytime within six years. According to Table 5, the estimates on the TELS variable are all positive, but they are not significant at the 5% level. In Table 6, I examine the effect of the scholarships on graduation in the fourth year, fifth year, and sixth years separately, but none of the estimates are statistically significant.

It is noteworthy that the results are varied by the assignment variables used. The scholarship has a positive effect on the fourth-year graduation when the ACT score is an assignment variable, but it does not have effects when the GPA is an assignment variable. This is partially because the optimal bandwidth is narrower for the second model (with a GPA as an assignment variable). Due to the narrow bandwidth, the sample used in the second model is smaller, which increases standard errors. In addition, as described in Figures 1 and 2, students on either side of the cut-off scores are more comparable when the assignment variable is GPA. That is, the significant difference in the fourth year graduation observed in Table 4 may be due to the difference between recipients and non-recipients when the assignment variable is the ACT score.

Table 5. Regression Discontinuity Estimates (High School GPA, Graduation)

Bandwidth	Optimal (0.07 GPA)	50% (0.03 GPA)	200% (0.14 GPA)
Received TELS	0.086 (0.129)	0.191 (0.285)	0.058 (0.082)
Female	0.062 (0.064)	0.019 (0.095)	0.086+ (0.048)
Racial Minority	-0.159* (0.081)	-0.104 (0.117)	-0.155** (0.059)
Pell Grants Eligible	-0.074 (0.066)	-0.205+ (0.108)	-0.074 (0.050)
Parental Education	-0.019 (0.062)	0.027 (0.093)	0.001 (0.046)
ACT Scores	0.316 (0.485)	-0.035 (0.646)	0.406 (0.361)
ACT squared	-0.010 (0.015)	0.000 (0.020)	-0.012 (0.011)
Sample Size	257	130	432

Note. p-value: +: < .10. *: < .05. **: < .01. ***: < .001; institutional dummies were included in all models.

Table 6. Regression Discontinuity Estimates (High School GPA, Graduation in a Given Year)

Bandwidth	Optimal	50%	200%
Fourth-year Graduation	0.004 (0.069)	0.089 (0.154)	-0.025 (0.046)
Fifth-year Graduation	-0.050 (0.101)	-0.147 (0.234)	-0.019 (0.064)
Sixth-year Graduation	0.131 (0.086)	0.249 (0.217)	0.101+ (0.053)

Note. p-value: +: < .10. *: < .05. **: < .01. ***: < .001.

In order to check this possibility, I increased the bandwidth of GPAs (0.2 point as a new optimal bandwidth instead of 0.07 point) and ran the fuzzy models again (results available upon request). Results are largely consistent except that receiving TELS has a significant and positive effect in the 200% bandwidth (0.4 GPA point) only. Although this result may suggest a positive effect of TELS, it would be more plausible to attribute the significant result to a substantial difference between recipients (e.g., students with a 3.4 GPA) and non-recipients (e.g., students with a 2.6 GPA) in this large bandwidth. Another possible explanation for the different results depending on the assignment variable used is due to the heterogeneous subpopulations from the fuzzy frontier model (Reardon & Robinson 2012). It may be possible that students with a high school GPA below 3.0 were more responsive to the TELS award as these students were less likely to get other types of financial aid (e.g., institutional aid) than students with a 3.0 GPA or above.

Discussion and conclusion

This study examined the effect of receiving TELS on degree attainment. Based on the results from the study, I draw several conclusions as following. First, receiving TELS has a positive effect on degree attainment in the fourth year, but not in the fifth or sixth year. There are two possible explanations for this result, although these two explanations are somewhat contrary to each other. One way to explain it is that receiving the scholarships has a positive net impact on degree attainment, but many students fail to renew their scholarship eligibility. Hence, students do not fully benefit from the aid. Consistent with human capital theory, TELS reduces the direct costs of college education and mitigates the financial burden of students. This may give students more time and energy to engage in academic and social activities on campus, which then leads to persistence and degree attainment. It is also possible that the renewal requirement, of TELS maintaining a 3.0 college GPA, gives recipients an incentive to work hard in class. That is, merit-based aid, including TELS, can have both financial and academic incentives that encourage students to persist until graduation (Scott-Clayton, 2011).

The effect of TELS could be underestimated in this study for the following reasons. Approximately 52% of scholarship recipients lost their scholarships in their second year because they failed to meet the renewal requirement (THEC, 2011). Supposing that receiving the scholarships has a positive impact on degree attainment, if all scholarship recipients in the study had renewed their scholarship eligibility, then they might have graduated at higher rates (Henry et al., 2004). In addition, as I use the frontier regression discontinuity model, this study does not include students who met both academic criteria and received TELS. If I included these students in my analysis as well, estimates could have been larger than the current estimates as graduation rates for this group are higher than graduation rates for TELS recipients who met only one criterion (THEC, 2011).

Another way to explain this result is that there might be confounding variables that influence both receiving the scholarships and graduation. Although this study demonstrates a positive effect of the scholarships on graduation, it is not yet conclusive if TELS is the sole factor. The McCrary test and balanced test results suggest that recipients are different from non-recipients. The difference between these two groups might have affected the graduation outcomes. For instance, recipients might be more motivated or academically well-prepared in the first place than non-recipients, and this may have contributed to their higher graduation probabilities in the fourth year. The regression discontinuity estimates in this study substantially reduce the difference between the two groups by limiting the sample to students near the cut-off scores and including several covariates, but the difference is not entirely removed.

For now, there is not much evidence to determine which explanation fits the results better. Instead, both explanations are not necessarily mutually exclusive. It may be the case that recipients were more motivated than non-recipients in the first place, and then providing recipients with the scholarships helped them graduate even faster compared to non-recipients.

Secondly, there are a lot more students who barely met the eligibility criteria than those who slightly missed them. In other words, some students might have worked hard to meet the criteria by taking the ACT exam many times or pushing for better grades. It

comes as no surprise considering that students can control their ACT scores or high school grades to some extent because they already knew the cut-off scores, and receiving the scholarships is beneficial to them (McCrary, 2008). Although students in this study had only a few months before starting their college education, some students still appeared to work their way through meeting the criteria to receive the scholarships. As van der Klaauw (2008) mentions, there may be some other reasons that students need to meet the criteria. Students might have to earn a 3.0 high school GPA not only for receiving TELS but also for being eligible for other scholarships (e.g., other state or local scholarships). Regardless of the reason, it is still plausible that students who barely met the criteria are more persistent and motivated than students who failed to do so.

There are several strategies to handle potential manipulation. Acknowledging that students could take the SAT exam many times, Zhang, Hu, and Pu (2013) use scores from the first attempt of each student. In Cohodes and Goodman's (2013) study, the manipulation issue is addressed because the scholarship eligibility in Massachusetts is determined in relative terms compared to other students. Hence, it is impossible for students to predict a cut-off score and manipulate it beforehand. Due to the data availability, I leave the manipulation issue as a limitation of the study.

Lastly, considering possible student manipulation, TELS seems to give high school students an incentive to receive a higher grade or a test score so that they can secure their aid. This is consistent with the literature which reports that the mean test scores of high school students have significantly increased after a state implemented merit-based aid (Henry & Rubenstein, 2002; Pallais, 2009). The improved test scores are encouraging, especially if the test scores indicated improved student ability. However, it is also possible that students merely took advantage of the system by taking the test many times, and the increased test scores did not translate into better outcomes in college. In this case, the students' money, time, and effort devoted to increase their test scores would not be socially efficient.

In conclusion, there are some recommendations for future research. First, future research using regression discontinuity models needs to address the potential manipulation issue. Future research that adequately solves this issue will provide more accurate evidence about the relationship between merit aid and graduation. Another research topic to consider is the impact of merit-based aid on a student's college pathway to a degree. Recently, researchers have recognized that merit-based aid could affect which college students go to, and explored the way their college choices influence their graduation (Cohodes & Goodman, 2013; Castleman, 2013). In addition, future research can also examine whether receiving merit-based aid affects student enrollment intensity, transfer, and year-to-year persistence, all of which are related to their degree attainment.

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A phenomenological study of extracurricular activities conducted in children's clubs in Turkey

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Abstract

This study aimed to analyze the extracurricular activities at preschool and primary school stages. There were seven schools, which were managing extracurricular activities and seven administrators chosen to be consulted within the work-group of this study. Content Analysis was used to analyze the data collected during the interviews with administrators. In the arrangements of extracurricular activities in children's clubs, the expectations and requests of the families, their socio-economic levels (SEL), and the school administrators' manners play a significant role. As these activities have an entrance fee, while schools with low SEL are being precluded from opening such clubs, the participation at the schools with medium and upper SEL is limited.

Introduction

Extracurricular activities include all the activities planned inside or outside the school apart from regular school classes. In the literature, extracurricular activities are also called additional/extra programs. These activities differ from the ones within the scope of the official curriculum in two ways. First, they are on voluntary basis, and second they respond to children's talents and their specialty. For instance, many activities, such as social, scientific, sports related, artistic and cultural, which are conducted apart from school hours, are among these activities (Craft, 2012; Posner, 2004).

Although extracurricular activities seem less important than the regular curriculum activities, they can be considered more important in various ways. In one of the studies, it was shown that these activities contribute to the development of children's self-confidence and their sense of responsibility and help them create new areas of interest while developing existing ones (Apaydınlı & Şentürk, 2012; Samancı & Diş, 2014; Semerci et al., 2012). Many research show that there is a positive relationship between extracurricular activities and academic success (Covay & Carbonaro, 2010; Fredricks, 2012; Guèvremont, Findlay, & Kohen, 2014; Kelepolo, 2011; Stearns & Glennie, 2010; Zacherman, 2010). For instance, Fredricks states that participation in extracurricular activities has led to rise in math test scores of students. Moreover, extracurricular activities have a close relationship with leaving school and continuing school education (Kelepole, 2011; Şimşek, 2011). Kelepole (2011) states that children attending extracurricular activities have a higher school attendance rate.

The literature on school choice reports that private schools widen households' opportunity sets. Families who send their children to private schools and children who go to private schools will have more cultural than those in public schools (Checchi & Jappelli, 2004). In this sense, extracurricular activities play a significant role in the school choices of parents when it comes to choosing between public and private schools (Çelikten, 2010; Nohutçu, 1999). In addition, according to the research of Tüzün and Sarıışık (2015), one of the areas children indicate as a problem at school and would like change is the social activities which reveal how far such activities are to meet children's expectations.

In Turkey, there are two basic legal regulations regarding the attendance of students in extracurricular activities. The first is the Ministry of National Education's (MoNE) Primary and Secondary Education Institutional Social Activities Regulation, which was published on 13 January 2005 in the official gazette. This regulation includes various students' club studies in social, cultural, artistic, sport areas, social service studies, and activities like trips, competitions, publications, entertainment, theatre, sports, and contests. The aim is to enable participation, continuity, volunteering, consideration of the development level of students to make the necessary arrangements for disabled students to attend activities efficiently and to enable collaboration with non-governmental organizations and families.

Some research has been conducted into extracurricular activities within the scope of the Social Activities Regulation in Turkey (Akar & Nayır, 2015; Ekici, Bayrakdar, & Uğur, 2009; Onay & Gelen, 2013; Tüzün & Sarıışık, 2015). One of the common findings of this research is that attendance in such activities has a positive effect on the success of the students. Furthermore, problems occur due to determination of the students who will be

attending to such activities, the content and the quality of the activities, and the feasibility of these activities in the school's environment.

The second legal regulation is the Preschool and Primary Education Institutions' Children's Club Directive which was put into effect on 26 August 2014 by the MoNE General Directorate of Primary Education. According to this directive, the purpose of children's clubs is to support primary school students' social development and to support their education by orienting them with social, cultural, sport, and scientific activities according to their area of interest after school hours. In line with the Children's Clubs Directive, opening such clubs at school, and conducting extracurricular activities within these clubs depends initially on parents' requests. These activities require a fee, so a certain level of demand is necessary so that based on the attendance and the financial status of the families, a certain amount of fee is requested for club arrangements. The teachers assigned to these clubs can be selected from the related school and, if required, teachers from outside or trainers with expertise can also be assigned. The number of students in the children's clubs are limited to 20 at preschool educational institutions and 30 at primary schools.

In Turkey, there is no research on extracurricular activities conducted within the scope of the Preschool and Primary Education Institutions' Children's Club Directive. Research is needed to assess the factors that determine these extracurricular activities, their effects, the impact of charging a fee, and problems these activities produce for families, schools, and assigned teachers. This study seeks to fill this missing part in the previous research literature. The study is the first in this area, which makes it important.

The purpose of this research is to evaluate the extracurricular activities conducted within the scope of children's clubs from the perspective of school administrators. In this study, the answers for the following questions were sought:

1. How do school administrators explain the reasons for the extracurricular activities being conducted by them at their schools within the scope of children's clubs?
2. How do school administrators explain the problems they face when conducting extracurricular activities at their school within the scope of children's clubs?
3. How do school administrators interpret the contributions of extracurricular activities within the scope of children's clubs?

Approach of the study

The study was designed phenomenologically. In phenomenology, the researcher either focuses on a phenomenon or the experiences and perception of participants. The purpose of phenomenological research is to clarify how the attendees interpret their experiences regarding the phenomenon and how they transform these experiences, both personally and in terms of shared meaning, to common awareness. The phenomenological research focuses on the personal experiences of a small number of attendees (Creswell, 2015; Sart, 2015; Patton, 2014). Seven school administrators were asked to reveal the differences and the similarities between their experiences during the extracurricular

activities conducted within the scope of the children's clubs, giving their own opinions and perceptions, which is why the phenomenological pattern was preferred.

Work group

The work group of the research was formed according to maximum variety sampling method, which is a method of purposive sampling. In Kastamonu Province for the school year 2015-2016 when the research was carried out, there were three independent preschools and 41 primary schools (38 public and 3 private). The children's club study was conducted only in two of the preschools and five of the primary schools (four public and one private). Therefore, the administrators of the seven schools where the research was being carried out were directly added to the work group of the research. The information related to the schools in the work group is given in Table 1.

Table 1. Information Related to the Schools in the Work Group

Name of the school	Status		Education level		Socio-economic level of the school
	Public	Private	Preschool	Primary school	
School 1	x			x	High
School 2	x			x	High
School 3	x			x	Medium
School 4	x			x	High
School 5		x		x	High
School 6	x		x		High
School 7	x		x		High

The information related to the children's club studies carried out in the schools in the work group of the research are given in Table 2.

Table 2. Children's Clubs Organised at Schools

Activity field	Activity name	School1	School2	School3	School4	School5	School6	School7	Total
Cultural	Folk dances	x	x		x	x	x		5
	Sign language							x	1
Artistic	Painting	x	x			x			3
	Music	x	x		x	x		x	5
	Ebru					x			1

Activity field	Activity name	School1	School2	School3	School4	School5	School6	School7	Total
Sportive	Table tennis	x	x						2
	Craftwork							x	1
	Archery		x			x			2
	Badminton	x							1
	Intelligence games						x	x	2
	Gymnastics						x		1
	Chess							x	1
Scientific	Turkish	x	x		x	x			4
	Preparation to reading and writing						x	x	2
	Math	x	x		x	x			4
	Sciences	x	x		x	x			4
	English	x	x	x	x	x		x	6
	Mental arithmetic						x		1
Total		9	9	1	6	9	5	7	46

As shown in Table 2, at the schools of the work group of the research, 46 children's clubs were organized in cultural, artistic, sport, and scientific fields. The number of the children's clubs ranged from 1 to 9. When the field of activity of these children's clubs that are organized by schools is taken into consideration, it is observed that the majority of the clubs relate to classes that support students academically.

Developing the data collection tool

A draft of the interview form was prepared according to the relevant literature and pre-interviews with school administrators. Afterwards, this form was presented to 10 domain experts to assess content validity. According to the feedback received from these domain experts, the necessary corrections were made in the interview form. Before the field study, a pilot study with a school administrator was carried out and it was observed that there would be no problems in either understanding or answering the questions in the form. Subsequent to the pilot study, it was passed on to the field study stage of the research.

Data collection

In phenomenology, the interviews should be made with the people who experience the phenomenon directly (Merriam, 2013; Sart, 2015; Patton, 2014). In this research, the semi-structured interview technique was preferred. The researcher asked for an

appointment for the interview by calling school administrators one by one. On the day of the appointment, semi-structured interviews were conducted. The schools were coded as School 1, School 2 and the administrators were given pseudonyms. The identities of the schools and their administrators in the work group were kept confidential due to the ethics of the research. The interview at School 2 was carried on with the vice principal and the interviews at other schools were made with the principals. The information about the school administrators is in Appendix.

Before the interview, the researcher indicated to each school administrator that he/she had a recording device and, if allowed, he/she would like to use it. The school administrators, except for Yılmaz, allowed the recording device to be used. Therefore, the interview with Yılmaz was recorded by taking notes in writing. After each interview, the audio files were transcribed, and to complete the missing parts a second interview with the school administrator was conducted. These additional interviews were not recorded on a recording device but kept as notes in writing by the researcher.

During the research, the income of the schools that were in the work group of the research of the children's clubs was estimated. In order to be able to make such an estimation, the documents of the work group schools related to this data was collected, where possible. However, School 5's administrator indicated that they would not be sharing the income information obtained from children's clubs due to the company principles that they were bound by. Therefore, solid information regarding the income of School 5 obtained from the extracurricular activities conducted within the scope of children's clubs was not available.

Data analysis

First, the audio files received from the interviews with the administrators were transferred into text format in a computer environment right after being decoded by the researcher. The data received was analysed using content analysis. Content analysis is very commonly used in social sciences, and can be defined as a body of methodological devices and techniques applied with various discourses. From this point of view, content analysis makes it possible to bring out the hidden and implied content of the discourse rather than the apparent, easily spotted or perceived at first glance content (Bilgin, 2000). The first thing that is expected from a researcher who analyzes qualitative data according to content analysis is to identify the data and then bring out the possible hidden realities within that data (Yıldırım & Şimşek, 2006). To this end, the researcher specified three main themes and its sub-themes, using some of the words in the interview text and decoding depending on significant rules, and afterwards organized and interpreted them in the way that readers can understand.

Findings

This section overviews the three main themes identified in the data received from the interviews with the school administrators, including (1) the reasons for establishing

children's clubs, (2) problems being faced while conducting children's clubs, and (3) the contribution of children's clubs to schools. These themes are explained below.

The reasons for establishing children's clubs at schools

The reasons for establishing children's clubs at schools were gathered under three sub-themes which are discussed below.

The requests and expectations of families

Most of the school administrators indicated that family's requests and expectations come first regarding the establishment of children's clubs at schools. Ahmet's school is one of the earliest primary schools in Kastamonu. The school is also prominent with academic success. Ahmet said:

The expectations of families are being considered, and arrangements in different and needed fields are tried to be accomplished.

The opinions of Satı who works at a private school, School 5, also coincide with Ahmet's explanations above:

Because the families want their children to be educated academically, culturally and socially, they have such a preference.

The fact that the wishes and anticipations of the parents are decisive in the opening of the children's club shows the importance given by the families for the education of their children. Within this framework, some parents can be very responsible for a better start for their children's life.

The socio-economic level of the school

Another factor which determines if children's clubs should be established or not is the socio-economic level of the school environment. Ali indicated that School 2 receives its students from its nearby surroundings, and its students' families are from being elite group and also added the following:

Our students' families are mostly on a salary and above our city's average. Regarding their education level, 60% are university, 30% are high school, and 10% are primary school graduates. Of course, we have students with families below average, both educationally and economically. There are those who live at a superintendent's apartment or those who are jobless and living at their father's house. When we look at the province average, 70% of our students' families are above average. And most

probably their educational expectations are high. (Ali)

Satı stated that School 5, which is a branch of a corporate structure, has a wide network in Turkey. However, they could not establish some of the children's clubs that were demanded at other branches placed in different cities of this institution at School 5.

In the schools that open child clubs, only School 3 is in medium SEL, the others are in upper SEL. Considering the fact that the schools reflect the characteristics of the nearby environment, it is understood that the school SEL is very decisive in opening the children's clubs.

School management approach

One of the reasons for children's clubs being established is the school administrator's approach. They would like their schools to stand out with their success not only academically, but also in social, cultural, and sport fields. Ahmet's and Satı's opinions related to the subject are as follows:

We care for our students' social development as a school. We are planning activities oriented with children's clubs for our students to utilize their spare times [sic] in a better way. We consider students' interest, requests, and talents while making these plans. (Ahmet)

We are aiming to bring out our students' talents and develop their visions with the children's clubs we establish while enabling them to be successful academically. (Satı)

Ozlem working in an independent preschool School 5 has expressed her point of view rather differently from Ahmet and Satı as follows:

When you have a children's club, the number of your students is higher. However, our priority is that there should not be any clubs. We should first support every student apart from the club to take half-day education as for preschool education to be widespread. This is what I stand by as a principal. If there is any time left, then we can include club arrangements. And this is what the regulations and the ministry requests from us. Students of families with low SEL should also benefit from preschool education. If we prioritize these clubs instead of these kids, we would not have any space left for them. In this sense, I am against children's clubs to be ahead of the school's image.

According to school administrators' explanations except for independent preschools, it is apparent that the academic success of the students as well as evaluating the leisure time outside the school in the context of educational activities are prominent variables on the school administrators' attitudes in the opening of the children's clubs in primary

schools.

Problems being faced while conducting children's clubs

The problems faced while conducting children's clubs are gathered under three sub-themes which are discussed in the following paragraphs.

The physical conditions of the school

Ali, Ahmet, and Yılmaz indicated that the insufficient physical condition of their schools is causing some problems. One of these problems is that they do not have a gymnasium in any of their schools where there are the administrators. Therefore, this situation prevents them from opening sports-driven children's clubs in fields like sword play, gymnastics, basketball, and volleyball. Ahmet indicated that, even though School 1's physical conditions narrow their children's club activities down, they keep on going with the activities. Ahmet also indicated that they overcome these deficiencies due to the stated circumstances regarding School 1 by cooperating with the schools nearby and with the institutions that are affiliated with Provincial Directorate of Sports.

No matter how these deficiencies are handled by cooperating with other schools and institutions, this solution brings another problem with it, which is that the families do not want to send their children to another school or an institution further away due to their safety concerns. Ali and Yılmaz stated the following regarding the matter:

> The families prefer to send their children to club activities that are being arranged at their children's schools by their own teachers. Moreover, they neither want to send their children all alone to children's club activities further than their own school, nor do they prefer to take them there. The reason for this is that the families think that their children are safer at their own school. (Ali)

> We represent a private education institution in Kastamonu. We open clubs in compatible with our institutional structure. We do not establish the ones where we have to cooperate with other schools and institutions. The families do not prefer that, too. They want us to have the control, and they do not want their kids to go out of the school's garden. (Yılmaz)

Another problem due to the deficiencies of the schools' physical conditions is that it forces the schools to do double shift schooling. For example, at School 1 where Ahmet is working, there are 15 classrooms and 766 students, and at School 4 where Yılmaz is working, there are 16 classrooms and 750 students. Both schools are obliged to use double shift schooling. At these double shift schools, the classes of the morning shift are taken between 07:50-12:50, and the classes of the afternoon shift are taken between 13:20-18:20. The recess between the morning and afternoon shifts is 30 minutes. Therefore the

children's clubs at such schools are arranged during the weekends. However, Ahmet and Yılmaz commented on this situation as a disadvantage for them. This situation could be used as an excuse by some of the teachers who do not want to be assigned to children's clubs. Ahmet stated his experience regarding this matter as follows:

Because the children's club activities take place on the weekends at our school, some teachers do not want to participate. They are saying that they do not want to disrupt their weekend. (Ahmet)

Contrary to double shift schools, at full-day schools, morning classes are taken between 08:00-12:00, and the afternoon classes are taken between 13:30-15:00. Therefore, it is possible to conduct children's clubs during lunch break. Although this situation is described as a disadvantage for double shift schools, it turns out to be an advantage for School 2. Ali's point of view is stated as follows:

There is an advantage in being a full-day school. We can organize club activities during lunch break. The classes end at 15:00. We can also arrange club activities after this hour. The ones working at double shift schools say that they reach noon time without a break. Another group comes in in the afternoon. I mean the recess between the morning and afternoon group is very short as if there is no recess at all. (Ali)

The teacher source

No matter how much the families' requests and expectations are prioritized in opening children's clubs, the teachers must be willing, too. The administrators indicated that the general approach of the teachers is in the way for establishing a children's clubs. However, most teachers become involved in establishing children's clubs for one reason or another. Yılmaz's point of view is given below:

The families prefer their children's teachers to open clubs, which will support them academically. The teachers want to open these children's clubs personally in order to increase their students' success academically. Sometimes because their group teachers have already opened children's clubs, they also prefer to do the same thing saying, "I should open one, too, for I am the one who is the only one left". In a way they feel obligated to do so. Sometimes the teachers do not want to establish such clubs however due to families' insistence, we request them to do so and they do not turn us down. No matter what, of course there are teachers who indicate that they do not want to organise these clubs, but their numbers are not more than one or two. (Yılmaz)

No matter what their reasons are, there are teachers who do not participate in club organizations. What Özlem has stated regarding this matter is as follows:

The teachers do not want to have a part in club arrangements. We can explain the

reasons like this. Especially from 08:00 to 13:00, they attend to classes. And after 13:00, they prefer to rest, and they do not want to continue with club activities right after the end of their shift. This is how it is at my school. My permanent teachers do not want to participate. When I first opened a club, it was because two of my teachers told me that they could give their support and then we opened it. The next year they did not want to support us, so we couldn't open it. Besides, the ones whom we have asked their support were making excuses like, "I am getting tired!", "I do not want to participate!" or "My husband does not allow me." Of course, this is a problem. (Özlem)

When the teachers are not willing to be assigned at children's clubs or if there are no suitable schoolteachers who have the suitable expertise, this situation creates a problem for the school administrators. The administrators fix this problem by assigning teachers from other schools or by finding and hiring trainers for a fee. However, when administrators lean towards assigning teachers from other schools, they prefer not to hire trainers from outside. These trainers have to be paid, but their insurance also has to be covered. Therefore, the costs of children's clubs increases due to the extra wage and insurance costs of these trainers. Apart from that, various pedagogical problems could occur. Ali shares his experiences regarding the matter:

We wanted to open a gymnastics club. Our school does not have a gym teacher. We made a deal with a trainer from outside. However, later on, the trainer indicated that he/she is an international athlete and requested a higher wage. Moreover, he/she added that he/she had insurance under other contracts, and we did not have to make insurance for him/her and asked for that insurance money to be paid directly to him/her. We told him/her that we could not employ him/her without insurance and rejected his/her application. Plus, we did not want to do anything illegal. (Ali)

Ozlem also points out:

We opened the gymnastics club at school. A highly qualified trainer was employed from outside. I went through some problems at that club. What type of problems I have been through? The trainer told the students not to walk like a grandma, and like a grandpa in the class, "You are grounded, go sit on the side or wait", and made them stand. As I have mentioned in the beginning of the conversation, the students at that age group can interpret such things in a wrong way. We have faced questions, such as "Am I a grandma?" (Özlem)

The biggest reason why teachers want to work in children's clubs is that they are held outside school hours or at weekends. The general tendency seen in primary schools is that this problem has been overcome in the direction of the school management's request and the demands of the families. However, the situation is somewhat different in the independent kindergartens where almost all of the teachers are women. Teachers in these schools prefer to take part in the children's clubs for one or two hours or not at all, taking gender roles into the foreground.

Having a fee

Children's clubs that have a fee can reduce attendance, although it does not completely end the club. Oğuz made the following remark:

When we were establishing the English club, approximately 100 of our students' families stated that they were for it. However, when we were faced with the reality, this number stayed at 43. The others backed out when they found out that the club had a fee. (Oğuz)

Even though the families accept the fee and send their children to the club and sign a contract, problems can occur with some families at the payment stage. Ali's statements are given in the following:

There are families which we have problems with. If we were to rate it, I can say, they are about 10%. Generally, they make excuses like the financial difficulties they are going through or the difficulties they are going through because of their divorce. I do not push them that much. I kindly tell them that it would be better if they make their payment. (Ali)

Some of the parents are not willing to pay the fee by giving reference to the free courses for national center exams in public middle schools and high schools. In some schools, there are such one or two cases in each children's club. Schools are reluctant to charge the fee when the families insist on not paying it. Ahmet said:

Between 10-20 % of the families can create a problem during payment. They have the free courses at secondary or high schools as an example. They ask why the courses are free of charge at those schools and not here. In order to be able to receive the fee of the club from them, you have to constantly push them. Even though they are rare, you face with one or two families acting like this at each club. And the teachers give up on them and do not ask for any payments from their children. (Ahmet)

The above situation is limited to public schools because such situations do not occur at School 5 which is a private school. Satı pointed out:

I have never experienced families not making their children's club payments so far. At the very most, there could be times that they make their payments with one or two days delay. (Satı)

The ideas of Esra and Ozlem working in independent preschools coincide with those of Satı. Esra stated below:

I have never faced with such a situation until now. There might be delays and these delays are because the families might forget. (Esra)

As can be understood from the explanations above, the fact that the children's clubs are paid brings two different problems. One is that it has limited the families to send the children to the clubs. The other is that although some families accept their children at the very beginning, they have difficulty in paying fees and sometimes even does not want to pay. However, the families in both cases are the ones from the lower societal level.

The contributions of children's clubs to schools

The contributions of the extracurricular activities conducted within the scope of children's clubs were gathered under seven sub-themes, which are discussed in the following sections.

Increase in attendance continuity regarding club activities

Ali indicated that, even though the club fee limited attendance, it also increased the attendance continuity. Ali has explained it as follows:

When there is money involved, the seriousness increases a little bit more. The families tell their kids to attend the clubs. This is what I have observed, I mean they pay attention. When there is no money involved, kids say that they have a stomachache, headache or come up with another excuse and leave the club. They can say that they will not be attending that day. When you ask why, they say, "My father came early", "I am hungry!", "I have a lot of homework." In other words, in order not to attend, they can make up excuses. If there is money involved, the parents may not let them. They say, "Son/Daughter, we paid money for this club, you have to attend." "Son/Daughter, we paid for the intelligence club, you have to go!" (Ali)

Oguz, unlike Ali, has expressed the following:

Because the parents give money, they supervise and control it. This increases both the children's attendance the activities in clubs and allows teachers and us to take our jobs more seriously. (Oğuz)

The explanations made by Oguz and Ali reveal two things. The families support the services they get by paying money. The second is that they can create a pressure and control power over the administrators and teachers by interrogating the quality of the service.

Increasing academic success

The school administrators indicated that the academic success of the children who attended these extracurricular activities is directly influenced positively. For instance, Ali

stated that the students who attend the fast reading activity and the intelligence development club seem to have a noticeable improvement in understanding what they read, writing, gaining reading habits, and academic success. Ali's explanation is as follows:

> The Culture and Science Children's Club was established in 2014-2015 academic year with the attendance of third and fourth grade primary school students and the attendance of every classroom teacher within their branch. Within this club, mathematical activities and games, Turkish reading and its activities, and science applications between second grade primary school students were organized and 2/B and 2/E classrooms attended to these activities. In the 2015-2016 academic year, the order of the academic success of classrooms changed from 2/E, 2/D, 2/B, 2/C, and 2/A to 2/E, 2/B, 2/D, 2/C, and 2/A at the end of the school year. So because there were no clubs opened at classroom 2/D, this classroom fell back to third in line and classroom 2/B moved up to second in line. A more obvious change was observed at the students who attended children's clubs, which were opened at their third grade. (Ali)

Acceptance by upper management

From the interviews made with the school administrators, it was observed that the primary schools which organize children's clubs are being accepted more by the Provincial Directorate for National Education, and that they prioritize these schools in the organizations to be made within the province, and the opinions of these schools' administrators are taken into account in some of the decisions. Oğuz stated the following:

> I mean, the Provincial Directorate for National Education's approach to the schools, which organize children's clubs activities, is positive. This way, these schools stand out more. (Oğuz)

School administrators' carrying out a number of social and cultural activities in the schools is evaluated by the provincial national education authority as working effectively. It includes activities carried out under children's clubs. Ahmet points out:

> The activities that are being organized at our school has built positive relations between our school and the Provincial Directorate for National Education. Even though it is wrong to base these positive results on children's clubs and social activities, we can say that it is one of the factors which affect the perspective. (Ahmet)

According to the Child Club Directive, 4% of the income that schools earn from club activities is allocated to the Provincial Directorate of National Education. It is clear why schools that regulate children's clubs are more likely to be accepted within the Provincial Directorate of Education when compared to other schools.

Building positive relations with nearby surroundings

Schools organizing children's clubs have two different effects on their relations with their nearby surroundings. One is the schools' relations with families. Schools which pay attention to families' requests and expectations at the same time are opening the way to collaborate and communicate with those families so that families can easily indicate their requests to school management, or when the school management asks the families for something, they deliver it without question. Ahmet said the following:

I think that regarding the collaboration between families and their children coming from different cultures, children's clubs are beneficial. (Ahmet)

Positive communication and cooperation between schools and families also provides for the transfer of new practices to other schools. Ali points out:

The families can easily approach and say, "Something like this is being done in Istanbul", "They are doing this at another school, can we also apply it here?" (Ali)

One other positive relation between the schools organizing children's clubs and their nearby surroundings is related to schools with physical deficiencies. These schools collaborate with nearby schools and institutions due to their physical shortcomings. Therefore, this situation enables physically inadequate schools to have a communication network with nearby schools and institutions. Ahmet's point of view about this matter is as follows:

By collaborating with different institutions, we are trying to provide every source we can get from our nearby surroundings. (Ahmet)

Increasing the recognition level

Ali, as one of the school administrators who attended the research, indicated that he had asked the teachers to share the activities they conducted within the children's clubs on social networks like Facebook and Twitter. However, sharing the activities being conducted within the scope of children's clubs with local media is more common. For example, Ali who is a school administrator at School 2 shared a news report which was published in local media. The news report announced, 'The table tennis training given to 100 athletes at school.' Apart from that, at the entrance boards of School 1, news is published in local media regarding such activities. Therefore, it is seen that with these strategies, school administrators were trying to increase the recognition level of the schools and to create a positive image of the school in public opinion.

Of course at regular times, we give it to local media. But sometimes even when we do not, we see that it is already published. Just when we start thinking, how it might have happened and who has given the information, one of the parents comes up and

say, "Sir, it was a nice activity and my kid was in it, and I knew the reporter." Sometimes it gets published in media against our will. (Ali)

Satı, who works at School 5, stated that social and cultural activities are an advertising tool for them because they are private schools. Therefore, School 5 gives all the social cultural events to local press to show that they are different from public schools.

The parents who ask to register at our school ask us what social cultural events you have at our school. Since we have institutional structure, we also provide social and cultural activities in the context of the children's clubs to local press. (Satı)

Schools also publicly announce the activities using social media tools, such as facebook and twitter, in addition to the local press. This strategy makes schools more visible to the public while strengthening their image or acquiring a more positive image. In such a way, schools indicate that they are competing with each other.

Extra-budgetary school income

School activities having an attendance fee means that the schools make an income from these activities. According to the Children's Clubs Directive, 45% of the income is allocated to the assigned teachers or the trainers brought in from outside, 2% to accounting documentation, another 2% to school's assisting staff, 6% to chairman of the executive board, 4% to the Provincial Directorate for National Education, and 33% is allocated to course expenditures (e.g., materials, etc.).

Table 3. Income Obtained from Children's Clubs and Its Distribution According to Expenses

School	Expenses						Total TL[b] Income TL[b]
	Teachers attending classes	Assisting personnel	Chairman of the executive board	Executive board member	The Provincial Directorate for National Education	General[a] expenditure	
School 1	17,958.5 49%	2,199.00 6%	1,466.00 4%	1,466.00 4%	1,466.00 4%	12,094.50 33%	36,650.00 100.0%
School 2	27,211.5 46.6%	3,628.2 6.2%	3,328.20 5.7%	3,328.20 5.7%	2,418.80 4.2%	18,516.51 31.7%	58,431.41 100.0%
School 3	3,555.00 44.1%	316.00 3.9%	474.00 5.9%	474.00 5.9%	316.00 3.9%	2,923.00 36.3%	8,058.00 100.%
School 4	1,190.65 12.5%	1,586.00 16.6%	726.38 7.6%	726.38 7.6%	430.1 4.5%	4,876.96 51.2%	9,536.47 100.0%
School 5[c]	-	-	-	-	-	-	-
School 6	45,173.02 37.9%	8,442.27 7.1%	3,170.10 2.7%	3,170.10 2.7%	5,930.14 4.9%	53,193.13 44.7%	119,078.76 43.9%
School 7	18,625.50 46.9%	827.80 2.2%	2,483.34 6.2%	2,483.34 6.2%	1,655.60 4.2	13,658.70 34.3%	39,734.28 14.6%
Total	113,714.17 41.9%	16,999.27 6.3%	11,648.02 4.3%	11,648.02 4.3%	12,216.64 4.5%	105,262.80 38.7%	271,488.92 100.0%

[a]Material purchase, nutrition, SSI Premium, and other expenditures of the schools are given together. [b]Turkish Lira (TL). [c]No information was received.

As can be seen in Table 3, the school income obtained from children's clubs ranges from 8,058.00 TL to 124,373.51 TL. There are two basic determinants of the income that is obtained from academic activities organized within the scope of children's clubs, namely the number of the students attending and the annual fee that is collected. For example, 125 students attended the Intelligence Development Club at School 2 and 35 TL course fee was taken from each student. School 2's income from this club was 4,375 TL in total.

According to the Children's Clubs Directive, 33% of the income obtained from these clubs has to be spent on class tools like course related stationary, toys, Cyclopes, computers, and printers. However, if the expenses are lower than this rate, the rest of the income is transferred to the budget of the teacher-parent association. With the income obtained from children's clubs, the school's essential equipment can be supplied, and funds are transferred to the teacher-parent association. Esra gave the following explanation:

> At the end of the year, some amount of money is left at the school definitely. And the school handles the necessities from this amount more easily. Like the toys, tables, cupboards are supplied more easily. They do not expect it from the Provincial Directorate for National Education. (Esra)

Additional income for school staff

From Table 3 it can be seen that the teachers assigned to children's clubs, school principals as the chairman of the executive board, vice principals as the executive board members, and school workers make a certain amount of additional income. The exception was School 5's principal who stated that their school could not make any income out of children's clubs. Some of the money obtained from children's clubs is spent to the materials used in these club activities, and some is allocated to the school's essential expenses. The rest is given to the teachers who are assigned to these clubs. An example of the additional income obtained by the school staff from the children's clubs can be seen in School 3 where only one club (the English Club) was organised (See Table 2). Table 3 shows that 316.00 TL went to the assistant personnel, 474.00 TL to the school principal who also is the chairman of the executive board, and vice principal who also is a member of the executive board, and 3,555.00 TL to teachers.

The most decisive variable on teachers' decisions who want to teach in the courses is the income they get from the courses. The reason for this is that teachers work outside school hours or at weekends, especially on Saturdays. Hence, teachers want the income worth their labor and other things they give up. Ahmet explains:

> The teacher finds the wage insufficient. He/She does not want to disrupt his/her weekend for two or four hours of class. When it is six hours per week, he/she prefers it better and accepts to open a club. For our teacher's motivation, we make their payments from the (upper limit) within the scope of the Children's Clubs Directive. (Ahmet)

It is understood from the descriptions of Esra that the practice in preschools differs from the primary schools.

> Our club hours are five hours. One hour passes with nutrition and resting. There are two hours of drama course. The teacher makes them do it. The school teachers only attend the first two hours of the club and then leave. They get paid for the first two hours, and for the left three hours, branch teachers attend. We opened our clubs, but our teachers attend only for two hours. In Turkey, in general, at some preschools, they use only their own teachers until the evening. (Esra)

It is observed that the children's clubs have become more prominent in School 5 as an additional income-generating activity for teachers. At school 5, teachers who work in child club workshops give a certain portion of the club fee as a compulsory expenditure for the school, and the rest as direct additional income. Satı points out:

> The teachers use some of the club income for supplying materials needed for the clubs. We draw an insignificant amount from that income for the necessary expenses like electricity, water, etc. The rest of the money is completely given to them. We do not take anything. (Satı)

Although the reasons why teachers take part in the use of children differ from one school to the other, they all point to the fact that teachers need income other than a salary.

Discussion and suggestions

In this study, the extracurricular activities conducted within the scope of children's clubs at preschools and primary schools were reviewed according to interviews with school administrators. Within the scope of this research, the most important factors for the children's clubs to be established are the requests and expectations of the families, the SEL of families, and the approach of the school administration. The families prefer to send their children to clubs that will support them academically. The schools that open children's clubs are privileged and appreciated more in the eyes of families. The children's clubs having a fee not only limits the attendance at these clubs but also excludes families with low income from the qualified education environment.

In the research, it was observed that while school administrators organize extracurricular educational activities in their schools, the expectations and requests of the families and SEL of the immediate vicinity of the school came to the fore. As the income and education levels rise, families pay more attention to their children's education. The research reveals that attendance at extracurricular activities has a very close relationship with families' requests and their SEL (Arslan, 2006; Bostancı, 2015; Covay & Carbonaro, 2010; Köse, 2003; Yolcu, Barış, & Bakar, 2017). However, there is a difference with regard to the expectations and requests of the families who send their children to preschools and primary schools. Working families were more interested in the extracurricular activities

conducted in children's clubs at the independent preschools. Because these schools give a half-day education, the families prefer not to leave their children with sitters for the rest of the day, but think that the school is a safer place. They prefer to have their children stay at school and attend club activities. However, the cost of the extracurricular activities at preschools are higher than those in primary schools.

Unlike parents who send their children to preschools, primary school parents send their children to extracurricular educational activities within the children's clubs mostly to support their children academically. They think of these clubs as academic subsidiary training courses that compensate for shortcomings in their children's education and reinforce their training. As families continue to do this, they assume that they prepare their children better for the next educational level, which is secondary school. The families of the children think that their children will be more academically equipped before attending secondary school, and this can be a determinant of their success in their Transition from Primary to Secondary Education (TEOG) test. Depending on their success in the TEOG test, they might be placed at high schools with higher selectivity levels. In combination with families' SEL, their requests and expectations are important factors in determining children's academic success. The findings of this research are consistent with previous research findings in the relevant literature (Fredricks, 2012; Guèvremont et al., 2014; Kelepole, 2011; Köse, 2003; Stearns & Glennie, 2010).

Independent preschools and primary schools that open children's clubs become the center of attraction for families with high educational expectations. This situation is more obvious among primary schools. As Bourdieu (2015) has indicated, families have a tendency to maintain their social existence by using all their power and privileges. From this point of view, schools with medium and high SEL which open children's clubs are more privileged than other schools (Kiraz, 2009). When it comes to benefiting from extracurricular activities conducted within the scope of children's clubs, the families' SEL stand out as a determinant factor, not only transferring rank and privilege of families with higher SEL to the next generation but also reproducing the existing social hierarchy (Ünal et al., 2010).

Among the problems encountered by school administrators in the organization of extracurricular educational activities within the children's clubs are the physical conditions of these schools, the lack of willing and appropriate teachers to conduct club activities, and the fee paid for the club activities. When the first two problems are excluded, it can be said that the most important problem the school administrators experience during the organization of extracurricular educational activities within school clubs is the fee paid for these club activities by the parents. The absence of schools from the low SEL in the study group also supports this finding. On the other hand, although the availability of paid extracurricular educational activities within the context of children's clubs makes it possible for these clubs to be opened in schools in the middle and higher SEL, this should not mean that the schools in the middle and higher SEL do not have any problems regarding the topic. Unlike the schools in the low SEL, it was observed that paying children's clubs limits the participation in the middle and higher SEL schools, although it does not remove the participation altogether. When all the stated factors are considered together, it can be said that this situation creates inequality of opportunity which operates against the students with low SEL. The findings of this study coincides

with previous studies' findings in the relevant literature. The common part of these findings is that when extracurricular activities depend on a significant fee, it limits attendance (Köse, 2003; Stearns & Glennie, 2010; Yolcu et al., 2017).

In Turkey, preschool education depends on families' preference and has a fee while primary schools are mandatory and free. Because neither preschools nor primary schools are allocated a budget, they are driven to find extra-budgetary sources (Saklan, 2011; Yolcu, 2007). The most important source of income for preschools are the fees received from the families. Beyond that, they try to provide additional income by applying to private entities and corporations (Saklan, 2011). Therefore, the extracurricular activities are planned and conducted as an extension of the regular curriculum of both preschools and primary schools and are seen as an income-generating device by these schools (Özdemir, 2011; Saklan, 2011; Yolcu, 2007). For example, in Özdemir's (2011) research, it was determined that 14% of the income of parent-teacher associations was obtained from the extracurricular activities. The amount of this income varies according to the SEL of the surrounding area. The income obtained from extracurricular activities at schools with high SEL is approximately seven times more than at schools with low SEL. Both the independent preschools and primary schools in this study obtain a considerable amount of extra-budgetary income from extracurricular activities conducted within the scope of children's clubs. This income is shared between the relevant people and units according to the Children's Clubs Directive. According to the Children's Clubs Directive, 33% of the income obtained is used to supply course-related materials, and the part which is not used is transferred to the parent-teacher association as an extra-budgetary source. Some of the materials supplied within the scope of children's clubs also serve the school's equipment needs. This situation creates an inequality of opportunity between the schools organising children's clubs and those that do not.

The extracurricular activities organised within the scope of children's clubs are also an additional income source for assigned school administrators, teachers, and assistants. If no suitable teachers are available at schools regarding these activities, trainers from outside are hired. This situation can be seen as unfavorable in two ways: trainers brought from outside may be pedagogically inadequate, and it creates a working environment without an employment guarantee.

Considering the pressures from families, pushing schools and teachers in the direction of opening children's clubs, and where they do not, transferring their children to other schools in combination with families' requests and expectations and their SEL, children's clubs act as a pressure and control mechanism for schools, school administrators, and teachers. It is suggested that the attendance to extracurricular activities conducted within the scope of children's clubs should be free, considering that a fee limits attendance.

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Appendix. Interviewer codes

Ahmet,	Administrator 1,	Male,	has been working at School 1 for two years
Ali,	Administrator 2,	Male,	has been working at School 2 for two years
Oğuz,	Administrator 3,	Male,	has been working at School 3 for six years
Yılmaz,	Administrator 4,	Male,	has been working at School 4 for five years
Satı,	Administrator 5,	Female,	has been working at School 5 for four years
Esra,	Administrator 6,	Female,	has been working at School 6 for five years
Özlem,	Administrator 7,	Female,	has been working at School 7 for four years

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