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## Adjustment of Korean First-Graders to Elementary School: The Role of Family Income, Type of Early Childhood Education Program, and Private Education Before and After School Entry

*This study reviews the current status of Korean first graders, their experience with early care and education (ECE) programs, and their participation in private and after-school education. The research also examines how school adjustment during the first grade is related to family income, types of ECE programs, and participation in private and after-school education. Using the first year data of the Korean Child and Youth Panel Survey (KCYPS) 2010, this study analyzes 752 first graders who attended only one of two types of ECE programs (child care centers or kindergartens), after which two 25% income extremes were examined. The analysis demonstrates that children from low-income households attended child care centers more often, while children from high-income households attended kindergartens more often. For both low-income and high-income groups, child care centers had a lower starting age and longer attendance periods than did kindergartens. High-income household children started attending ECE programs earlier, experienced more private and after-school education, and received a larger number of private and after-school educational lessons. For the second research purpose, children from low-income*

*families showed better peer relations in school adjustment, while children attending child care centers showed better teacher relations than children attending kindergartens. Children with after-school education also exhibited better peer relations. These findings show the importance of government support for early learning, especially for low-income families and offer a foundation for developing private education policies for early childhood before and after school entry.*

Early adjustment to formal schooling is a critical factor that affects school performance in later years (Belsky & MacKinnon, 1994; Birch & Ladd, 1997; Eckert *et al.*, 2008; Entwisle & Alexander, 1998; McIntyre, Blacher, & Baker, 2006; Pianta, 1997). School adjustment depends on a variety of complex interrelated elements that vary over time (Reynolds & Bezruczko, 1993), including academic and social areas such as relationships with teachers and peers, observance of regulations, and participation in school activities (Ladd, Kochenderfer, & Coleman, 1996).

Many children today receive center-based early care and education (ECE) prior to starting elementary education. According to the Korea Institute of Child Care and Education [KICCE] (2011), the percentages of children enrolled in center-based programs at ages 3, 4, and 5 as of 2010 are 25.1%, 41.5%, and 54.7% respectively. These programs have become

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one of the primary ecological factors that influence children's overall growth and development. To understand how the experience of South Korean children with ECE programs may influence their adjustment to elementary school, it is important to note that there are two distinctively different ECE systems currently in place in South Korea. Early childhood care and education in Korea started early in the 20<sup>th</sup> century and developed through two separate systems: Kindergartens and child care centers. Each system began with a different purpose; kindergartens mainly to educate preschoolers whereas child care centers care were designed for young children who needed non-maternal care. Child care centers have also emphasized education with their goal being "educare" thereby incorporating both education and care in same effort. In terms of target age and jurisdiction, kindergartens mainly serve 3-5 year olds and are based on the Early Childhood Education Act under the Ministry of Education, Science, and Technology [MEST]. Child care centers, serving ages 0 to 5, are currently under the Ministry of Health and Welfare [MHW], and comply with the Infant-Child Care Act. Teacher certification procedures are similarly divided into two streams. Although there has been an effort to integrate early education and childcare (Rhee, Kim, Shin, Moon, & Choi, 2006), such as with the implementation of the Nuri curriculum (MHW & MEST, 2012), it is widely recognized that more effort is needed to supplement education at child care centers and emphasize the caring aspect at kindergartens as each system currently does have different goals.

The previous research has well documented that children's experience with high quality ECE is linked to their subsequent development and school adjustment (Belsky *et al.*, 2007; Howes *et al.*, 2008; Peisner-Feinberg *et al.*, 2001; Vandell *et al.*, 2010). Early experience in group care settings can offer young children valuable exposure to social interaction with teachers and their peers and help in their transition and adjustment to the formal school environment and its education contexts. Participation in center-based early childhood programs prior to public school entry can influence various outcomes, including both academic and social performance

(Fantuzzo *et al.*, 2005), thus suggesting the benefits of higher-quality instruction or closer teacher-child relationships for the acquisition of positive academic and social skills (Howes *et al.*, 2008).

Access to high-quality ECE programs and/or a particular experience related to early learning may depend on the family background and social circumstances of each individual child's family. Socioeconomic status (SES) of families is especially known to be directly connected to both the options and resources parents have available for their children (Kim, Lim, Kim, Yang, & Jeong, 2010; Kimmel, 2006; Lee, 2011; Meyers & Jordan, 2006; Rose & Elicker, 2008; Woo, Kim, Lee, & Kim, 2009). Evidence from prior empirical research shows that poverty has a substantial impact on children's performance that includes school adjustment. For instance, Margetts (2009) claimed that children's school adjustment in Grade 5 is predicted by family socioeconomic status based on government financial support for families and attendance at before-school-hours program in the early weeks of schooling. Entwisle, Alexander, and Olsen (2007) also confirmed the correlation between SES and children's early school achievement. Researchers have investigated the development of children from low-income families in the Korean context as well (Chang & Chung, 2012; K. Kim, 2011; Min & Kawn, 2004). J. Kim (2009) revealed that economic pressure had greater direct impact on a child's school life and problem behavior for a poor family compared to an average household. Low-income parents also show a higher stress level which often negatively influences their children (Kwak, Kim, & Yoo, 2007).

Given that family income has direct linkages to the choices parents have available to them, families in poverty are certainly more challenged in terms of providing their children appropriate early learning experience. In order to promote equal educational opportunities to children from all backgrounds, the South Korean government has invested considerable resources in increasing the supply of ECE programs and also providing child care subsidies for low-income families. This support has been recently expanded and free child care for all children at ages 0-2 was implemented in 2012. Beginning in 2013,

child care subsidies will be further expanded to include all children ages 0-5 (MHW & MEST, 2012). Upon entering elementary school, children from low-income families are eligible to participate in after-school education free of charge (Cho, 2011).

Regardless of their economic status, South Korean parents are known for their strong commitment to and motivation for their children's education (Chung, 2009) because they highly value academic success (Yang & Rettig, 2005). This phenomenon is commonly expressed by the term *gyoyookyul* (education fever), and it results in a large number of children receiving private education at a very young age in addition to their attending ECE programs. According to Statistics Korea (2009), Korean households' expenses for private education ranked at the top among all OECD countries, while public expenditures for education per student rated at the very bottom of the list. Private education includes a variety educational activities and lessons, including English, writing, math and science, piano, the arts, dance, and Taekwondo, and these generally take place in private academies. This activity translates into a direct financial burden for parents.

Korean parents' emphasis on their children's education starts early and continues throughout their children's formal schooling. According to Cho (2011), during their elementary school years, many children participate in various forms of after-school education that are similar to the private education they received prior to elementary school. For low-income families, school vouchers are offered, so their children can attend after-school education (Cho, 2011).

Numerous studies (e.g., Kim *et al.*, 2010; Suh, Ahn, Choi, Soma, & Ahn, 2009; Suh, Yoo, & Lee, 2011) have examined the effectiveness of policies related to child care and after-school support for children from low-income families, but more research is needed to investigate the trajectories of children's developmental outcomes, especially to include early school adjustment. A few researchers have attempted to analyze the influence of private education during elementary and the middle school years (K. Kim, 2011; S. Kim, 2011), but there are only a limited number of empirical research findings regarding the

impact of early private education. Further, the impact of ECE programs, private education, and/or after-school education on children's ability to adjust to the elementary school environment, especially for children from low-income families in comparison with children from high-income families, has not yet been fully investigated. Research focusing on the effects of time and money spent on early learning that includes private education before and after school entry can offer valuable information and enrich knowledge for parents, early childhood education professionals, and government officials to better address early childhood educational needs effectively.

Using the first-year data from the KCYPS (National Youth Policy Institute [NYPI], 2012), the primary goal of this study is to describe the current experience of Korean first graders from low/high-income households in ECE programs and their participation in private education before and after school entry. This study also examines how school adjustment during first grade relates to household income, the types of ECE programs, and private education these children have experienced, and their participation in after-school education. More specifically, the following research questions guided this study:

1. What is the current status of Korean children in their first year of elementary school with respect to participation in ECE programs, private education<sup>1</sup> prior to formal schooling, and after-school education<sup>2</sup> based on family income?
- 2: Are there differences in Korean first graders' school adjustment that depend on household income, types of ECE programs and private education children experienced before schooling, and their participation in after-school education?
  - 2-1. Are there differences in Korean first-graders' school adjustment based on household income and the types of ECE programs experienced?

<sup>1</sup>From here forward, private education refers to private education before entering elementary school.

<sup>2</sup>From here forward, after-school education refers to private education after entering elementary school.

- 2-2. Are there differences in Korean first-graders' school adjustment based on household income and the private education children experience before school entry?
- 2-3. Are there differences in Korean first-graders' school adjustment based on household income and after-school education?

## METHODOLOGY

This study is based on first-year data from the KCYPS2010 released by the NYPI (2012).

### *Participants*

A total of 752 Korean first graders participated in this study, 358 were from low-income families in the bottom 25% of the annual income bracket (under 25 million won) and 394 were from households in the top 25% of the annual income bracket (over 50 million won). Among the 2342 total panel samples, the first selected were children who attended only one of the two types of ECE programs, child care centers or kindergartens, following which the two 25% income extremes were selected, resulting in the final survey sample of 752.

Income extremes were selected to compare the high-income bracket and the low-income bracket; the low-income bracket had a higher possibility of receiving government support. The top and bottom 25% brackets were selected based on the 2009 standard of government support for a 3-member household (MEST, 2009; MHW, 2009). When the sampled children were age 5, the lower 50% household income increased to 2.24 million won monthly (26.88 million won annually) and the lower 70% of incomes had 3.78 million won or less monthly (45.36 million won annually). Most sample families in this study were estimated to have had three or more members<sup>3</sup>. The annual household

income identified by participants in the KCYPS study may be lower than the yearly income limit calculated by government standards because the low-income bracket included a converted amount of total assets in addition to monthly income. Thus, there is a high possibility that the low-income bracket (an annual income of 25 million won or lower) corresponds to the 50% low-income families receiving government support for child care, while the high-income bracket (an annual income of 50 million won or higher) corresponds to the 30% high-income families ineligible for child care subsidies.

Table 1 shows the characteristics of the child subjects that include gender, age, and health conditions. The table indicates that the subjects were 392 boys (52.1%) and 360 girls (47.9%) ages 7 (97.3%), 6 (2.1%), and 8 (0.5%); in addition, 96.6% of the subjects were listed as very healthy or relatively healthy.

In terms of the age group for parents of the child subjects, the fathers and mothers were mostly in their thirties (51.6% and 43.9% for the low-income group and 49.9% and 48.6% for the high-income group) with some in their forties (43.9% and 19.6% for the low-income group and 48.6% and 21.5% for the high-income group). The education levels of fathers in the low-income group were high school graduates (61.9%), 2-year college graduates (16.5%), and 4-year university graduates (14.5%). For the high-income group, the education levels were 49.1% university graduates, 26.1% high school graduates, and 15.5% college graduates. The levels of the mothers' education were similar to those of the fathers. With regards to working status, in the low-income group, fathers' occupations were mostly service workers (16.0%), technicians or the equivalent (15.6%), and mechanical and fabrication workers (13.2%). In the high-income group, fathers' occupations were managers (25.5%), office workers (23.2%), and professionals or the equivalent (14.2%).

When the household income was categorized by a designation of a million won, 56.7% had income of 20 million to 30 million, 34.9% had 10 million to 20 million, and 8.4% had 10 million or less in the low-income group. In the high-income group, 46.2% had

<sup>3</sup>A total of 6.8% of the subjects were living with one parent or one grandparent and 10.5% were living without siblings. Therefore a minimum of 93.2% of the group was assumed to be from a family of three or more members.

Table 1. Characteristics of Child Subjects according to the Level of Household Income (N=752)

Household income	Gender		Age <sup>a</sup>			Health condition		
	Boy	Girl	6 yr	7 yr	8 yr	Very healthy	Healthy	Unhealthy
Low income	181 (46.2) <sup>b</sup>	177 (49.2)	9 (56.3)	346 (47.3)	3 (75.0)	92 (47.9)	249 (46.5)	17 (68.0)
High income	211 (53.8)	183 (50.8)	7 (43.8)	386 (52.7)	1 (25.0)	100 (52.1)	286 (53.5)	8 (32.0)
Total	392 (52.1)	360 (47.9)	16 ( 2.1)	732 (97.3)	4 ( .5)	192 (25.5)	535 (71.1)	25 ( 3.3)

Note. a. Frequency excluding 1 non-correspondence

b. Numbers in parenthesis indicates percentile

income of 50 million to 60 million, 20.1% had 60 million to 70 million 15.0% had 70 million to 80 million, and 19.7% had 80 million or more.

#### Measurement

KCYPS 2010 was conducted using a survey method. This section describes the research tools, centering on the questionnaires for the targeted subjects used for analysis.

#### Questionnaire for Children

The questionnaire for the children included 15 questions that measured their adjustment to school. Referring to the tool that Min (1991) developed in a previous research effort to measure the adjustment to school of elementary school students, KCYPS modified and complemented that questionnaire to a total of 20 questions and subsequently divided them into 4 sub-dimensions of 5 questions each (learning activities, school rules, peer relations, and teacher relations). Using the User's Guide developed by KCYPS, the researchers reviewed items in each dimension and confirmed the face validity. However, only 3 sub-dimensions were included in the analysis of this study because the learning activities demonstrated a very low reliability (Cronbach's  $\alpha = -0.02$ ). Mean item scores were calculated using a 4-point Likert scale by sub-dimension and the overall questionnaire. Higher score corresponded to better adjustment to school within the sub-dimension or for all three sub-dimensions. The sub-dimension reliability coefficients, Cronbach's  $\alpha$ , were 0.64 for school rules, 0.60 for peer relations, 0.74 for teacher relations, and 0.82 for overall.

#### Questionnaire for Parents/Guardians

The questionnaire for parents/guardians was developed by KCYPS researchers by modifying, complementing, or referring to the questionnaires used in previous studies, including the Youth Panel Survey Questionnaire (NYPI, 2010). The parents/guardian questionnaire included questions about the children, the parents, and the household income as family characteristics. It also included the types of ECE programs children attended (more than 3 hours daily during weekdays) more than 6 months before school entry, the age of children when they started attending these programs, and the period of attendance (Question 14) as research variables. To examine private education experience, the questionnaire included such questions as whether the children experienced private education, and if so, the types of private education, and the ages of these children when they started the private education (Question 15-1). To examine children's after-school education experience, the questionnaire asked whether children experienced after-school education (Question 13) and what specific subjects were offered (Question 13-1).

#### Procedure

KCYPS is a 7-year longitudinal survey that extracts samples by stratified multi-stage cluster sampling within the population of first-grade elementary students and their parents or guardians as of 2010 (NYPI, 2010).

The data for this study were collected in October and November of 2010, the first year of the study.

Group interviews were conducted with the entire field of children in one classroom, which was selected by generating a random number from all the sampled first-grade classes. Parents/guardians were surveyed using questionnaires sent home via their children. The questionnaires were completed by the parents/guardians, sealed, and returned to the teachers through their children. The questionnaires were completed mostly by mothers for both the low-income and the high-income group (81.3%, 89.1% respectively) rather than by the fathers (14.2% for the low-income group; 10.4% for the high-income group) or siblings or other relatives, including grandparents (4.5% for the low-income group; 0.5% for the high-income group).

#### *Data Analysis*

For Research Question 1, descriptive statistics were calculated to compare the age of children that had started to attend ECE programs, their attendance period by household income level and type of ECE program. For children's experience with private education, the frequency of experiencing private education and the number of private educational lessons were calculated and analyzed according to household income. Similarly, for after-school education, the frequency of experience of after-school education and the number of subjects taken during after-school education were analyzed according to household income. Further, cross tabulations and mean difference analyses were conducted to identify the differences between descriptive statistics data.

To examine Research Question 2, descriptive statistics were first computed for the overall school adjustment as well as the sub-dimensions for school adjustment according to household income. For Research Question 2-1, an analysis of variance was conducted that included children's gender and the age when they started to attend ECE programs as the control variables. Considering that a child's gender has a significant relation with adjustment to school (K. Kim, 2011) and a child's age along with gender was related to adjustment to ECE programs (Hwang, 2011; Klein, 1982), controlling the influence of these variables during the analysis of differences in adjustment to school according to different types of

ECE programs was needed.

For Research Question 2-2, an analysis of variance was conducted using child gender as the control variable. Further, an analysis of variance was conducted using the independent variables of household income level and the number of categorized private educational lessons (one, two, or three or more), with child gender and youngest age starting private education as the control variables.

For Research Question 2-3, which addresses the differences in adjustment to school based on household income level and the experience of after-school education and the number of subjects taken during after-school education (one, two, three, or four or more), an analysis of variance was conducted using child gender as the control variable.

Meanwhile, for Research Question 2-1, a variable attendance period had a significant correlation to child age when starting ECE programs ( $r(746) = -.83, p < .001$ ). In the case of Research Questions 2-2 and 2-3, which included children who experienced private education (494 out of 752 total) or after-school education (697 out of 752 total), the number of hours of private education per week or the number of hours of after-school education had a significant correlation with the number of private educational lessons or the number of subjects taken during after-school education, respectively ( $r(490) = .52, p < .001$ ;  $r(695) = .45, p < .001$ ). Therefore, period of attendance, the number of hours of private education per week, and the number of hours for after-school education were not considered independent variables in this study. The homogeneity of variances and normal distributions were tested prior to performing all analyses of variance and a Scheffé test was performed when post-hoc tests were needed.

## RESULTS

### *Current Status of Korean First Graders' Experience with ECE Programs and Private Education Prior to Schooling, and Participation in After-School Education*

Tables 2 and 3 show the analysis results for the number of children attending different types of ECE

programs, the average age of children when they begin to attend ECE programs, and the average period of attendance in ECE programs for first graders according to level of household income.

As Table 2 shows, a similar number of children attended child care centers (50.3%) and kindergartens (49.7%). With respect to household income, for the low-income group, 58.1% sent their children to a child care centers, and 41.9%, to kindergartens. For the high-income group, 56.9% sent their child to kindergartens and 43.1%, to child care centers.

Table 3 shows that the overall average age of children beginning ECE programs was 3.34 for child care centers and 4.37 for kindergartens. With respect to household income level alone, the average age was 3.90 for the low-income group and 3.81 for the high-income group. For both low-income and high-

income groups, the age of children starting to attend child care centers ( $M=3.46, SD=1.24; M=3.19, SD=1.10$ ) was lower than kindergartens ( $M=4.50, SD=1.13; M=4.28, SD=.90$ ) ( $t=-8.12, p<.001; t=-10.48, p<.001$ ). The mean ages of children starting child care centers and kindergartens were lower for the high-income group than the low-income group ( $t=2.23, p=.03; t=2.01, p=.046$ ).

The mean attendance period at ECE programs was similar at 43.53 months for child care centers and 32.19 months for kindergartens. The low-income group attended ECE programs for 37.84 months and the high-income group for 37.92 months. The frequency analysis shown in Table 4 indicates how many children received private education prior to attending elementary school and if they did, the number of private educational lessons they received according to household income levels.

As Table 4 shows, 65.4% of the total participating children that experienced private education, while 34.6% did not. The frequency analysis by level of household income and by experience of private education showed that 196 children (54.7%) experienced private education for the low-income group and was slightly more than children who did not (162, 45.3%). The high-income group also had more children (296, 75.1%) who experienced private education. In the order of frequency, children received two (24.2%), one (15.6%), three (14.1%),

Table 2. The Number of Children Attended by the Type of ECE Programs and by the Household Income Level (N=752)

Household income	No. of children attended <sup>a</sup>	
	Child care center	Kindergarten
Low income	208 (58.1)	150 (41.9)
High income	170 (43.1)	224 (56.9)
Total	378 (50.3)	374 (49.7)

Note. a.  $\chi^2$  of household income levels and type of ECE programs = 16.78 ( $p<.001$ ).

Numbers in parenthesis indicate percentile

Table 3. Descriptive Statistics of the Beginning Age of Attendance and Attendance Period by the Type of ECE Programs and by the Household Income Level (N=752)

Household income	Beginning age of attendance <sup>a</sup>						Attendance period <sup>b</sup>					
	Child care center	Kindergarten	Sub-Total	Min	Max	Skewness	Child care center	Kindergarten	Sub-total	Min	Max	Skewness
	M (SD)	M (SD)	M (SD)				M (SD)	M (SD)	M (SD)			
Low income	3.46 (1.24)	4.50 (1.13)	3.90 (1.30)				42.64 (14.30)	31.19 (12.30)	37.84 (14.62)			
High income	3.19 (1.10)	4.28 (.90)	3.81 (1.13)				44.61 (12.22)	32.85 (9.47)	37.92 (12.21)			
Sub-total	3.34 (1.18)	4.37 (1.01)					43.53 (13.42)	32.19 (10.71)				
Total			3.85 (1.21)	0.00	7.00	-.12			37.88 (13.40)	8.00	84.00	.48

Note. a. Unit: year

b. Unit: monthly

Table 4. Frequency of Experience of Private Education and Number of Private Educational Lessons by the Household Income Level (N=752)

Household income	No. of experience	Number of private educational lessons						Total
		1	2	3	4	5	6	
Low income	162 (45.3)	57 (15.9)	79 (22.1)	41 (11.5)	12 (3.4)	4 (1.1)	3 (.8)	196 (54.7)
High income	98 (24.9)	60 (15.2)	103 (26.1)	65 (16.5)	43 (.9)	14 (3.6)	11 (2.8)	296 (75.1)
Total	260 (34.6)	117 (15.6)	182 (24.2)	106 (14.1)	55 (7.3)	18 (2.4)	14 (1.9)	492 (65.4)

Note.  $\chi^2$  of household income levels and experience of private education = 34.44 ( $p < .001$ )

Table 5. Frequency of Experience of After-school Education and Number of Subjects during After-school Education by the Household Income (N=752)

Household income	No. of experience	Number of subjects received during after-school education										Total
		1	2	3	4	5	6	7	8	9	10	
Low income	34 (9.5)	63 (17.6)	89 (24.9)	73 (20.4)	46 (12.8)	32 (8.9)	13 (3.6)	5 (1.4)	1 (.3)	0 (.0)	2 (.6)	324 (90.5)
High income	21 (5.3)	28 (7.1)	66 (16.8)	82 (20.8)	79 (20.1)	59 (15.0)	39 (9.9)	15 (3.8)	4 (1.0)	1 (.3)	0 (.0)	373 (94.7)
Total	55 (7.3)	91 (12.1)	155 (20.6)	155 (20.6)	125 (16.6)	91 (12.1)	52 (6.9)	20 (2.7)	5 (.7)	1 (.1)	2 (.3)	697 (92.7)

Note.  $\chi^2$  of household income levels and experience of after-school education = 4.81 ( $p < .05$ ),  $\chi^2$  of household income levels and number of subjects during after-school education = 43.15 ( $p < .001$ ).

four (7.3%), five (2.4%), and six (1.9%) private educational lessons. For the low-income group, no experience of private education was highest at 45.3% while the number of private educational facilities attended was presented a sequence of two (22.1%), one (15.9%), three (11.5%), four (3.4%), five (1.1%), and six (0.8%). For the high-income group, children who experienced two private educational lessons were 103 (26.1%), which was more than for children without any experience of private education (24.9%). The remaining order of frequency for the number of private educational lessons was three (16.5%), one (15.2%), five (3.6%), six (2.8%), and four (0.9%).

*First graders' School Adjustment and Its Relations to Family Income, Types of ECE Programs and Private Education before Schooling, and After-School Education*

Table 5 shows the distribution of first graders who have experienced after-school education and the number of subjects taken during after-school education.

Table 5 shows that 92.7% of the total subjects

experienced after-school education, while 7.3% did not. With respect to the level of household income, 90.5% from the low-income group and 94.7% from the high-income group experienced after-school education. In regards to the number of subjects taken after school, a total of two and three subjects taken were equally frequent and ranked the highest (155 children, 20.6%), and four (16.6%), five (12.1%), none (7.3%), and six (6.9%) followed in order. The percentage of children taking seven to ten subjects was low at 3.8%. With respect to the level of household income, the low-income group indicated two subjects taken at 24.9% as the highest, followed by three (20.4%), one (17.6%), and four (12.8%), while only two (0.6%) children took ten subjects. In the high-income group, nine was the maximum number of subjects taken. Relatively high frequencies were found for three (20.8%), four (20.1%), two (16.8%), five (15.0%), and six (9.9%) subjects taken, whereas low frequencies were found for seven (3.8%), one (7.1%), and nine (0.3%) subjects.

Descriptive statistics of the school adjustment



Table 6. Descriptive Statistics of the School Adjustment Scores ( $N=752$ )

Dimensions	<i>M</i>	<i>SD</i>	<i>MIN</i>	<i>MAX</i>	<i>Skewness</i>
School rules	3.55	.41	1.40	4.00	-1.19
Peer relations	3.25	.53	1.40	4.00	-.73
Teacher relations	3.62	.47	1.20	4.00	-1.71
Total	3.48	.39	1.73	4.00	-1.04

Table 7. Descriptive Statistics of the School Adjustment Scores by the Type of ECE Programs by the Level of Household Income and *F* Values from ANOVA<sup>a</sup> ( $N=752$ )

Household income	Type of ECE programs	School adjustment							
		School rules		Peer relations		Teacher relations		Total	
		<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
Low income	Child care center	3.55	.40	3.26	.58	3.67	.43	3.49	.38
	Kindergarten	3.55	.43	3.27	.49	3.58	.48	3.47	.38
	Total	3.55	.41	3.27	.55	3.63	.45	3.48	.38
High income	Child care center	3.58	.44	3.23	.54	3.65	.44	3.49	.40
	Kindergarten	3.55	.39	3.24	.51	3.59	.52	3.46	.40
	Total	3.56	.41	3.24	.52	3.62	.48	3.47	.40
Total	Child care center	3.56	.42	3.25	.56	3.66	.44	3.49	.39
	Kindergarten	3.55	.41	3.26	.50	3.59	.50	3.46	.39
	Total	3.56	.41	3.25	.53	3.62	.47	3.48	.39

*F* Main Effect

Household income	.92	24.67***	.09	.43
Type of ECE programs	1.23	.79	14.87**	1.90
Interaction Effect	.17	.00	.08	.00

Note. Control variables: Gender, Beginning age of attendance

\*\* $p < .01$ , \*\*\* $p < .001$ .

scores are presented in Table 6. To examine first graders' school adjustment based on household income and the types of ECE programs experienced, the mean and the standard deviation of scores of sub-dimensions and overall adjustment to school were computed. The results are presented in Table 7.

As Table 7 indicates, the distribution of the three sub-dimensions and the overall scores for adjustment to school was 3.26-3.67 for the low-income group, and 3.23-3.65 for the high-income group. Regardless of the level of household income, the school adjustment scores of the groups who attended child care centers and kindergartens were 3.25-3.66 and 3.26-3.59, respectively. These school adjustment scores measured on a 4-point scale were relatively high.

After controlling for child gender and the age at starting ECE programs, 2 (levels of family income) X 2 (types of ECE program) ANOVAs were performed on the school adjustment scores. Table 7 indicates that the independent variables had no significant main or interaction effects on school rules and the overall adjustment to school; however, household income had a significant effect on peer relations ( $F(1, 741) = 24.67, p < .001$ ). The peer relations score ( $M = 3.27, SD = .55$ ) of the low-income group was higher than that for the high-income group ( $M = 3.24, SD = .52$ ). In addition, the main effect of the types of ECE programs appeared significant in teacher relations ( $F(1, 743) = 14.87, p = .002$ ). Accordingly, the teacher relations score ( $M = 3.66,$

Table 8. Descriptive Statistics of the School Adjustment Scores by the Experience of Private Education and After- School Education by the Household Income Level and F Values from ANOVA (N=752)

Household income	Education experience	School adjustment							
		School rules		Peer relations		Teacher relations		Total	
		M	SD	M	SD	M	SD	M	SD
Low income	Private education -experience	3.51	.45	3.21	.56	3.61	.46	3.44	.40
	Private education -no experience	3.60	.37	3.33	.52	3.66	.43	3.53	.34
	Private education -total	3.55	.41	3.26	.54	3.63	.45	3.48	.38
High income	Private education -experience	3.57	.42	3.24	.52	3.62	.49	3.48	.40
	Private education -no experience	3.52	.40	3.23	.54	3.61	.47	3.45	.41
	Private education -total	3.56	.41	3.24	.52	3.62	.48	3.47	.40
Total	Private education -experience	3.55	.43	3.23	.53	3.62	.48	3.46	.40
	Private education -no experience	3.57	.38	3.29	.53	3.64	.45	3.50	.37
	Private education -total	3.55	.41	3.25	.53	3.62	.47	3.48	.39
<i>F<sup>a</sup></i> Main Effect									
	Household income	1.99		4.22		.04		1.11	
	Private education experience	3.54		38.20**		4.98		8.02	
	Interaction Effect	.52		.06		.65		.45	
Low income	After-school education- experience	3.56	.41	3.29	.53	3.63	.45	3.50	.37
	After-school education - no experience	3.42	.42	3.02	.60	3.63	.44	3.35	.41
	After-school Education-total	3.55	.41	3.26	.54	3.63	.45	3.48	.38
High income	After-school education- experience	3.57	.42	3.25	.52	3.63	.48	3.48	.40
	After-school education - no experience	3.43	.33	2.96	.58	3.46	.55	3.28	.40
	After-school Education-total	3.56	.41	3.24	.52	3.62	.48	3.47	.40
Total	After-school education- experience	3.57	.41	3.27	.52	3.63	.46	3.49	.39
	After-school education - no experience	3.42	.39	3.00	.59	3.56	.49	3.33	.40
	After-school Education-total	3.55	.41	3.25	.53	3.62	.47	3.48	.39
<i>F<sup>b</sup></i> Main Effect									
	Household income	.30		.77		.00		.01	
	After-school education experience	1.07		2.35		.39		.36	
	Interaction Effect	1.02		.33		.41		.64	

Note. a. Control variables: Gender, Beginning age of attendance

b. Control variable: Gender

\*\* $p < .01$ .

$SD = .44$ ) for the group who attended child care centers was considered significantly higher than the kindergarten group ( $M = 3.59$ ,  $SD = .50$ ).

To investigate Research Question 2-2, the mean and the standard deviation for the school adjustment scores (presented in Table 8) were computed according to the sub-dimensions of school adjustment, levels of

household income, and experience of private education.

An analysis of variance was conducted using descriptive statistics data presented in Table 8; subsequently, no significant main effects and interaction effects for the overall and the three sub-dimensions of adjustment to school life were found.

However, Table 8 indicates that the 2 (household income) X 3 (number of private educational lessons) ANOVAs revealed that there was a significant association between the number of private education lessons and peer relations only for children who experienced private education when controlling for child's gender and the minimum age when starting private education ( $F(2, 391) = 36.20, p = .01$ ). The scores of peer relations were highest when taking 2 private education lessons ( $M = 3.28, SD = .47$ ), followed by 3 or more ( $M = 3.26, SD = .57$ ), and 1 ( $M = 3.14, SD = .55$ ). However, no difference was found between any specific groups after a post-hoc test.

To investigate Research Question 2-3, the 2 (levels of household income) X 2 (experience of after-school education) ANOVAs were conducted on the descriptive statistics of sub-dimensions and overall school adjustment scores (which are presented at Table 6) after child gender was controlled; subsequently, the main effect of the after-school education experience variable on peer relations appeared to be significant ( $F(1, 747) = 2262.25, p = .02$ ). The peer relations score for the group with after-school education experience ( $M = 3.27, SD = .52$ ) was higher than that for the group without after-school education experience ( $M = 3.00, SD = .59$ ). However, Table 8 shows that only children who experienced after-school education (after controlling for child gender) and conducting 2 (levels of household income) X 4 (number of subjects taken during after-school education categorized into 4 groups) ANOVAs were no significant main effects and interaction effects found for the overall school adjustment and sub-dimensions of school adjustment. In conclusion, there was no difference in school adjustment based on the number of subjects taken during after-school education and the levels of household income.

## DISCUSSION AND CONCLUSION

This study examined the current status of Korean first graders' experience with ECE programs, and their participation in private and after-school education. It also explored how different types of

ECE programs, private education, and after-school education were related to different household income levels (low-income vs. high-income) with respect to their ability to adjust to school life. Discussions centering on these findings follow below.

First, more children from low-income families attended child care centers than did children from high-income families, and both high-income and low-income groups showed longer average attendance periods at child care centers than at kindergartens. This finding can be explained by the fact that low-income families tend to choose child care centers over kindergartens more often due to their financial limitations (Na, 2004). This choice in turn increases an attendance period at child care centers. The finding that children attend child care centers for a longer period of time than kindergartens regardless of income level can be due to the different legal minimum age requirement for entrance. This result corresponds to the finding that 3- and 4-year-olds showed low attendance rate, whereas 5-year-olds showed a high attendance rate at kindergartens (Kim, Cho, & Kim, 2009; Suh, Choi, & Kim, 2011).

Children from high-income families started attending ECE programs (both kindergarten and child care center) earlier than children from low-income families. This finding reflects the fact that higher-income families commonly have more and easier access to child care and/or educational centers, regardless of governmental support, while low-income families heavily depend on governmental support when deciding on their children's ECE programs (Na & Suh, 2005). Research shows that higher-income families tend to choose more expensive types of early care (Kimmel, 2006; Meyers & Jordan, 2006) and make greater use of center-based care (Michalopoulos & Robins, 2002).

Moreover, a larger number of dual-income couples in the high-income group have a higher demand for child care services where they can send their children at an early age. Although there may be many dual-income couples in low-income families, their employment contexts can be related to child care choices. Parents from low-income families likely work part-time and have nontraditional working hours (Heymann, 2000; Presser, 2003) which may

affect families' ability to use ECE programs that follow standard schedules. In addition, there may still be a financial burden for low-income families, in spite of governmental financial support for child care. Research found that mothers with low family incomes and lower education levels ranked a low cost as being more important than other characteristics of child care such as warmth (Rose & Elicker, 2008). Currently, the actual beneficiaries of early education and child care are approximately 10% of the total number of 0 to 5 year-old children (Baek & Cho, 2005; Han, 2010). As a result, continuously expanding governmental support for early childhood education and care would be clearly beneficial to have increasing number of beneficiaries.

In each group, there were more children who received private education than those who have not. However, children from high-income families, in comparison with children from low-income families, have had more experience in private education, which is consistent with the previous research studies (Lee, 2011; Woo *et al.*, 2009). Similarly, while the majority of children from both groups have had after-school educational experiences, children from high-income families have had more experiences in after-school education and received a larger number of courses during after-school education, which is consistent with the finding of Cho (2011).

The disparity between children of high- and low-income families can be considered as a natural consequence of a family's financial capacities since private educational lessons and after-school curricula require extra costs, consistent with Lee and Kim's finding (2010) that young children from high-income families receive more private education. Children in Korea also have much easier and greater access to private education because of an increased rate of extracurricular activities within early childhood centers, even though individual families need to pay for that advantage (Kim *et al.*, 2009). Powell and Widdows (1997) found that lower-income parents showed greater sensitivity to the costs of after-school care. However, the finding does not imply that low-income families have less interest in or give less effort toward their children's academic achievements. In Korea it is a universal phenomenon that families

are greatly interested in and invest money in their child's academics, regardless of income level (Han, Hokoda, & Song, 2009). Thus, considering Korean educational cultural trends, which put great emphasis on academic achievement and early learning, a natural consequence of these trends is the increasing number of children who are receiving private education as well as after-school education regardless of family income level. Our findings showing that first graders' school adjustment was not significantly associated with family income levels can be interpreted in a similar context. While family income levels were not significantly related, children's participation in private education and after-school education was related to school adjustment.

Regarding the relation between income levels, children's ability to adjust to school life, and the types of ECE programs they attended prior to school, low-income children showed significantly better in peer relations. Children who had attended child care centers exhibited better teacher relationships. These findings can be interpreted as showing that child care centers with more children from low-income families and longer daily service hours do provide more opportunities for their children to practice social interactions with other children and with teachers. Despite the fact that low income can be a risk factor for childhood social development, disadvantaged children do develop positive relations with teachers, and contribute to forming and improving still more positive peer relations (Spritz, Sandberg, Maher, & Zajdel, 2010), which may then account for observed better social interactions seen in children from low-income families.

Among the factors that are associated with children's peer relations, the number of private educational lessons and the experience of after-school education appear to be important. There are contradictory findings on this issue. According to K. Kim (2011), peer-relation was considered to be the most difficult adjustment area and is affected by private education and/or after-school education. Researchers (Posner & Vandell, 1994; Posner, Vandell, & Lowe, 1999) also argued that low-income children's attending after-school programs was associated with better academic achievements and social adjustments

in elementary school students. These studies argued for the positive effects of private education and after-school education at the beginning of the elementary school years, especially for first graders.

To the contrary, Kim *et al.* (2009) found that private lessons in the early years do not affect children's academic achievements at the elementary school level. Many researchers have argued that private education in early childhood may only have a short-term effect, and in the long term, that private education can negatively affect children's cognitive, social, and emotional development (Hong, 2001; Jeong, 2002; Woo, Baek, & Kim, 2005). Thus, rather than blindly following the common trends of private education, parents should carefully and thoroughly consider the necessity of private education for their children based on individualized characteristics and learning styles as well as their developmental needs.

In order to examine the differences arising from the types of ECE programs attended, this study was limited to those children who attended either child-care centers or kindergartens. However, in order to better understand the influence of different types of ECE programs, further research is needed to examine and compare children who attended both types of institutes or other types of ECE programs. Moreover, although this research excludes academic adjustment (learning activities) due to its low reliability when examining children's ability to adjust to school, future research that does examine relationship between private education in academics/ elementary afterschool curriculum and the later academic achievements would be useful. Implementing factor analysis prior to analyzing data in order to carefully consider the validity of measurements is also recommended for future research. Lastly, research that examines children's ability to adjust to school life from different perspectives would expand and broaden the perspectives of all educators and deliver a clearer and more precise understanding of how to deliver better school experiences to all children.

In closing, by verifying through this research that low-income children showed better peer-relations in adjustment to school life, governmental support for early learning, especially for low-income families,

can have an important impact on children's development. This finding is expected to provide further foundational information for developing new educational support policies for low-income family children.

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