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**Influential factors in the out-of-class activities of Korean college students**

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# Influential Factors in the Out-of-class Activities of Korean College Students

*Sang Hoon Bae, Sue Bin Jeon\* & Song le Han*

**Abstract:** This study aimed to explore who participates in what kinds of out-of-class activities in Korea's universities. Therefore, the researchers examine whether differences exist in the pattern of out-of-class experiences according to the individual characteristics of the students, including gender, grade, household income level, high school performance and major. The researchers also aimed to examine the empirical evidence to determine the relationships between the patterns in out-of-class activities and the institutional characteristics of the university that the student attends. In terms of the institutional characteristics, this study is concerned with the location and size of the university. To explore these questions, the researchers analyzed K-NSSE data with hierarchical linear modeling. In sum, the findings of the statistical analysis of this study support the results of the preceding research in which different personal and institutional characteristics are related to five types of out-of-class activities.

**Keywords:** out-of-class activities, college experiences, K-NSSE, hierarchical linear modeling

## Introduction

College students, in comparison with students in secondary schools, are involved in a wide range of experiences and activities while attending college. Interacting with a variety of people, they participate in academic and social programs, are engaged in cultural and sports activities, and sometimes work either on or off campus. According to the I-E-O model (Input-Environment-Outcome Model) proposed by Astin (1970), these activities are essential parts of the environmental factors that finally influence the students' behavior and college outcomes, including their knowledge, skills, attitudes, and values. In his 'Student Integration Model', in which he shows the predictors of the college students' departure decisions, Tinto (1993) explains that their experiences have multiple aspects but that they mostly take place in the two domains – academic and social systems. In the academic system, students who occasionally interact with the faculty members are generally involved in learning programs in their regular classrooms, while in the social system they mostly participate in various out-of-class activities together with their peers. These experiences, in turn, lead to higher levels of goal and institutional commitment through the academic and

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\* corresponding author

social integration processes (Tinto, 1993). Similarly, Pascarella (1985a), in his 'General Model of Assessing Change', suggests that students' interactions with agents of socialization (such as faculty and peers) are positively associated with the quality of their effort and, finally, influence their learning and cognitive development. Of note, many of these events in college take place not only in class and on campus but also outside of class and off campus.

Time may be one of the most important assets for college students. Compared to high school students who abide by firm time table under the framework of the nationally mandated curriculum, college students tend to get more free time that could be used for their own plans. A great deal of studies (Astin, 1993; Choi & Rhee, 2009; Ehrenberg & Sherman, 1987; Ha, 2010; Hammes & Haller, 1983; Kim, 2004, Tinto, 1993; Yoon, 2013) have shown that students' out-of-class experiences are positively associated with academic and social integration, satisfaction, enrollment and persistence, learning outcomes, and so forth. Given the limit to the total amount of time available, however, strategies for time allocation between various activities are of great importance. In other words, how to manage out-of-class hours is significant for having a successful college life and outcome. With the growing importance of out-of-class activities, however, little effort has been made to investigate who participates in what kinds of activities in Korea's universities. This study attempts to fill this void.

The purpose of this study is twofold. First, it sets out to examine whether differences exist in the pattern of out-of-class experiences by the individual characteristics of the students, including gender, grade, household income level, high school performance, and major. Based upon the literature review, the out-of-class experiences and activities of college students can be categorized into five types: interaction with faculty, preparation for class, working on/off campus for pay, peer interaction, and doing community services. In this study, special attention was given to the differences in the gender and socio-economic status of the students measured by the level of monthly household income. Given the significance of out-of-class experiences on student outcomes, the study results could offer considerable implications to those who want to promote the effectiveness of educational practices, and enhance the equality of educational opportunities for higher education. For instance, if low-income students (compared to higher income students) are found to spend more hours working, and thus have difficulties in finding time for study or enriching interactions with people, it may be necessary to develop policies and/or programs to help those low-income students reduce their hours of work and find the time for study (e. g., needs-based scholarship, student welfare systems).

Second, this study intends to examine empirical evidence to determine the relationship between the patterns of the out-of-class activities of the students and the institutional characteristics of the universities that the students attend. In terms of the institutional characteristics, this study is concerned with the location of the university and its enrollment size. As known in many studies (Bae et al., 2014; Han, 1983; Kim, 1983; Kim, 1986; Lee, 2007; Lee & Brinton, 2014), one notable characteristic of the Korean higher education system is its tendency to place too much focus on the university rankings that have been historically established. The university's ranking, albeit unsubstantiated, has been known to influence the selectivity and recruitment

of students between the universities. In relation to student engagement, studies on Korea's college students found that there exist differences between students attending local universities, and their peers in the Seoul metropolitan area universities (Bae et al., 2014; Bae & Han, 2015). For instance, those students from local universities were found to have a lower level of commitment to their institutions and participate in less writing classes, compared to their counterparts. Also, the above studies found that the size of the campus (measured by the number of students) affects the college experience of the students. This study attempts to extend these studies to cover the topic of the pattern of out- of-class activities.

## Literature Review

Although the research interest in students' out-of-class experiences has grown year by year across all educational research fields, there has been no consensus on its definition as yet (Bartkus et al., 2012). In general, these activities are called "out-of-class" or 'co-curricular' activities, which are referred to as occurring outside of the classroom, are conducted under the auspices of the school, do not provide a grade or academic credit, can be academic as well as non-academic, and can be either voluntary or optional (Bartkus et al., 2012). Notwithstanding the absence of agreement on the definition, numerous studies has proven that out-of-class activities are significant factors impacting undergraduate students' overall college experiences (Bartkus et al., 2012; Everson & Millsap, 2005; Kuh, et al., 2006; Wilson et al., 2014; Zacherman & Foubert, 2014). According to previous studies, the more a student participates in out-of-class activities, the better experiences (i.e. academic achievement, engagement, satisfaction, self-efficacy, core competencies and more) he/she may have during college years (Astin et al., 2000; Bartkus et al., 2012; Everson & Millsap, 2005; Kuh, et al., 2006; Wilson et al., 2014; Zacherman & Foubert, 2014).

In this part, numerous studies on the undergraduate students' out-of-class activities will be explored in order to determine 1) how these activities are related to the undergraduates' overall college experience and 2) how personal and institutional factors are associated with the patterns of college students' out-of-class activities.

### *Interaction with faculty*

A volume of studies have shown that college students' interaction with faculty is closely related to their overall college experiences (Kuh et al., 2006). According to the studies, college students' interaction with faculty is one of the key factors in a better college experience (Astin, 1993; Cox & Orehovec, 2007; Kuh, 1995; Tinto, 1993). In detail, frequent and positive interaction with faculty can promote the undergraduates' academic performance, as well as their satisfaction and retention (Pascarella & Terenzini, 1991, 2005; Kim & Conrad, 2006; Twale & Sanders, 1999); however, Endo and Harpel (1981) argued that the quality of interaction is more im-

portant than the quantity of interaction. The researchers explained that the intimacy and content of the faculty-student interaction are more significant than the frequency.

Some studies focused on interaction with faculty outside the classroom. Astin (1993) suggested that the more a student interacts with faculty outside the classroom, the more he/she feels satisfaction in their college experiences. This finding can be backed up by Tinto's theory of institutional departure (1993). According to the theory, undergraduate students can experience academic integration via interaction with faculty, which plays an important role in keeping students enrolled in their schools and devoted to learning. In his adjustment and attrition model, Pascarella (1980, 1985b) also presented informal interaction between faculty and undergraduate students as being highly associated with the "quality of the student effort" on learning and cognitive development.

In Korea, along with the recent rapid increase of scholarly interest in higher education, a volume of studies about the influence of interaction with faculty in the different college experiences of undergraduate students have been conducted by various researchers. These studies generally agreed that students who connect with the faculty more often tend to have higher academic motivation, a higher devotion to learning, and they lead a more positive college life, as well as attain higher academic outcomes (Bae & Kim, 2013; Choi & Cho, 2014; Kim, 2005). Also, Kim (2014) suggested that faculty-student interaction, through an increase in reading, contributes to academic improvement. However, some studies have presented opposite results, in regard to faculty-student interaction. For example, Kim and Rhee (2003) presented that an interaction with faculty outside the classroom is not associated with the development of "core competency." In addition, Rhee and Choi (2008) suggested that interaction with faculty has a slight influence on undergraduate students' improvement of higher thinking, while negatively affecting general interpersonal relations. In spite of different research outcomes, numerous studies have proven that there is a certain amount of association, whether it is positive or negative, between the interaction with faculty and the undergraduate students' college experiences.

### *Working on/off campus for pay*

Many undergraduate students work on or off campus during their college years. They work for various reasons, such as to meet educational and/or living expenses, build a job-related career, or simply to explore different occupations. Therefore, it is now common to see 'student workers' both on and off campus. Different from voluntary activities, these students work for pay. In many societies, higher educational organizations have a large number students working on or off campus while enrolled. For example, in the United States, nearly half of the students who were enrolled full-time in any forms of higher educational institutions reported having had work experience at least once in 2007 (Pema, 2010). Therefore, it is necessary to examine carefully what kind of personal or organizational factors are associated with the undergraduate students' deciding to work on/off campus for pay during their college years. Although students may obtain skills and knowledge from their work experiences,

these work experiences may not complement their academic performance or other college experiences.

Studies on students working on/off campus, and their academic achievement, are not consistent. For instance, Hammes and Haller (1983) suggested that student workers tend to perform academically better than their non-working peers; however, Chacon, Cohen and Strover (1983) suggested that students from low-income families are more likely to work on/off campus for pay, which makes them unable to be fully involved in college. Moreover, Dolton and his colleagues (2003) showed that there is no statistically significant correlation between the students' working experience and their academic achievement. Furthermore, Ehrenberg and Sherman (1987) argued that employment during the undergraduate years can negatively influence both their academic performance and post-college outcomes. Also, they suggested that if a student works more than a certain amount of time, he/she would more likely fail to enroll in the following semester and graduate within an appropriate time.

In line with these studies, Korean researchers also investigated the association between the undergraduates' working experiences and their overall learning outcomes, such as academic performance, and cognitive and psychological development. Korean studies generally present a rather negative correlation between the college students' working experiences and their desirable learning outcomes. Baik (2006) suggested that working on/off campus for pay does not have a significant influence on the undergraduate students' academic performance; however, he additionally argued if a student devotes him or herself too much to their job, it may have a negative impact on their academic performance, emotional adaptation and sense of belonging to the college. Ahn and Bae (2011) also reported that students who work to cover their living expenses have a higher likelihood to gain lower academic grades, be enrolled in college less long, and enter the low-wage labor market.

### *Doing Community Service*

Unlike working for pay, participating in community service and volunteer work is an activity freely given that benefits another person or group (Parnell, 2010; Wilson, 2000). Williams (2000) argues that student participation in various forms of volunteer work is the "trend of the 21st century." Numerous studies regard volunteer work as one of the more significant activities and factors on the success of the undergraduate students' college experiences. Doing community service, or participating in volunteer work may be positively associated with the undergraduates' college experiences. For instance, undergraduate students can develop their humanitarianism by participating these activities (Kuh & Lund, 1994; Parscarella et al., 1988). Also, by being involved in different volunteer works, college students can be provided opportunities to develop themselves as "responsible citizens" (Rubin, 1990). In the United States, the Campus Outreach Opportunity League was founded in 1989 to expand community service opportunities for college students (Parnell, 2010). Also, recently, higher educational organizations in the US have integrated community service and volunteer work programs into the regular course curriculum (Parnell, 2010; Williams, 2000).



Grounded in this recent trend in American universities, researchers examined the association between participation in community service (or volunteer work) and the diverse experiences of undergraduates. For example, Astin et al. (2000) found that undergraduate students who participate in both community service and service learning (course-based service) show significantly more positive outcomes in their academic performance, including improvement in their grade point average (GPA), critical thinking, and critical writing. The researchers also argued that being involved in community service is positively associated with self-efficacy and leadership. Other researchers found that the personal factors of the students, including their gender and their major, were associated with their volunteer work participation. Parnell (2010) argued that female college students are more likely to participate in volunteer work than their male counterparts. She also added that female students who participate in community service or volunteer work tend to gain higher academic grades than their male or non-participating counterparts. She also found, depending upon the student's major, that participation in community service and volunteer work is correlated with their academic achievement. According to her finding, nursing and art major students who had participated in the service gained higher GPAs.

Based upon these research findings, it is necessary to investigate how personal and institutional factors are associated with college students' participation in community service or volunteer work.

### *Preparation for class*

As noted above, out-of-class activities are positively associated with college students' academic involvement and achievement (Astin, 1984, 1993; Kim, et al., 2001; Pascarella & Terenzini, 1991, 2005). Among the different out-of-class activities, continuous learning-related activities are highly associated with better academic outcomes (Kuh & Hu, 2001; Kuh et al., 2008, 2011). Theoretically, different models for college learning suggested that undergraduate students who put more effort into their learning tend to gain better academic outcomes and remain enrolled in the institutions until they graduate (Astin, 1993; Kuh, et al., 2006; Pascarella, et al., 2004). Also, undergraduate students who put more effort and time into learning outside the classroom may understand the content of the course better and retain a more deepened knowledge (Tinto, 1993). This may result in the students attending to their courses by asking questions and participating in classroom discussion actively.

Korean researchers also claimed that undergraduate students who put more effort into learning outside the classroom tend to actively participate in classroom activities and learning and, as a result, gain higher grades (Baek & Jung, 2012; Kim et al., 2001; Ku, 2001). According to the literature, the most common forms of college students' investment or commitment to learning outside the classroom are participating in study groups or peer mentoring (Jacobi, 1991; Kim & Kim, 2013). Jacobi (1991) reviewed numerous studies regarding the peer mentoring of undergraduate students, and determined that the students' mentoring activities, in general, are positively associated with their academic performance. Kim and Kim (2013) also suggested that undergraduate students who join study groups with their peers are more likely to

develop a self-directed learning capacity and improve their academic motivation which, therefore, can result in better and higher academic attainment (Kim & Kim, 2013).

### *Peer interaction*

Peer interaction is a critical factor in how college students perceive their college experiences (Astin, 1993; Kuh, 1993). Astin (1993) called peer interaction “the single most potent source of influence” which can impact almost all aspects of the college students’ development (Kuh, 1993). The students spend the greatest amount of time with their peers throughout their college years and, therefore, peers are “the primary agents of socialization for one another in a variety of domains” (Moran & Gonyea, 2003). Peer interaction can occur both in and outside the classroom, and in different forms. For example, students collaborate for a group project in or outside the classroom, they can socialize by becoming a member of campus organizations, or participate in various events at their dormitory (particularly in fraternities and sororities in the US). Aside from these forms of peer interaction activities, in Korea the high school alumni association is another common form of socialization activity, particularly for freshman and sophomore students.

Many studies on undergraduate students’ interaction with their peers have focused on how this interaction affects their students’ college experiences, especially their academic performance and outcomes, psychological development, and overall attitude toward the institution (satisfaction or involvement), and thus accumulate the skills required to be good and able citizens (Astin, 1993; Bean & Kuh, 1987; Carrell, Fullerton, & West, 2008; Ha, 2010; King, 1990; Kim, 2004; Kim & Park, 2010; Kuh, 1993, 1995; Kuh et al., 2006, 2011; Moran & Gonyea, 2003; Ryan & Deci, 2000; Weidman, 1989; Yoon, 2013). According to Bean and Kuh (1987), undergraduate students who are involved in campus organizations gain a moderately higher GPA than their counterparts. In addition, students who get along with their peers are less likely to drop out, but are more likely to gain better academic outcomes and career success (Ryan & Deci, 2000). Moran and Gonyea (2003) suggested that the students’ academic-oriented interaction with their peers is highly associated with better academic achievement. Weidman (1989) determined that the students’ interaction with their peers can expose them to “normative pressures” that will affect their socialization outcomes, such as knowledge, social skills, and dispositions. Also, their interaction with their peers outside class affects the students’ ability to develop social, intellectual, and civic development (Chang, Astin, & Kim, 2004). In Korea, similar studies have been conducted regarding undergraduate students’ socialization activities. For example, according to Ha (2010), the way in which the undergraduate students spend their out-of-class hours is highly related to their adjustment to college life. Other researchers also suggested students who actively participate in school organizations have higher satisfaction with their college life than the counterparts (Kim, 2004; Kim & Park, 2010; Yoon, 2013).

Likewise, more recent studies have proved and emphasized the significant influence of peer interaction on the undergraduate students’ college experiences; how-

ever, some studies have found that students' personal and institutional factors can moderate the effect of peer interactions on their college experiences (Bronkema, 2014; Nelson Laird & Niskode, 2008). Therefore, it is necessary to investigate thoroughly those personal and institutional factors associated with the peer interaction or socialization activities of the college students.

### *Institutional factors on student out-of-class activities: location and size*

As indicated previously, out-of-class activities have been widely studied by different researchers as critical factors on undergraduate students' satisfaction, involvement, and success with their college experience (Astin, 1993; Pascarella & Terenzini, 1991; Porter, 2006). In addition, some studies explored institutional features that are associated with college students' out-of-class experiences (Kuh et al., 2006; Pike & Kuh, 2005; Wilson et al., 2014). Pike and Kuh (2005) argued that the students' negative perceptions of their institution are related with diverse institutional characteristics like size, policy and mission, selectivity, and location. According to the researchers, the undergraduates' out-of-class activity participation is highly associated with how they perceive their institutions, which eventually influences the students' persistence. Wilson et al. (2014) also found that institutional features (type, size) are more associated with engineering, computer sciences, and math students' participation in out-of-class activities. Although the institutional size is not a single key factor on the undergraduates' extracurricular activity, it still can be considered as a mediating or indirect factor (Kuh et al., 2006).

The location of an institution is rarely considered by American researchers, with regard to the undergraduate students' out-of-class activities. Nevertheless, one cannot fully understand the topic without considering institutional location, when examining any issues regarding Korean higher educational institutions. In Korean higher educational institutions, undergraduates' out-of-class activities can be better explained only when the location of the institution, as well as its size, is included; this is because the location of the institution contains not just its geographical position but a wide range of the organization's features, such as selectivity, size, whether it is research-oriented or not, and so forth. Korean higher educational institutions are strictly stratified, from top to bottom (Kim, 1983; Han, 1983; Kim, 1986; Lee & Brinton, 2014). Lee and Brinton (2014) argued that "the South Korean higher education system is indeed characterized by the clear hierarchical ranking of schools." Also, the top institutions are mostly located in and around Seoul, the capital of South Korea.

Numerous studies on Korean students' college experiences, therefore, include location to control for institutional influence (Bae & Jang, 2012; Choi & Rhee, 2009; Hong, 2014; Im & Han, 2013; Jin, 2014; Min, 2003;). Likewise, it can be assumed that institutional location may affect undergraduate students' out-of-class activities in Korea. This assumption, for example, can be supported by the findings of Min (2003). According to this researcher, students enrolled in metropolitan universities tend to spend more time, effort, and expense in doing out-of-class activities, particularly those related to career development.

### *Summary and hypotheses*

In this section, a substantial amount of studies on college students' out-of-class activities were examined. A relatively large number of studies have reported the positive effects of undergraduate students' participation in different out-of-class activities. In particular, activities related to the interaction with faculty and peers, as well as preparation for class, were consistently reported to have a positive influence on the students' academic engagement and performance. However, studies have reported inconsistent results on the impact of activities related to working on/off campus for pay, and doing community service, on the undergraduate students' overall college experience. On the organizational level, some institutional features, such as size, policy, mission, selectivity, and location were reported to be moderately related to college students' participation in out-of-class activities and overall school engagement. Based upon the findings from the literature review, this study sets two hypotheses:

1. There may exist differences in the patterns of out-of-class experiences according to the individual characteristics of the students, including: gender, grade, household income level, high school performance, and major.
2. Institutional features such as size and location may affect the patterns of the Korean undergraduates' out-of-class activity participation.

## Methodology

### *Data and Sample*

The data was collected using the Korean-National Survey of Student Engagement (K-NSSE). The K-NSSE is the Korean validated version of the National Survey of Student Engagement (NSSE) that has been widely used in the US in order to measure college students' engagement. The survey includes questions that measure both the quantity and quality of the college students' in/out-of-class activities that are related to their engagement and academic performance. Bae et al. have conducted the K-NSSE since 2011. This study employed the data from the 2014 K-NSSE. The sample population of this study is comprised of students attending four-year universities in Korea. 49,775 students, from 84 universities across the nation, completed the K-NSSE survey. After cleaning up the missing data, 40,506 samples were finally used for analysis.

### *Variables and measurement*

Based upon the findings of the literature review, to examine the association between personal and institutional factors, and the patterns of the undergraduates' out-of-class activity participation, this study included and analyzed different variables, such as the following:

*Dependent Variables.* To measure the pattern of the out-of-class activities of college students, five dependent variables were used:

- a) Interaction with Faculty (IF)
- b) Preparation for Class (PFC)
- c) Working on/off Campus for Pay (WFP)
- d) Interaction with Peers (IP)
- e) Doing Community Services (CS)

IF consists of four questions: 1) talking about career plans with a professor, 2) discussing course topics, ideas, or concepts with a professor outside of class, 3) discussing your academic performance with a professor, and 4) working with a professor on the activities other than coursework (e. g. student clubs or unions). Each question has been measured using a 4-point Likert scale, coded from 1 to 4 (never=1, sometimes=2, often=3, very often=4). The reliability of the IF variable is substantially high (Cronbach's alpha=.83). The other dependent variables were measured using an 8-point Likert scale which were coded on an hours-per-week basis (never=0, 1–5 hours=1, 6–10 hours=2, 11–15 hours=3, 16–20 hours=4, 21–25 hours=5, 26–30 hours=6, more than 30 hours=7).

*Independent Variables.* The independent variables were chosen from two different levels – student and university. The student-level variables are a) gender (female=0, male=1), b) academic grades (1=freshman, 2=sophomore, 3=junior, 4=senior), c) household income (from less than 1 million won = 0 to more than 7 million won=8), d) high school performance (from the bottom ~4%=1 to the top ~4%=9), and e) major (four variables where the reference group is Humanity). In regard to the gender composition of the sample, there were 21,053 female students, and 19,453 male students. Among the survey participants, there were 14,707 freshmen, 8,762 sophomores, 9,305 juniors, and 7,732 senior students. The household income variable was used to infer the students' socio-economic status (SES). The household income variable consists of an 8-point Likert scale (1=less than 1 million won, 2=1~1.99 million won, 3=2~2.99 million won, 4=3~3.99 million won, 5=4~4.99 million won, 6=5~5.99 million won, 7=6~6.99 million won, 8= more than 7 million won). The students' majors fall into five categories: humanity, social science, engineering, natural science, and art & music. The high school performance was reported using stanine grades. The 9<sup>th</sup> grade (=9) in the stanine system means that the student falls within the top 4% in academic achievement, while the 1<sup>st</sup> grade means that the student falls below the 4%.

The university-level variables include a) the location of university (non-metropolitan=0, Seoul metropolitan area=1), and b) the institutional size (number of students enrolled). In terms of the size of the universities, the variable was composed

of 34 large-sized universities where more than 10,000 students were enrolled, and 40 small- to medium-sized universities where less than 10,000 students were enrolled.

Table 1. Summary of Variables and Descriptive Statistics

	n	Interaction with faculty		Preparation for class		Work on/off campus for pay		Interaction with peers		Community service		
		M	SD	M	SD	M	SD	M	SD	M	SD	
Gender	Female	21,053	0.94	0.75	3.48	1.77	2.20	1.47	2.35	1.90	1.97	1.65
	Male	19,453	1.05	0.78	3.63	1.79	2.24	1.55	2.67	2.05	2.11	1.73
Grade	Freshman	14,707	0.94	0.73	3.39	1.70	2.09	1.44	2.50	1.92	1.93	1.60
	Sophomore	8,762	0.95	0.75	3.62	1.78	2.21	1.48	2.54	2.01	2.00	1.66
	junior	9,305	1.03	0.79	3.67	1.83	2.29	1.53	2.53	2.02	2.09	1.74
	Senior	7,732	1.10	0.81	3.66	1.85	2.39	1.61	2.43	1.99	2.21	1.82
Household income	Less than 1 million	2,487	0.99	0.77	3.60	1.87	2.46	1.58	2.52	2.01	2.10	1.77
	1-1.99 million	5,532	0.98	0.77	3.49	1.77	2.36	1.52	2.47	1.99	1.95	1.61
	2-2.99 million	8,997	0.99	0.76	3.48	1.76	2.26	1.50	2.43	1.93	1.99	1.66
	3-3.99 million	8,714	0.99	0.75	3.52	1.74	2.20	1.50	2.50	1.99	2.06	1.69
	4-4.99 million	5,703	1.01	0.76	3.57	1.74	2.16	1.47	2.56	1.95	2.04	1.65
	5-5.99 million	3,846	1.00	0.78	3.59	1.78	2.12	1.47	2.50	1.97	2.05	1.69
	6-6.99 million	1,662	1.00	0.78	3.61	1.76	2.07	1.46	2.54	1.99	2.02	1.72
	More than 7 million	3,565	1.03	0.81	3.82	1.93	2.04	1.52	2.62	2.06	2.19	1.87
High school performance	9 (the top ~4%)	1,575	0.93	0.82	3.90	1.90	2.13	1.51	2.77	2.09	1.95	1.67
	8 (4~11%)	5,178	0.93	0.78	3.73	1.83	2.15	1.48	2.62	2.00	2.01	1.68
	7 (11~23%)	11,051	0.98	0.78	3.62	1.78	2.22	1.49	2.56	2.00	2.06	1.70
	6 (23~40%)	11,855	1.01	0.75	3.49	1.74	2.22	1.51	2.45	1.95	2.05	1.69
	5 (40~60%)	7,131	1.01	0.75	3.41	1.76	2.22	1.51	2.37	1.92	2.00	1.67
	4 (60~77%)	2,311	1.04	0.77	3.43	1.79	2.31	1.55	2.43	1.95	2.03	1.68
	3 (77~89%)	987	1.10	0.78	3.46	1.83	2.33	1.58	2.46	2.00	2.12	1.80
	2 (89~96%)	310	1.09	0.81	3.36	1.82	2.39	1.59	2.59	2.03	2.23	1.78
	1 (96%~the bottom)	108	1.24	0.89	3.90	2.02	2.56	1.89	2.77	2.07	2.49	2.13
Major	Humanity	5,789	0.99	0.75	3.45	1.73	2.19	1.48	2.41	1.95	1.95	1.65
	Social Science	13,225	0.95	0.77	3.39	1.73	2.26	1.53	2.56	2.00	2.20	1.80
	Engineering	10,626	0.98	0.76	3.63	1.80	2.14	1.48	2.55	1.98	1.95	1.62
	Natural Science	5,722	1.01	0.77	3.65	1.77	2.20	1.49	2.42	1.95	1.95	1.62
	Art & music	5,144	1.11	0.76	3.84	1.90	2.32	1.54	2.46	1.97	2.00	1.67
Location	Metropolitan	10,390	0.88	0.75	3.57	1.78	2.25	1.46	2.53	1.98	1.92	1.64
	Non-metropolitan	30,116	1.03	0.77	3.55	1.78	2.21	1.52	2.49	1.97	2.08	1.71
Size	Large-sized	13,787	0.94	0.77	3.66	1.81	2.20	1.49	2.59	2.03	2.00	1.69
	Small & medium-sized	26,719	1.02	0.76	3.50	1.77	2.22	1.51	2.46	1.95	2.06	1.69
	Total	40,506	0.99	0.77	3.56	1.78	2.22	1.51	2.50	1.98	2.04	1.69

Note. Household income measured by Korean Won (₩)

Table 1 presents the descriptive results of the dependent and independent variables in this study. In general, male students spent more hours participating in all types of out-of-class activities, compared to their female peers. As they advance into higher grades, students showed patterns of greater involvement in most out-of-class activities, with the exception of working on/off campus for pay. Students from lower-income families tended to have a lower level of interaction with faculty and spend less time for preparing for class, interacting with peers, and doing community service, while they spent more hours working on or off campus. Interestingly, students who had the lowest high school performance showed patterns of conducting more frequent interaction with professors, spending as much time as the highest performers in preparing for class and interacting with peers. In addition, the lowest showed that they work for pay the most. Besides the lowest high school performers, students who did better in high school tended to interact less with faculty and work less hours for pay, while spending more hours preparing for class; however, there was an irregular pattern between high school performance and both interaction with peers and doing community service. In addition, the students who are majored in art and music had a larger level of interaction with the faculty, preparation for class, and working on/off campus for pay, while those who majored in social science spent more time in peer interaction and community service.

At the university level, students attending local universities- in comparison with their counterparts who were enrolled in the universities in the Seoul metropolitan

area- were likely to have more frequent meetings with professors, and participate more in community services. Instead, students who were enrolled in the universities located in metropolitan areas spend more hours in preparing for class, working for pay, and interacting with peers. Moreover, students attending large-sized universities showed a tendency to spend more hours in preparation for class, and interacted more frequently with their peers.

### *Data Analysis*

To examine the patterns of college students' participation in out-of-class activity, according to student and university characteristics, the researchers conducted both descriptive and inferential statistical analyses. SPSS (Statistical Package for Social Science) 18.0 was adopted to conduct a descriptive analysis and calculate correlation coefficients among the variables. First, the means and standard deviations of both dependent and independent variables were calculated and suggested in Table 1. Then, to measure the effects of the student- and university-level predictors on the patterns of participation in out-of-class activities, this study employed Hierarchical Linear Modeling (HLM) 7, taking the hierarchically nested data structure of this study into account (i.e., in this study, students as the unit of analysis are nested within the universities). The HLM method – a hierarchical system of regression equations (Hox, 2002, p. 11) – has been widely used in social science to deal with hierarchically nested data, and associated problems like aggregation bias and erroneous estimation of effects (Luke, 2004; Osborne, 2000; Raudenbush & Bryk, 2002).

### *Statistical Models: Hierarchical Regression Equations*

Two-level hierarchical linear models are formulated to investigate the direct effects of the independent variables on the dependent variables, both at the student and university levels.

*Null Model.* The null model, with no predictor variables, was used to examine the extent to which the predictive ability of the fitted model (conditional model) was improved by the inclusion of the student- and university-level predictors. Methodologically, the student- and university-level residual variances,  $\sigma_r^2$  and  $\sigma_{u0}^2$  (of the null model with no predictor variables) were compared to those of the fitted conditional model.

$$Y_{ij} = \beta_{0j} + r_{ij}$$

$$\beta_{0j} = \gamma_{00} + u_{0j}$$

$$Y_{ij} = \gamma_{00} + r_{ij} + u_{0j}$$

Where

$Y_{ij}$  = outcomes for student  $i$  within university  $j$ ;

$\beta_{0j}$  = the intercept (student-level);

$r_{ij}$  = the residual error term indicating a unique effect associated with student  $ij$ .

These residual student effects are assumed to be normally distributed, with a mean of 0 and a variance  $\sigma_r^2$  ;

$\gamma_{00}$  = the intercept (university-level);

$u_{0j}$  = the residual error terms indicating a unique effect associated with university  $j$ . All variations among the universities that are not explained by the two predictor variables are captured by these residual error terms.

*Conditional Model.* To explain the direct effects of the individual variables on the dependent variables, this study created the conditional model below. In the student-level model, the units of analysis are the students. The outcomes,  $Y_{ij}$ , is predicted by six student-level predictor variables, as below. It should be noted that the intercept ( $\beta_{0j}$ ) and slope coefficients ( $\beta_{1j}$  to  $\beta_{8j}$ ) in this regression equation are assumed to vary randomly across the universities. The variation of the regression coefficients indicates that the initial status and the effects of the predictor variables on the outcome variables are different across the universities.

$$Y_{ij} = \beta_{0j} + \beta_{1j} (\text{gender}) + \beta_{2j} (\text{grade}) + \beta_{3j} (\text{household income}) + \beta_{4j} (\text{high school performance}) + \beta_{5j} (\text{social science}) + \beta_{6j} (\text{engineering}) + \beta_{7j} (\text{natural science}) + \beta_{8j} (\text{art and music}) + r_{ij}$$

Where:

$\beta_{1j} \dots \beta_{8j}$  = regression coefficients of the student-level equation;

The university-level model was created to explain the variation of the student-level regression coefficients, as follows:

$$\beta_{0j} = \gamma_{00} + \gamma_{01} (\text{location}) + \gamma_{02} (\text{size}) + u_{0j}, \beta_{ij} = \gamma_{i0} \quad (i=1 \dots 8)$$

Where

$\gamma_{01}, \gamma_{02}$  = slope coefficients indicating the direction and strength of association between the school-level predictors.

The final mixed model is below:

$$Y_{ij} = \gamma_{00} + \gamma_{10} (\text{gender}) + \gamma_{20} (\text{grade}) + \gamma_{30} (\text{household income}) + \gamma_{40} (\text{high school performance}) + \gamma_{50} (\text{social science}) + \gamma_{60} (\text{engineering}) + \gamma_{70} (\text{natural science}) + \gamma_{80} (\text{art and music}) + r_{ij} + \gamma_{01} (\text{location}) + \gamma_{02} (\text{size}) + u_{0j}$$



In order for the value of the intercept to be meaningful and interpretable, the predictor variables are all grand mean centered, with the exception of some dummy variables, including gender, major, and school location. “Centering is simply the process of linear transforming a variable X by subtracting a meaningful constant, often some type of mean X” (Luke, 2004, p. 48). Therefore, the intercept is the expected outcome for student *i* within university *j* whose values on independent variables are equal to the grand mean.

The HLM analysis shows the statistical parameters, including: a) the fixed effects regression parameters (the gammas), which provide information about the direction and strength of the relationship between independent and dependent variables, and b) the random effects variance components, which present the residual variance at the student- and university levels. Random effects variance components were employed to investigate the predictive ability of the fitted model. More specifically, the proportional reduction of the prediction error (PRE) (Luke, 2004) was calculated by comparing the residual variances between the conditional and null models. The PREs at the student- and university-level are represented by the following equations:

$$PRE_{student} = \frac{\sigma_{r(null)}^2 - \sigma_{r(conditional)}^2}{\sigma_{r(null)}^2}$$

$$PRE_{school} = \frac{\sigma_{u0(null)}^2 - \sigma_{u0(conditional)}^2}{\sigma_{u0(null)}^2}$$

## Findings

Table 2 shows the results of the correlation analysis. Most variables were shown to be statistically correlated ( $p < .01 \sim < .001$ ). Since some of the correlation coefficients were greater than .40, multicollinearity was assessed for all variables. All variance inflation factors (VIFs) were smaller than 10 with a tolerance of more than .1, and which means no multicollinearity existed in this analysis.

Table 2. Pearson's correlation coefficients among the variables

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1. Gender	-	-.03***	-.06***	-.08***	-.12***	-.05***	.31***	-.08***	-.13***	-.06***	-.00	.07***	.04***	.01**	.08***	.04***
2. Grade		-	-.02***	.03***	.01	.01**	-.00	.01*	-.03***	.05***	.02**	.08***	.06***	.08***	-.01	.06***
3. Household income			-	.05***	.00	.01	-.02**	.00	.00	.08***	.01	.02**	.04***	-.07***	.02***	.02***
4. High school performance				-	.01	.02***	.00	.04***	-.09***	.23***	.08***	-.05***	.06***	-.03***	.04***	-.01*
5. Humanity					-	-.28***	-.24***	-.17***	-.16***	.04***	.03***	-.00	-.03***	-.01	-.02***	-.02***
6. Social Science						-	-.42***	-.28***	-.27***	-.01*	-.06***	-.04***	-.06***	.02***	.02***	.07***
7. Engineering							-	-.24***	-.23***	-.01	-.03***	-.01	.03***	-.03***	.01**	-.03***
8. Natural Science								-	-.16***	-.01	.13***	.01	.02***	-.00	-.02**	-.02***
9. Art & music									-	-.01	-.04***	.06***	.06***	.03***	-.01	-.01
10. Location										-	-.10***	-.09***	.01	.01**	0.01	-.04***
11. Size											-	-.06***	.02***	-.03***	.01*	-.03***
12. Interaction with faculty												-	.27***	.23***	.26***	.28***
13. Preparation for class													-	.27***	.30***	.30***
14. Work on/off campus for pay														-	.35***	.42***
15. Interaction with peers															-	.41***
16. Community service																-

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

### *Hierarchical Linear Modeling Statistics*

Table 3 presents the results of the HLM analysis. It shows the point estimates of the effects of the student- and university- level independent variables on the dependent variables.

In terms of gender, the fixed effects regression parameters (the gammas) in the upper panels show that male students had more active participation in most out-of-class activities compared to female students in college ( $\gamma_{10} = 0.14, 0.20, 0.09, 0.35, 0.19, p < 0.01$ ). These results are consistent with previous studies that suggest the gender imbalance in terms of student involvement and leadership development (Astin, 1993; Hall & Sandler, 1984; Kezar & Moriarty, 2000; Sadker & Sadker, 1994).

In relation to the student grade, the results suggest that the grade of the students is positively associated with their interaction with the faculty, and the hours spent in preparation for class, work for pay, and community services ( $\gamma_{20} = 0.06, 0.09, 0.10, 0.09, p < 0.01$ ). However, the students' grade was not statistically related to time spent interacting with their peers in out-of-class activities, like club activities, sports, and student government.

The student SES, measured by the monthly household income, was found to be statistically and positively associated with interaction with the faculty and all other types of out-of-class activities, with the exception of working for pay ( $\gamma_{30} = 0.02, 0.04, 0.02, 0.03, p < 0.01$ ). Not surprisingly, low-income students were found to spend more hours at work, either on or off campus, compared to their peers ( $\gamma_{30} = -0.05, p < 0.01$ ).

Students who performed better in high school were found to have more interaction with the faculty in college ( $\gamma_{40} = 0.02, p < 0.01$ ). This result is opposite to that of the descriptive statistics analysis. The reason for the difference can be deduced that 1) in Korea, students with lower performance in high schools are usually enrolled in colleges and universities located in non-Seoul metropolitan areas, 2) according to previous studies (Hong, 2014; Min, 2003), these students more frequently interact with the faculty, 3) these institutions are often teaching-oriented universities, in which faculty-student interaction more often occurs (Pike & Kuh, 2005). Therefore, in the HLM analysis results, in which the institutional location effect was controlled, students with a higher GPA were more likely to interact with faculty as in previous studies. The study also found that the high school performance of the students is statistically and positively related with hours spent preparing for classes, interaction with peers, and conducting community services ( $\gamma_{40} = 0.08, 0.05, 0.03, p < 0.01$ ). The current research, however, found that no relationship exists between high school performance and time spent working on or off campus.

In terms of the major, the study found no consistent patterns of participation in out-of-class activities across the majors. Interestingly enough, it was found that students who major in art and music, compared to students majoring in the humanities, spent more hours interacting with the faculty, preparing for class, and working for pay ( $\gamma_{80} = 0.16, 0.43, 0.15, p < 0.01$ ). From these findings, one may assume that students majoring art and music are encouraged to meet the faculty to share their works, not only in class, but also out-of-class.

Regarding the university level independent variables, the location of the institution was found to affect how much students interact with the faculty members, and the degree to which students conducted out-of-class community services during the week. Students attending universities in non-metropolitan areas were found to have more meetings with their professors ( $\gamma_{01}=-0.23, p<0.01$ ) and more actively conducted community services as their out-of-class activities ( $\gamma_{01}=-0.21, p<0.01$ ), compared to their counterparts in the Seoul metropolitan areas.

The random effects analysis, implying the analysis of the proportional reduction of the prediction error (which can be calculated by comparing the student- and university-level residual variances), suggests that about 1 to 2% of the student level variances were explained by the student level predictors. By contrast, the university level independent variables were found to greatly explain variations in the students' participation in certain types of out-of-class activities. More specifically, 17% of the university level variance in the interaction with faculty was explained by the two university level predictors- i.e., the proportional reduction of the prediction error for the university level =  $(0.06-0.05)/0.06=0.17$ . The results were similar to the preparation for class and interaction with peers (i.e. the proportional reduction of the prediction error for the university level were 25% and 11%, respectively). However, the predictive abilities of the university level independent variables were minimal, both in work for pay and community services. The proportional reductions of the prediction error for the university level were 3% and 10%, respectively. These findings suggest that there exist gaps in the interaction with the faculty, preparation for class, and interaction with peers across the universities. However, few gaps exist in out-of-class activities, like working for pay on or off campus and conducting community services.

*Table 3.* The HLM results for student- and organizational- level factors on the patterns of college students' out-of-class activity participation

	Interaction with faculty		Preparation for class		Work on/off campus for pay		Interaction with peers		Community service	
	Null	Conditional	Null	Conditional	Null	Conditional	Null	Conditional	Null	Conditional
<i>Fixed effect</i>										
Intercept( $\gamma_{00}$ )	0.98***	0.96***	3.58***	3.40***	2.19***	2.12***	2.51***	2.30***	1.99***	1.92***
<i>Student-level</i>										
Gender( $\gamma_{10}$ )		0.14**		0.20**		0.09***		0.35***		0.19***
Grade( $\gamma_{20}$ )		0.06***		0.09***		0.10***		-0.02		0.09***
Household income( $\gamma_{30}$ )		0.02***		0.04***		-0.05***		0.02***		0.03***
High school performance( $\gamma_{40}$ )		0.02**		0.08***		0.01		0.05***		0.03***
<i>Major(reference:Humanity)</i>										
Social Science( $\gamma_{50}$ )		-0.04		-0.09*		0.08*		0.11**		0.17***
Engineering( $\gamma_{60}$ )		0.02		0.12*		-0.02		-0.01		-0.06
Natural Science( $\gamma_{70}$ )		0.02		0.13**		0.01		-0.08		-0.05
Art & music( $\gamma_{80}$ )		0.16***		0.43***		0.15***		0.06		0.03
<i>University-level</i>										
Location( $\gamma_{01}$ )		-0.23***		-0.00		-0.02		0.04		-0.21**
Size( $\gamma_{02}$ )		-0.00***		-0.00		-0.00*		0.00		-0.00*
<i>Random effect</i>										
Student-level( $\gamma_g$ )	0.54***	0.53***	3.11***	3.06***	2.21***	2.19***	3.84***	3.81***	2.78***	2.75***
University-level( $u_{0g}$ )	0.06***	0.05***	0.08***	0.06***	0.06***	0.06***	0.09***	0.08***	0.10***	0.09***

\* $p<0.05$ , \*\* $p<0.01$ , \*\*\* $p<0.001$

## Discussion and conclusion

This study started with the single question of who participated in what kinds of out-of-class activities in Korea's universities. With this curiosity, first, this study sets out to examine whether differences exist in the pattern of out-of-class experiences according to the individual characteristics of students, including gender, grade, household income level, high school performance, and major. Second, this study also aimed to examine the empirical evidence to determine the relationship between the patterns of out-of-class activities and institutional characteristics of the university that the student attends. In terms of the institutional characteristics, this study concerns the location and size of the university. To explore these research questions, the researchers analyzed the K-NSSE data with hierarchical linear modeling.

In sum, the findings of the statistical analysis in this study support the results of the preceding research suggesting that different personal and institutional characteristics are related to the college students' five types of out-of-class activities. Among the personal factors, the male gender is associated with more active participation in all types of out-of-class activities compared to female students. These results are consistent with previous studies that suggest the gender imbalance in terms of student involvement and leadership development (Astin, 1993; Hall & Sandler, 1984; Kezar & Moriarty, 2000; Sadker & Sadker, 1994). The students' high school performance was also found to be positively related to interaction with the faculty, hours spent in preparation for study, interaction with peers, and community services. This result corresponds to previous research findings (Astin, 1993; Choi & Rhee, 2009; Ha, 2010; Kim, 2004; Kuh et al., 2006, 2011; Tinto, 1993; Yoon, 2013). However, unlike the findings of numerous studies (Bean & Kuh, 1984; Chang, Astin, & Kim, 2004; Ha, 2010; Kim & Park, 2010; Moran & Gonyea, 2003; Ryan & Deci, 2000; Yoon, 2013) stating that the undergraduates' academic achievement, or GPA, is highly associated with their peer interaction, the finding of this study indicates that the student grade was not statistically related to their interaction with their peers. It can be presumed that Korean students who obtained a higher GPA may have had no time to participate in student organizations, or socialize with their peers in/outside the campus. This assumption can be backed up by Baek and Jung (2012), who presented that students who vigorously participate in any student organizations (e. g. student union and clubs) tended to gain lower GPAs.

The student SES measured by the monthly household income was found to be statistically and positively associated with all five types of out-of-class activities, with the exception of working for pay. In other words, students from low SES families tend to spend a substantial amount of time in working to cover their expenses, rather than participating in peer/faculty interaction and community service. As Ahn & Bae (2011) reported, undergraduate students who work to make a living are usually from lower SES families, have a higher likelihood of gaining lower grades, tend to be enrolled in college less long, and enter the low-wage labor market. Although most personal level factors are generally associated with all five of the undergraduates' out-of-class activities, working on/off campus for pay is consistently unrelated to the students' high school performance, and major (except for art & music).

In terms of the major, the study found no consistent patterns of participation in out-of-class activities across the majors. Interestingly, students majoring in arts and music participate more in interactions with the faculty, preparation for class, and work on/off campus. This finding can be explained by some studies on the lives of college students who major in music and arts (Ha, 2012; Yoon & Jung, 2010). According to the study, students majoring in music and arts occasionally take lessons in/outside classroom, which increases the frequency of the faculty-student interaction. In addition, they spend a substantial amount of time practicing and training in their skills and techniques, which naturally results in an increase in preparation for class. Furthermore, many music and arts students tend to work as private tutors to earn pocket money or meet living expenses. On the contrary, regarding the students' major, one finding of this study is not accordance with what Wilson et al. (2014) suggested. Wilson and his colleagues found that when institutional features (type, size) work as a medium, then engineering, computer, and math students participate more in out-of-class activities. In this study, undergraduate students who major in engineering and science only moderately conducted course-related out-of-class activities (i. e. preparation for class).

The bigger the institution is, the less faculty and students interact with each other. This finding is in accordance with previous studies on the institutional size and student engagement or involvement (Astin, 1993; Chickering & Reisser, 1993; Pike & Kuh, 2006; Porter, 2006). According to previous studies, institutional size has a negative effect on students' college experience, including less interaction with faculty and peers. The location of the institution was found to affect the degree and extent of the faculty interaction and performance of community services. Students attending universities in non-metropolitan areas were found to have more meetings with professors, and more actively conduct community services as their out-of-class activities, compared to their counterparts attending universities in Seoul metropolitan areas. This may be because many higher educational institutions in Seoul-metropolitan areas are research-oriented universities. According to Pike & Kuh (2005), interaction within or outside the classroom occurs the most in baccalaureate-liberal arts institutions, whereas faculty-student interaction at research-oriented, doctoral/master institutions is relatively limited.

Differently from secondary school students, undergraduates have more time that they can spend for diverse out-of-class activities. Therefore, how they utilize the given time by participating in what kind of out-of-class activity may affect their success in college life. Previous studies on college students' out-of-class activities were mostly intended to clarify the influence of the activities on the students' college experiences, like their GPA, cognitive and psychological development, and engagement /involvement. However, this study reversely examined how various personal and institutional factors can influence undergraduate students' out-of-class activity participation and patterns. Moreover, under the era of the universalization of higher education (Altbach et al., 2009; Hayes, 2006), colleges and universities will be valued by their customers' (i. e. students) satisfaction. Thus, the emphasis on the cultivation and enhancement of the quality of higher educational institutions will accordingly increase (Alexander, 2000; Altbach et al., 2009; Harvery & Green, 1998; Hayes, 2006; Neave, 1988). Therefore, to keep up with this trend, higher educational

institutions need to carefully and empirically grasp the status quo as it relates to their students' out-of-class activities as well as their regular courses.

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