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# The Impact of State Financial Support on Active-Collaborative Learning Activities and Faculty-Student Interaction

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## Abstract

**Purpose** – The goal of this study is to analyze the differences in education performances between students of the government's financial support program and those who do not receive support at a local university in Korea.

**Research design, data, and methodology** - The questionnaire used was NASEL. NASEL is considered a highly suitable survey tool for professors, courses, and performances in Korean universities. The 290 students who participated and 44 students do not participate in the financial support program were surveyed for 10 days. The characteristics of students were investigated by frequency analysis and technical statistics. The analysis of student collective characteristics used independent t and f-tests, and one-way ANOVA with IBM SPSS Statistics 22.0 for statistical purposes.

**Results** – The p-value of the group receiving financial support and the group without financial support in active-collaborative learning is 0.167. The p-value of the economically supported group and the non-supported group of the faculty-student interaction is 0.281. The confidence coefficient of the active-collaborative learning questionnaire is 0.861. The reliability coefficient of the questionnaire for the faculty-student interaction questionnaire is 0.871.

**Conclusions** – There are no clear differences in active-collaborative learning and faculty-student interaction between participating and non-participating students in the economic program.

**Keywords** : Financial Support, Teaching and Learning, Active-Collaborative Learning, Faculty-Student Interaction, CK.

**JEL Classifications** : G41, I21, I22.

## 1. Introduction and literature review

### 1.1. Introduction

Learning motivation is the most important factor among the psychological characteristics that induce learners' learning activities (Song, Chang, & Chang, 2018). In recent years, the importance of educational activities for enhancing the quality of education has been emphasized in various evaluation and financial support projects at universities in Korea (Bae & Kim, 2012). To provide information about the

factors that affect the performance of the university education, the interest in the utilization of the information is increasing and ultimately the degree of university involvement of the university students is a positive measure (Choi, 2017; Park, Kim, Kim, & Yim, 2018).

In this context, as the evaluation function has been emphasized in order to strengthen the responsibility of higher education institutions, the government is linking evaluation results to various types of university financial support projects (Lee, 2007).

The Korean Ministry of Education provides various financial support projects to universities in order to improve the quality of professional majors education at universities. The major projects of the Ministry of Education of the Republic of Korea are financial support for the undergraduate education (ACE), BK 21 PLUS, PRIME for university-affiliated education, CORE for university human resource enhancement (LINC +), and the University Specialization Project (CK). It can be said that there are various features of each business and different characteristics (Hwang, 2017).

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Among these, CK (University for Creative Korea) is a project to strengthen the competitiveness of universities by characterizing the roles and functions of universities in the community (Bae, 2014). It is financial support project that began in March 2014 and lasts until February 2019 for five years.

In order to increase effectiveness in active-collaborative learning activities, it is important to structure cooperative learning groups (Hwang, Yin, Hwang, & Tsai, 2008). Unfortunately, however, there are few study of active-collaborative learning activities and faculty-student interaction related to participation in programs that have an economic incentive effect on universities in Korea. Therefore, this study focuses on a local university selected for the specialization project due to economic motivation and examines how and to what extent participation in the specialization project affects active-collaborative learning activities and faculty-student interactions among actual participants. The specific hypothesis of this study are as follows:

- 1) The students who participated in the program with financial support will have more active-collaborative learning activities than those who did not participate.
- 2) The Students who participate in the programs that receive financial support will have more interaction between faculties-students than non-participation students.
- 3) The more time a program has received financial support, the more active -collaborative learning` activities and interactions between faculties and students
- 4) The detailed factors of the teaching and learning process will be higher for students participating in programs that have received financial support than those who do not participate.

This study seeks to find out the effectiveness and influence of the Korean Ministry of Education on the economic inducement of its university characterization project.

## 1.2. Literature review

Most of the financial effects of college characterization projects are the core contents of educational performance management focusing on teaching and learning. Examples include the National Survey of Study Engagement (NSSE), the UK's National Study (NSS), and Australia's Course Experience Questionnaire (CEQ) (Lee & Lee, 2017).

The Korea National Survey of Student Engagement (K-NSSE) diagnostic tool (revised in 2013), which is widely used as a tool to measure the quality and performance of college students' learning experiences in US universities, was revised and supplemented in the context of Korean universities, to collect data on college students in Korea and verify their validity(Bae, Kang, & Hong, 2015). In addition, K-NSSE is designed to provide students with the opportunity to teach and learn in a variety of ways, including academic challenges (high-level learning, reflective and integrated

learning, learning strategies, quantitative reasoning), peer learning and learning (collaborative learning, (effective teaching activities), the university environment (the quality of interaction with members and the supportive college environment), and 10 factors, which are differentiated in that they focus on students' objective behavior (Astin & Antonio, 2012).

In Korea, the Korean Educational Development Institute (KEDI) developed a questionnaire called "National Assessment of Student Engagement in Learning" (NASEL) in 2015, and began to apply it to college specialization education performance management (Choi & Shin, 2010). In particular, the degree of university involvement in college students is a basis for judging whether they are actively and positively acting based on their sense of belonging and attachment, and is a measure of whether they have a positive effect on teaching and learning (Choi & Shin, 2016).

A survey of university students related to professors and studies generally shows satisfaction with college education (Seo & Chun, 2018), satisfaction (Kim & Park, 2016), quality of undergraduate education (Shin, Byoun, & Jeon, 2016), learning capacity (Choi & Shin, 2010) and learning capacity (Cho & Kwon, 2015). These are used in many different ways in their purposes.

In addition, by analyzing data from the Korean Education Employment Panel, participation in school improved learning outcomes and strengthened the educational responsibilities of universities by creating positive relationships between schools and students (Kim & Kim, 2013). Currently, measures to improve school participation are becoming an important topic of school reform, addressing problems in schools and contributing to academic achievement (Mark, 2000; Taylor & Robinson, 2012).

However, the type of financial support, intangible conditional compensation, in real-life universities, is a motivator for students who stimulate external motivations (Hwang et al., 2008). If the university has leadership and excellent competencies through financial support in a particular area of the university, it can be seen as a strong incentive to voluntarily participate in the industry's industry-academic cooperation and thus help the student body to become more competent as well as to get a job (Han & Yim, 2018).

## 2. Research method

### 2.1. Survey target and period

The study was conducted by C University, a four-year university located in Gangwon Province, in Korea. C University was selected as the "CK-I" Specialization Project (CK-I) in 2016 by the Korean Ministry of Education. The Korean government financially supports this university with 900 million won(8 hundred thousand dollars) for three years.

The CK-I (CK-I) consisting of a single department of health care management was newly selected for the university characterization project from September 2016 to February 28, 2019.

The total number of students enrolled in this department belonging to the university's specialized project group was 290, and 44 students from other departments (Department of Hotel Management and Sports Management) that were not included in the project were also surveyed as control groups. A total of 334 students were distributed within the school. The survey period was conducted for about 10 days from April 3<sup>rd</sup> to April 13<sup>th</sup> in 2018.

### 2.2. Key survey contents and questionnaires

The questionnaire generally consisted of NASEL consisting of about 200 items. The main content of NASEL includes students' general background, university life survey content and standards for diagnosing teaching and learning capabilities. The distributed survey contents consist of 17 questions, including 12 questions about active-collaborative learning activities, and 5 questions related to faculty-student interaction among 173 items, excluding those that are less relevant to this study.

The scale of the survey consists of a four-point scale (1=Not entirely, 2=No, 3=Yes, 4= Very) and the higher the score, the more positive it means.

### 2.3. "Strategic Research Tool for Improving Teaching and Learning Quality" (NASEL)

NASEL is considered a highly suitable survey tool for professors, courses, and performances in Korean universities, and is highly utilized in the teaching and learning field (Choi

& Shin, 2016). NASEL was first developed by the Korea Educational Development Institute from 2011 for the purpose of surveying teaching, learning processes and performance of university students nationwide (Choi & Shin, 2010).

In the NASEL area, there are many factors such as active-collaborative learning and interaction between faculties and students, satisfaction with major teaching and learning, university immersion, teaching and learning outcomes, and student support services. These can be reconstructed largely into 6 items. However, in this study, we will look at the relationship with economic motivation, particularly with an emphasis on active-collaborative learning activities and faculty-student's interactions.

As shown in Table 1, there are first 4 questions about collaborative learning, ranging from cooperation among students to sharing learning with others and explaining problem-solving solutions to others for class tasks. Second, there are 5 questions about high-level thinking that not only links other classes and collectively link ideas to find solutions, but also that can critically review and apply data to everyday life. Third, if you include 3 questions about learning study, the active-collaborative learning activity items are composed of 12 questions.

The faculty-student interaction items include 5 questions about the relationship between faculties and students, ranging from enrollments, which are the beginning of learning, to test scores, and from relationships outside of class to career, as presented in Table 1.

Other personal backgrounds include age, sex, grade, high school grades, college entrance type (new and incorporated), student admissions type (frequent, regular admission), affiliated department (health care management department, not), and major learned.

**Table 1:** Active-collaborative learning activities and interactions between faculties and students

Teaching and learning capacity diagnosis criteria	Macro area	Micro area	Questions	Items	
active- collaborative learning activities	class activities	cooperation with other students in class	helping students of the same class for the assignment	4	
			helping non-students in the same class for the assignment		
		explain to another student in class	telling others about the course		
			find solutions to problems and explain them to others		
		activities to enhance one's ability to think in class	a link between ideas and concepts acquired in different classes		5
			comprehensive linkage of ideas, experiences, and information		
	looking for solutions or alternatives to a problem				
	the application of the concepts learned in class to daily life				
	extracurricular activities	learning study activity	critically review data	3	
			study activities related to a class		
research and learning community activities outside of class					
faculty-student interaction	extracurricular activities	faculty-student interaction	work. career-related study activities	5	
			discuss the course application with the professor		
			discusses the course content and tasks with the professor		
			discussions with the professor about tests and grades		
			a discussion with the professor about the course of action		
exchange with professors in classes or outside of career (mt, meals, hobbies, etc.)					

## 2.4. Research and analysis design

### 2.4.1. Research step and design

The study was conducted in the following order.

Step 1: set survey tools and contents to NASEL

Step 2: set attribute questionnaires : active-collaborative learning activities and faculties-student interactions

Step 3: set the target, timing and location of the survey sample

Step 4 : statistics tools settings

Step 5 : statistics ; action and practice

Step 6 : test for validity and reliability of statistical investigation

### 2.4.2. Step and design of statistics

#### 2.4.2.1. General attribute analysis

The general characteristics of the survey participants, active-collaborative learning activities and interaction between faculties and students : frequency analysis and technical statistics analysis were performed.

#### 2.4.2.2. Attribute analysis by group

The analysis of active-collaborative learning activities and faculty-student interaction by groups of the surveyed participants is conducted by T and F-test was used.

#### 2.4.2.3. A study on the characteristics of participation and non-participation program groups

The economic support program participation and active-collaborative learning activities and the analysis of differences in faculty-student interactions among groups of non-participating programs were conducted on the T-test, while the year-to-year difference analysis was conducted on the F-test.

#### 2.4.2.4. An analysis of the intensity of active-collaborative learning activities and faculty-student interaction

An analysis of the inter-question intrinsic value of active-collaborative learning activities and interactions between faculties and students.

The cronbach's alpha coefficient was performed.

## 2.5. Statistic method

The characteristics of all students participating in NASEL survey, including gender, grade and age, were investigated by frequency analysis and technical statistics. The analysis of student collective characteristics and participation in economic support programs and active-collaborative learning activities and faculty-student interactions among non-participating program groups using independent t-test and one-way ANOVA were conducted to conduct Duncan multi-comparisons. The statistical significance level for

determining significance was set at 0.05, and the inter-question confidence was utilized by the cronbach's alpha coefficient. All statistical analysis uses the package program IBM SPSS Statistics 22.0 for statistical purposes.

## 3. Research result

### 3.1. Status and general characteristics of NASEL participants

#### 3.1.1. Participation status of survey participants

The main target of research is a student enrolled in a specialization project that has received financial support. However, as a control group is needed to compare their active-collaborative learning activities and faculty-student interactions, students enrolled in non-economic supporting departments were also included in the study.

Almost all students of the specialized project participated in the survey by encouraging business group students to participate through the public notice of the department. And students from other departments who did not participate in the specialization project conducted the survey with the support of other professors who were interested in this research.

As a result, a total of 372 students participated in the survey, with 302 students participating and 70 students not participating in the business group, but the final questionnaires available with the exception of 38 participants were 290 students participating and 44 students not participating in the business group, as shown in Table 2.

**Table 2:** Current status of participants in the survey

Classification	Grade	Target	Available Questionnaires	Response rate (%)
a funded department (health care management)	1	72	67	93.1
	2	78	74	94.9
	3	82	79	96.3
	4	70	70	100.0
	sub Total	302	290	96.0
an unfunded department (hotel and sports management)	3	30	15	50.0
	4	40	29	72.5
	sub Total	70	44	62.9
Total		372	334	89.8

#### 3.1.2. General status of survey participants

The general status of all the students who responded to the survey was presented in Table 3. In the age group, 44.1% were under 21 years old, 32.1% were in 22-23 years old and 23.8% were over 24 years old. In gender, 60% of all students were 174 male students and 40% of all students were 116 female students.

According to the admission status, 97.6 % of all students were new students, and only 2.4 % were transferred. The

admission process was 54.4 % for students who entered the school non-on time and 42.8 % for those who entered the school on time. The average high school record before entering college was 42.8 % in the fourth, with 27.9 % in the third and 16.2 % in the fifth.

### 3.2. Current status of active-collaborative learning activities and faculty-student interaction among the entire survey participants

#### 3.2.1. Status of active and collaborative learning activities

The results of the active-collaborative study activities are

presented in Table 4. As a result of the survey, there was a large deviation in the response results for active-collaborative learning activity items. In the question of collaborative learning with students of the same class, 58.3 % of the respondents said that they experienced 'always' or 'very often', but only 40 % of the respondents answered positive experiences in the rest of the question of collaborative learning and related learning activities. In addition, participation in study activities related to class, study activities for non-class areas, and study activities related to employment and career were very low.

**Table 3:** Typical characteristics of survey participants (Unit: Number, %)

Classification	Contents			Classification	Contents		
	division	number	percentage(%)		division	number	percentage(%)
age	under 21 years of age	128	44.1	department	health care management	290	86.8
	22 to 23 years old	93	32.1		(other)	(44)	(13.2)
	above 24 years of age	69	23.8	grade	1	67	23.1
gender	woman	174	60.0		2	74	25.5
	man	116	40.0		3	79	27.3
high school grades rating	1	2	0.7		4	70	24.1
	2	13	4.5	entrance into a school type	freshman	282	97.6
	3	81	27.9		transfer	8	2.4
	4	124	42.8	typical type	non-scheduled admission	158	54.4
	5	47	16.2		fixed time	124	42.8
	6	14	4.8		other	8	2.8
	7	6	2.1	major complete	major	284	97.9
	8	1	0.3		major + double major	4	1.4
	9	1	0.3		major + minor	2	0.7

**Table 4:** Current status of active-collaborative learning activities of all survey subjects (Unit: Number, %)

Contents	Average	Standard deviation	Hardly	Sometimes	Often	Very often	Total
cooperation with students in the same class	2.66	0.827	22 (7.6)	97 (33.4)	125 (43.1)	44 (15.2)	288 (100.0)
cooperation with students other than students in the same class	2.13	0.925	86 (29.7)	101 (34.8)	82 (28.3)	21 (7.2)	290 (100.0)
discuss the contents of the class with others	2.37	0.788	33 (11.4)	141 (48.6)	93 (32.1)	23 (7.9)	290 (100.0)
find and explain the solution to the problem	2.12	0.846	71 (24.5)	130 (44.8)	72 (24.8)	17 (5.9)	290 (100.0)
link to other class content in homework or class	2.25	0.840	51 (17.6)	140 (48.3)	75 (25.9)	24 (8.3)	290 (100.0)
comprehensive thinking including experience information	2.16	0.835	62 (21.4)	138 (47.6)	71 (24.5)	19 (6.6)	290 (100.0)
look for solutions or alternatives to the problem	2.26	0.798	47 (16.2)	137 (47.2)	89 (30.7)	17 (5.9)	290 (100.0)
the application of lessons to daily life	2.14	0.803	64 (22.1)	134 (46.2)	80 (27.6)	12 (4.1)	290 (100.0)
critical review of textbooks or class related materials	1.98	0.795	85 (29.4)	134 (46.4)	61 (21.1)	9 (3.1)	289 (100.0)
study activities related to a class	1.77	0.894	141 (48.6)	89 (30.7)	45 (15.5)	15 (5.2)	290 (100.0)
non-class study activities	1.61	0.796	163 (56.2)	84 (29.0)	36 (12.4)	7 (2.4)	290 (100.0)
activities for research on work paths and related contents	1.42	0.640	191 (65.9)	79 (27.2)	18 (6.2)	2 (0.7)	290 (100.0)

### 3.2.2. Current status of faculty-student interactions

The current status of faculty-student interaction is presented in Table 5. As a result of the survey, negative responses were generally dominant in the areas of faculty-student interaction. On the four-point scale, all five questions were answered with an average of less than two points, with little or no interaction with the faculty-student. Compared to other items, negative response rates were significantly higher for faculty-student interactions.

### 3.3. The Characteristics of active-collaborative learning activities by group

#### 3.3.1. Characteristics of active-collaborative learning activities by group

Table 6. shows the difference in active-collaborative learning activities for each group. To identify the current

status of active-collaborative learning activities of college students in 2018 survey, we analyzed the differences between student characteristics and type of business by utilizing the average of 12 questions of the assessment criteria for collaborative learning abilities.

The average value of the questions constituting active-collaborative learning activities of university students was 2.07. The analysis of differences between groups by the six characteristics of gender, age, grade, and major (business participation) indicates that there are statistically significant differences in the five characteristics.

Male students were found to be more active in active-collaborative learning than female students, and in the case of their age, the higher the average was observed, the better the grade, the higher the active-collaborative average was in the senior year.

Table 5: Current status of the overall survey participant faculty-student interactions (Unit: Number, %)

Contents	Average	Standard deviation	Hardly	Sometimes	Often	Very often	Total
discuss the course application with the professor	1.33	0.635	216 (74.5)	54 (18.6)	17 (5.9)	3 (1.0)	290 (100.0)
discuss the course content and tasks with the professor	1.55	0.721	164 (56.6)	96 (33.1)	24 (8.3)	5 (1.7)	290 (100.0)
discussions with the professor about tests and grades	1.60	0.738	154 (53.1)	104 (35.9)	26 (9.0)	6 (2.1)	290 (100.0)
discuss one's career with a professor	1.64	0.750	144 (49.7)	112 (38.6)	27 (9.3)	7 (2.4)	290 (100.0)
exchange with a professor in class or career	1.47	0.706	185 (63.8)	79 (27.2)	21 (7.2)	5 (1.7)	290 (100.0)

Table 6: Analysis of differences in active-collaborative learning activities by group

Contents	N	Average	Standard deviation	T/F Statistic	P value	Post-test
gender	woman	174	2.02	2.035	0.043	-
	man	116	2.15			
age	under 21 years of age	128	1.99	2.843	0.060	b, c a, b
	22 to 23 years old	93	2.12			
	above 24 years of age	69	2.16			
a high school average internal grade	1~3	97	2.21	4.036	0.008	a, b, d b, c, d
	4	124	2.03			
	5	47	1.92			
	6~9	22	2.04			
typical type	non-scheduled admission	194	2.04	1.717	0.087	-
	fixed time	90	2.15			
grade	1	67	1.90	4.677	0.003	1, 2 2, 3, 4
	2	74	2.06			
	3	79	2.10			
	4	70	2.07			
department	health care management	290	2.07	1.387	0.167	-
	other	44	2.19			

**Table 7:** Analysis of the difference in faculty-student Interaction by group

Contents		N	Average	Standard deviation	T/F Statistic	P value	Post-test
gender	woman	174	1.42	0.521	3.650	0.000	-
	man	116	1.67	0.627			
age	under 21 years of age	128	1.34	0.501	12.846	0.000	2,3 1
	22 to 23 years old	93	1.62	0.583			
	above 24 years of age	69	1.72	0.611			
a high school average internal grade	1~3	97	1.67	0.572	3.454	0.017	1,2,3 2,3,4
	4	124	1.44	0.534			
	5	47	1.49	0.648			
	6~9	22	1.41	0.590			
typical type	non-scheduled admission	194	1.47	0.581	2.129	0.034	-
	fixed time	90	1.63	0.568			
grade	1	67	1.27	0.620	9.894	0.000	1,2 3,4
	2	74	1.41	0.488			
	3	79	1.68	0.533			
	4	70	1.69	0.595			
department	health care management	290	1.52	0.578	1.081	0.281	-
	other	44	1.62	0.678			

**Table 8:** Analysis of differences between groups between participating and non-participating students

Contents	Groups	N	Average	Standard deviation	T statistic	P value
active-collaborative learning	participation	290	2.07	0.516	1.387	0.167
	non-participation	44	2.19	0.498		
faculty-student interaction	participation	290	1.62	0.578	1.081	0.281
	non-participation	44	1.52	0.678		

### 3.3.2. Characteristics of faculty-student interaction by group

Table 7. shows the characteristics of faculty-student interaction. In the group-to-group analysis of differences depending on individual background characteristics, it was observed that males tend to report higher levels of faculty-student interaction experience than females, and higher grades. However, no difference between faculty and student interaction was observed between participating groups and non-participating groups. The average of faculty-student interaction was 1.52 and lower overall.

### 3.4. A Study on the difference between specialized and unspecialized students

Table 8. presents differences between two groups. In the 2018 survey, differentiating students from non-participation in business groups was conducted to analyze differences among groups on active-collaborative learning activities and faculty-student interactions. As a result, there was little difference between the students belonging to the business

group and the non-business group in all categories.

### 3.5. The differences of active-collaborative learning and faculty-student interaction by students in specialization

#### 3.5.1. The differences between students participating in the specialization

Table 9. looked at the year-to-year differences and found that there was a large gap between active-collaborative learning and between faculty-students. In particular, the higher the level of interaction between faculties and students was found to be among the seniority. Duncan's post-analysis results are also well illustrated.

#### 3.5.2. An analysis of the difference in the specific factors of teaching and learning curriculum by the grade of the students participating

In Table 10, five of the eight areas (collaborative learning,

high-level thinking, active participation in classes, volunteer work, and interdisciplinary human relations) showed significant differences between the grades and higher satisfaction as a senior student.

Three areas that do not show statistically significant

differences are challenging learning, global activities experience, and in-school student activities. However, if you look at the average value by grade in three areas, you will find that the higher the level of satisfaction among high school students.

**Table 9:** Analysis of differences between the departments of business group participation by grade

Contents	Grade	N	Average	Standard deviation	F statistic	P value	Post-test
active - collaborative learning	1	67	1.90	0.505	4.677	0.003	1,2 2,3,4
	2	74	2.06	0.502			
	3	79	2.10	0.554			
	4	70	2.07	0.489			
faculty-student interaction	1	67	1.27	0.620	9.894	0.000	1,2 3,4
	2	74	1.41	0.488			
	3	79	1.68	0.533			
	4	70	1.69	0.595			

**Table 10:** Analysis of the difference between the years and years of business group participation

Analysis items	Grade	N	Average	Standard deviation	F statistic	P value	Post-test
collaborative learning	1	67	2.12	0.645	3.679	0.013	1,2 2,3,4
	2	74	2.27	0.612			
	3	79	2.40	0.763			
	4	70	2.47	0.650			
high-level thought activities	1	67	1.83	0.628	9.576	0.000	1 2,3 3,4
	2	74	2.14	0.656			
	3	79	2.25	0.702			
	4	70	2.39	0.643			
active participation in classes	1	67	1.87	0.658	6.685	0.000	1,2,3 4
	2	74	1.95	0.499			
	3	79	2.07	0.641			
	4	70	2.31	0.601			
challenging learning activities	1	67	1.82	0.496	2.189	0.089	1,2,3 2,3,4
	2	74	1.93	0.501			
	3	79	1.89	0.513			
	4	70	2.03	0.466			
global activity experience	1	67	1.21	0.347	1.843	0.139	1,2,3 2,3,4
	2	74	1.24	0.319			
	3	79	1.26	0.312			
	4	70	1.34	0.390			
school activities	1	67	1.63	0.683	1.184	0.316	
	2	74	1.80	0.701			
	3	79	1.72	0.801			
	4	70	1.86	0.893			
volunteer activity	1	67	1.34	0.578	9.328	0.000	1 2,3,4
	2	74	1.86	0.838			
	3	79	1.85	0.715			
	4	70	1.64	0.658			
interdisciplinary relations	1	67	2.74	0.579	3.611	0.014	1 2,3,4
	2	74	3.01	0.470			
	3	79	3.02	0.607			
	4	70	2.97	0.627			

**Table 11:** Factors load and reliability of measurement questions for teaching and learning process

Contents	Measurement question	Factor load amount	Confidence (Cronbach's alpha)
active-collaborative learning	exchanging help with students in the same class for class assignments.	0.686	0.861
	exchange help with non-student students for class assignments	0.636	
	talk to others about the course content	0.653	
	find solutions to problems and explain them to others	0.719	
	connect ideas and concepts from different classes during homework or class	0.707	
	comprehensive linkage of ideas, experience, and information	0.804	
	looking for solutions or alternatives to a problem	0.679	
	the application of the concepts learned in class to daily life	0.652	
	critically review textbooks and materials related to classes	0.499	
	study activities related to a class	0.678	
	in-class study, learning community activity	0.747	
faculty- student interaction	research activities related to the career path	0.666	0.871
	discuss the course application with the professor	0.623	
	discusses the course content and tasks with the professor	0.635	
	discussions with the professor about tests and grades	0.761	
	a discussion with the professor about the course of action	0.648	
interacting with professors for work other than classes or careers	0.636		

In Table 11, two variables were used as subordinate variables: 'active- collaborative learning' and 'faculty-student interaction' to verify the effectiveness of participating in college characterization projects in terms of teaching courses. Each question was equated to a four-point recitation scale (1=not much, 4=very often).

Specific measurement questions and factor loads of dependent variables on the teaching and learning process were as follows, and the internal limit of cronbach's alpha coefficient was very good at 0.861 and 0.871, respectively.

## 4. Discussion and conclusion

### 4.1. Discussion

Over the years, many people have asked questions like how important is money in motivation, to what degree do organizations pay for performance (especially individual performance), does paying for performance contribute to higher performance or does paying for performance (again, especially individual performance) sometimes have undesired (and often unanticipated) consequences?(Gerharta & Fang, 2013).

This study analyzed the differences in education performance between students of the government's economic

support program and those who do not receive support at local universities in Korea. Using NASEL questionnaire developed by the Korean Educational Development Institute (KEDI), this research examines the effects of active-collaborative learning activities and faculty-student interaction of undergraduates between these two groups.

In active-collaborative learning by the entire group, the overall effect was high regardless of financial support. This shows the same results for other studies (Bae & Kim, 2012). The financial support program (Park, 2018) is interpreted to share the awareness of mutual business communities through frequent participation, communication, and trust between faculties and students. Pender's study (2010) indicates that students believe the field experience and group interactions are more beneficial to their learning experience than traditional lecture alone. Therefore, it can be seen that practical lectures and communication besides financial factors stimulate active-collaborative learning activities.

In faculty-student interaction by the entire group, the overall effect was low regardless of financial support. Generally speaking, the better student can interact with the professor-student, the more active learning and satisfactory academic achievement can be expected. Faculty should maintain regular office hours, either face-to-face or in a digital environment in order to make themselves available to answer questions, clarify concepts, explain assignments, or

simply to extend learning(Hoffman, 2014). Thus, it is believed that faculty student interaction is more actively engaged outside personal interaction and/or out of classroom than financial factors and/or strict rules in the classroom.

Contrary to expectations, however, there were no significant differences both active-collaborative learning and faculty-student interaction between business groups and non-business groups. In Shea's (2018) experiment study results, the problems many of professors are experiencing with student comprehension are much deeper than can be dealt with by merely changing our teaching styles. The problems he indicates are 1) many students strongly prefer to work alone and actively dislike dealing with the problems created by having to work in groups; 2) commuter students often have difficulty finding mutually acceptable times for group meetings; 3) groups tend to have dominant members who often do the work, monopolize the group discussion. Also, Hu, Hung and Ching's (2014) study showed that the results further provided an empirical proof of the importance of quality student and faculty communications and interactions. Namely, faculty-student interaction is more dependent on qualitative interaction than outward financial factor.

In literature, motivation has been repeatedly reported as a key element for students' success in learning and people working, so motivation is often considered as an inner drive for behaving or acting in a certain manner(Jovanovic & Matejevic, 2014). Then, financial support program can be seen as a powerful motivation in teaching and learning in many ways. Nevertheless, there were no clear differences between the groups receiving economic support and the groups receiving no economic support in this study.

This may not be true between the two groups, or students may recognize that the curriculum of a business group is clearly not different from that of a control. It also provides hints that intrinsic rewards such as praise, satisfaction or belonging (Kim & Rhee, 2009; Min & Roh, 2016) may have a bigger impact on young students than economic external factors itself. Otherwise, active-collaborative learning may be more influenced on the strategy of instruction for improving knowledge and skill performance and learning behavior (e.g., Class engagement, motivation for learning, self-confidence)(Zhang & Cui, 2018) rather than financial support program itself. Also, faculty-student interaction may be more influenced on the strategy of out-of-class communication and frequency faculty-student interaction(Cotten & Wilson, 2006) rather than financial support program itself.

But, we find that the older the active-collaborative learning and faculties -students interaction, the higher the grades of school records, the higher the boys. In some senses, students recognized that the teaching, learning, and response results were highly enhanced through college education in such areas as learning related knowledge or skills, ability to accomplish their tasks responsibly,

community awareness, self-interest, and interpersonal skills. This result is believed to affect self-directed development of learning capabilities (Lee & Lee, 2014). It is believed generally that the learning motivations and educational experiences have played a positive role in the performance of teaching and learning by participating in various learning communities such as career counseling, mentoring & tutoring, and comparative programs.

In addition, many studies have shown that financial support, particularly scholarships and tuition assistance, has a significant impact on academic ability improvement, interactions, etc. (Cameron & Pierce, 1994; Kim, 2012; Kim & RLee, 2009). The compensation provided when a student satisfies a condition that achieves a specific performance is called a conditional compensation(Hwang & Jung, 2018). The longer the period of participation in the economic support program, the more the higher the senior, the more the male students were able to produce a certain output in the educational learning performance due to economic motivation. However, the education area where active-collaborative learning and faculty-student interaction processes between two groups are not clearly shown to be large, has many implications or improvements such as setting new direction or contents of characterization, reorganization of curriculum, or setting up new convergence characterization as shown Seo's (2018) study.

However, the specialization project is largely divided into government-led specialized universities and university-led specialized universities, depending on who is supervised by them. While the government's specialization of teaching and learning results show a certain academic achievement rather than a whole university change, the difference between participating in a specialization project and achievement of specialization among non-specialization groups is clearly distinct, given the results of the specialization project (Gong & Rhee, 2014).

To ensure the competitiveness of higher education and improve the quality of education, university financial support programs should be harmonized with general support programs for all universities to support basic educational conditions and environment, and special purpose support programs to select and focus on some universities.

In fact, there is a tendency in Korea that the Ministry of Education has pursued a variety of funding projects for universities at national level over the past few decades. The actual characterization of education-oriented, industry-academic cooperation-oriented universities and research-oriented universities at all levels has not been reasonably planned at all, but has decided on the number of specialized universities within the scope of education finance itself(Kim, 2009; Shin & Choi, 2014).

A real university characterization policy may be considered a paradigm shift that the state subsidizes some of its own voluntary bottom-up characterization rather than just economic aid or inducement in a top-down fashion to

universities.

It is necessary to consider whether characterization properly linked to the industrial structure of the community where the university is located, the human resources development and related industries (Lee & Lee, 2015) is being pursued. The bottom line is that the nation's economic support programs should be applied by universities themselves as a means of self-sustaining characterization.

#### 4.2. Conclusion

As a general characteristic result of the survey, 60%(male) of students and 16%(female) of students were investigated. In the order of participation age group, 44.1 % of the respondents were under 21, 32.1% of the respondents were under the age of 22, and 23.8% were over 24. All grades were almost the same, with 23.1% in the first year, 25.5% in the second year, 27.3% in the third year, and 24.1% in the fourth year.

The main results of this study are as follows.

First, regardless of the participating and not participating students in the economic support program, the average of active-cooperative learning activities was above the average, but the faculty-student interaction was below average.

Second, the interaction between faculties and students is not so always great that students' active-collaborative learning activities are great.

Third, between participating and not participating students in the economic support program, there is no clear difference in active-collaborative learning and faculty-student interaction process.

Fourth, in the financial support program, the more time students participate, the older students are, and the more male students are than the female student, in terms of active-collaborative learning and faculty-student interaction process.

Fifth, the longer the period of participation in the economic support program and the older the age, the more active-cooperative learning and teaching- learning process are. In addition, male students are more likely to participate in collaborative learning, higher thinking activities, active class participation, volunteer activities, and human relations within the detail areas.

#### 5. Limitations of research and future direction of research

The university in Korea characterization project in this study does not include the entire contents or process of the characterization project(Choi, Kwon, Park, & Jung, 2018). In fact, as of 2019 among universities nationwide, 335 business groups from 109 universities have been financed by the Education Ministry for their college characterization projects.

Therefore, since this research was conducted centered on one university specialized financial project of a local university, it may be difficult to apply the results to the specialized project courses of the 334 business groups of the remaining 108 universities.

In conclusion, future research will greatly contribute to the performance management of university teaching and learning by designating the entire 335 specialized business groups nationwide as a population to study how and how programs affect program participation and ripple effects.

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