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The Effect of Educational Experiences on Student Learning Outcomes in General Education

Abstract

The objective of this study was to examine which educational experiences in general education impact on the student's learning outcomes. The survey included 1,201 students in South Korea. Hierarchical multiple regressions were used. The result showed that educational experiences in general education demonstrated greater predictive power for the student's learning outcomes than individual and institutional characteristics. However, not all educational experiences positively predicted learning outcomes. Educators are advised to improve general education towards better educational experiences in a way that encourages teaching higher-order thinking, evaluation and feedback, and active class participation.

Keywords: general education, educational experience, learning outcome, college student

Introduction

In a rapidly changing society with a decreasing time span for the practical relevance of knowledge acquired at university, general education, deemed to provide students with the necessary qualities as professionals, as well as the intellectual capability of liberal thinking and balanced judgment, is being prioritized over departmentalized specialist education. The Association of American Colleges and Universities (AAC&U) Heart Research Associates (2009) reported that 56% of

their 433 chief academic officers and designated representatives replied that the significance of general education had been increasing for the past five years.

With the importance of general education, interest in the learning outcomes of general education began to grow (AAC&U, 2011; Lundberg, 2012). Personal and social development, development in the understanding and awareness of science and technology, vocational preparation, and growth in cognitive skills are critical learning outcomes (Kuh, Vesper, Connolly, & Pace, 1997). Choi and Rhee (2009) presented perceived learning outcomes as higher-order thinking, communication skill, and interpersonal relationship ability. These factors are commonly utilized in the Collegiate Learning Assessment, the National Survey of Student Engagement (NSSE) of the USA, the National Student Survey (NSS) of the UK, and the Course Experience Questionnaire (CEQ) of Australia. Hall et al. (2012), however, pointed out that general education programs were not achieving the desired outcomes. Korean students are also of the opinion that although general education is very important, it does not contribute to an individual's learning outcomes (Lee, Kim & Lee, 2010).

In order to successfully reform general education towards improving student learning outcomes, many factors should be considered. The factors include student characteristics, structural and organizational characteristics of institutions, interpersonal relationships, learning environment, and quality of efforts (Pascarella, 1985). Among them, student learning outcomes are especially influenced by educational experiences such as engagement and involvement in class activities, cooperation with other students and the quality of teaching (e.g., Goldenberg, 2001; Pascarella & Terenzini, 2005). Recent studies are focused on faculty teaching practices, specifically in relation to general education courses (Nelson Laird & Garver, 2010; Nelson Laird, Niskode-Dossett, & Kuh, 2009). Active learning and prompt feedback to students also consistently enhance student learning (Chickering & Gamson, 1991). Moreover, learning outcomes are enhanced as the quality of instruction is improved and more dynamic teaching methods are introduced (Kim & Rhee, 2003). Korean students thought that courses for stimulating high levels of critical thinking were, in most cases, not sufficient and the teaching methods lacked diversity in the Korean general education curriculum (Lee et al., 2010). Hall et al. (2012) suggested seven principles for good practice including developing reciprocity and cooperation among students, encouraging active learning, giving prompt feedback, and respecting diverse talents and ways of learning in general education.

However, few quantitative studies have investigated student learning outcomes in general education. Hall et al. (2012) pointed out that while research literature

yields interesting insights into what students may be gaining from general education, there are some noticeable gaps between theory and practice. Therefore, research into the way educational experiences in general education influence student learning outcomes was needed.

Research Problem

The objective of this study was to examine which educational experiences in general education would have an impact on student learning outcomes. We hypothesized that the student's educational experiences, including various teaching methods, emphasis on teaching higher-order thinking, quality of teaching, evaluation and feedback, and active class participation in general education, would have a significant influence on the student's higher-order thinking ability, communication skills and interpersonal relationship ability. In order to demonstrate the unique effect of the student's educational experiences in general education, individual and institutional characteristics were taken into account.

Research Methodology

Research Sample

Registered four-year university students in South Korea were selected as the population of this study. Originally, researchers randomly sampled 10 of 175 universities in Korea. But 1,201 students from 33 universities participated in the survey because some students enrolled in other universities were visiting the university at the time the survey was conducted.

The participants represented a wide range of academic majors: humanities (32.6%), social sciences (24.9%), science (13.2%), engineering (20.9%), education (6.2%), and missing data (2.2%). The sample included 606 women (50.5%), 581 men (48.4%), and 14 missing data (1.2%). It consisted of 162 freshmen (13.5%), 322 sophomores (26.8%), 362 juniors (30.1%), 331 seniors (27.6%), and 24 missing data (2.0%).

Instrument and Procedures

The participating universities gave permission to do the research and access the students. Well-trained assistants visited the libraries, cafeterias, and other locations in the universities and asked students to complete the self-reported surveys. The participants were well informed about the surveys and this study in advance.

In order to investigate educational experiences and learning outcomes in general education, this study used the 'Survey of College Students for a Qualitative Evaluation of University Education' (Choi & Rhee, 2009). The subjects of the instructions on the survey were changed from college education to the cases of general education. The survey is composed of a set of items regarding individual characteristics including gender, major, grade, first generation (neither of whose parents received university education), and economic status, institutional characteristics including functional characteristics (research-oriented vs. teaching-oriented) and location, educational experiences including various teaching methods (two items, $\alpha=.70$), emphasis on teaching higher-order thinking (three items, $\alpha=.51$), quality of teaching (three items, $\alpha=.65$), evaluation and feedback (two items, $\alpha=.74$), and active class participation (four items, $\alpha=.84$), and perceived learning outcomes in general education including higher-order thinking (three items, $\alpha=.71$), communication skills (three items, $\alpha=.69$), and interpersonal relationships (three items, $\alpha=.68$).

Independent variables measured on a nominal scale—gender, major, grades, generation at university, family income, functional characteristics, and location of university—were converted to dummy variables. All dichotomous variables were recorded into 0 and 1 categories, with 0 representing the reference category of male, first-generation at university, teaching-oriented university and the Seoul Metropolitan Area. Categorical variables with more than two levels were dummy-coded into the number for the necessary analyses, with the variables of humanities, grade D, and family low income serving as the reference group.

Items on educational experiences in general education were rated on a five-point Likert-type scale ranging from 1 (*not at all true*) to 5 (*very true*). The degree to which general education had contributed to student learning outcomes was questioned with the items rated on a five-point Likert-type scale ranging from 1 (*very little*) to 5 (*very much*).

Data Analysis

Hierarchical multiple regressions were carried out to identify significant predictors of learning outcomes: higher-order thinking ability, communication skills and interpersonal relationship. To determine the effects of the predictors on learning outcomes, the predictor variables were entered in three successive steps. In the first step, individual characteristics including gender, major, grades, generation in university, family income were entered first as controlled variables. In the second step, institutional factors such as institutional function and location of university were entered. In the third step, educational experience factors were entered into the analysis model according to the theoretical assumptions of the model.

Research Results

Higher order thinking ability

In the regression predicting higher-order thinking ability (Table 1), step 2 of the model was significant, but only accounted for 3.8% of variance in learning outcomes ($F=3.142, p<.001, R^2=.038$). Five educational experiences were included in the last step of the model and the results of step 3 indicated that various factors accounted for 24.7% of variance in learning outcomes ($F=19.011, p<.001, R^2=.247$). Educational experiences explained higher-order thinking ability approximately 21% more than individual or institutional characteristics did. Various teaching methods ($\beta=-.072, p<.05$) appeared to be a negative predictor, whereas emphasis on teaching higher-order thinking ($\beta=.168, p<.001$), quality of teaching ($\beta=.208, p<.001$), evaluation and feedback ($\beta=.134, p<.001$), and active class participation ($\beta=.169, p<.001$) were significant positive predictors. Male students predicted significantly higher-order thinking ability compared to female students ($\beta=-.070, p<.05$), while science students did so compared to humanities students ($\beta=.071, p<.05$) and research-oriented universities compared to teaching-oriented universities ($\beta=.112, p<.001$).

Communication skills

In the regression predicting communication skills (Table 1), step 1 of the model was significant ($F=2.055, p<.05, R^2=.021$). The model with institutional characteristics added in step 2 did not show much increase in the amount of explained variance, but was significant ($F=2.261, p<.01, R^2=.027$). Five educational experiences were included in the last step, and the model remained significant ($F=20.031, p<.001, R^2=.257$) throughout. Compared to step 2, step 3 explained communication skills 24.4% more. Emphasis on teaching higher-order thinking ($\beta=.135, p<.001$), quality of teaching ($\beta=.111, p<.01$), evaluation and feedback ($\beta=.112, p<.001$), and active class participation ($\beta=.269, p<.001$) were significant positive predictors. Moreover, the A and B grades that had effective predictors in steps 1 and 2 did not have any significant influence on the prediction of step 3, and only educational experiences meaningfully accounted for communication skills.

Interpersonal relationship ability

In the regression predicting interpersonal relationship ability (Table 1), step 1 of the model was significant ($F=1.972, p<.05, R^2=.020$). In step 2, the model with additional institutional characteristics remained significant although the amount of explained variance was not dramatically increased ($F=2.449, p<.01, R^2=.030$).

Table 1. Hierarchical multiple regressions predicting learning outcomes

Learning out-comes	Higher-order thinking ability			Communication ability			Interpersonal relation-ship ability		
	β step 1	β step 2	β step 3	β step 1	β step 2	β step 3	β step 1	β step 2	β step 3
<i>Step 1</i>									
Gender	-0.13	-.052	-.070*	.026	.003	-.010	.036	.011	-.003
Major: social science	.050	.058	.027	-.013	-.010	-.030	-.051	-.046	-.060
Major: science	.080*	.069*	.071*	.015	.016	.029	-.006	-.013	-.004
Major: engineer-ing	.000	-.026	-.035	-.021	-.026	-.032	.032	.016	.010
Major: education	.061	.050	.029	.014	.016	.002	.015	.008	-.008
Grade:C	.167	.147	.093	.163	.168	.118	.174	.163	.126
Grade: B	.274	.252	.126	.420*	.425*	.281	.376*	.364	.238
Grade: A	.318	.299	.147	.462*	.470*	.287	.433*	.422*	.264
Second-genera-tion	.004	-.003	-.008	-.010	-.016	-.017	-.048	-.053	-.047
Economic status middle	-.046	-.034	-.022	-.057	-.050	-.048	-.034	-.026	-.034
Economic status high	-.054	-.046	-.014	-.047	-.055	-.029	-.035	-.031	-.005
<i>Step 2</i>									
Research-oriented university		.159***	.112***		.050	-.013		.099*	.031
Location: rest of the nation		.002	.053		-.056	.000		-.005	.038
<i>Step 3</i>									
Various teaching methods			-.072*			.054			.168***
Emphasis on teaching higher-order thinking			.168***			.135***			.183***
Quality of teach-ing			.208***			.111***			.057
Evaluation and feedback			.134***			.112***			.077*
Active class par-ticipation			.169***			.269***			.193***
R^2	.015	.038***	.247***	.021*	.027**	.257***	.020*	.030**	.250***
ΔR^2	.004	.026***	.234***	.011*	.015**	.244***	.010*	.017**	.237***

Notes: β indicates regression coefficient; * $p < .05$, ** $p < .01$, *** $p < .001$

Five educational experiences were included in the last step of the model and the model remained significant ($F=19.301, p<.001, R^2=.250$) in step 3. Compared with the results from step 2, step 3 resulted in approximately 23% of additional variance being explained. Therefore educational experiences predicted interpersonal relationship ability more than individual or institutional characteristics did. Various teaching methods ($\beta=.168, p<.001$), an emphasis on teaching higher-order thinking ($\beta=.183, p<.001$), evaluation and feedback ($\beta=.077, p<.05$), and active class participation ($\beta=.193, p<.001$) were significant positive predictors.

Discussion

The study was conducted to discover which variables in general education affect the learning outcomes of students. Relationships among individual and institutional characteristics, educational experiences, and learning outcomes were examined to this purpose. Four major findings emerged from this study.

First, educational experiences in general education demonstrated greater predictive power for learning outcomes than individual and institutional characteristics. This result supports the studies of Chickering and Reisser (1993) and Pascarella and Terenzini (2005), which found out that the factors most influencing the growth of students at university were not their personal background or the kind of university they belonged to, but what they experienced at that university. The fact that educational experiences were more important than individual and institutional characteristics strongly indicated a direction for improving general education. Educational leaders and policymakers should improve general education in a way that enables proper educational experiences.

Second, an emphasis on teaching higher-order thinking, evaluation and feedback, and active class participation might be particularly essential experiences in improving student learning outcomes. In this study, these three factors were coincident variables that significantly predicted student learning outcomes. Faculties teaching general education courses need to be encouraged to emphasize the capability of analysis, evaluation, and creativity in the general education curriculum, apply theories to real situations, state evaluation criteria for grading clearly, have active discussions with students, and use problem-based learning methods in their classes. Teaching practices, including designing different ways of solving a certain problem, rewriting stories, assessing or criticizing historical events, and comparing or contrasting two concepts are recommended.

Third, some educational experiences such as various teaching methods and quality of teaching might not contribute to improving the student's learning outcomes. This study showed that various teaching methods did not have a significant impact on the communication ability and negatively influenced the higher-order thinking ability. In Korea, instructor-led and expository instruction is more often used than other teaching methods (Kil, 2003). Both professors and students are used to instructor-led classes and are not used to debate and active participation. Since a variety of teaching methods is not used, students do not seem to perceive that teaching methods influence learning outcomes positively. The quality of teaching also did not predict the student's interpersonal relationship ability significantly, but it was the most powerful factor in elevating the student's higher-order thinking ability in this study. Korean students seem to regard the quality of teaching as the ability to lecture in classes where instructor-led and expository instructions prevails. The results indicate that the educational experiences which are effective depend on which learning outcomes are going to be achieved.

Fourth, the functional characteristics of Korean university influence the student's higher-order thinking. The results indicate that students at research-oriented universities perceive general education as contributing to their higher-order thinking. Similarly, a previous study reported that students in Korean research universities positively recognized the improvement of higher-order thinking as due to higher education (Choi & Rhee, 2009). Contrary to Korean studies, research-oriented universities showed a negative impact on undergraduate learning outcomes in the USA (Kuh & Hu, 2001). This might be due to the different characteristics of Korean and American research-oriented universities. Research-oriented universities in South Korea are mostly at the top of university rankings and students in the selective universities develop their higher order thinking more than those from other universities. The differences in general education curriculums among universities derive from university ranking in Korea. It contrasts sharply with the diversification of function in the American higher education system (Kim, 2003).

This research has its limitations in that it analyzed the learning outcomes in general education using only the results of the self-reported survey without further exploring many other sources of information. Objective quantifiable data such as academic achievement and standardized test scores should also be used to directly evaluate learning outcomes of general education in future research. Moreover, the vast range of educational experiences were limited to, and categorized into, only five dimensions. Further research is therefore needed to explore the influence of other dimensions of educational experience on the student's learning outcome.

This study also suggests that subsequent studies account for various aspects of general education, e.g., how an improved environment of general education can bring changes to the educational experience of university students.

Conclusions

The presented study confirms that the contribution of general education to student learning outcomes depends on what they experience in general education rather than their personal background or the characteristics of the university they study at. The educational experiences that are effective depend on which learning outcomes are to be achieved. Educational leaders and policymakers alike are therefore advised to consider not only discipline-based content, but also the educational experiences that students have in general education courses. They need to improve general education for better educational experiences so as to encourage emphasis on teaching higher-order thinking, evaluation and feedback, and active class participation.

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