

## **Abstract**

# **Strategic Planning for the Advancement of the Teaching–Learning Quality in Higher Education(VI)**

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The purpose of this study is to examine the outcome of ‘1st-phase University Teaching-Learning Research’ project through collecting survey data on teaching and learning characteristics of faculty members and students in 4-year and 2-year colleges in Korea. This research provides various implications to improve

university teaching and learning quality based from the results of the study. Followings provide summary of main findings from each chapter of this study.

In Chapter 2, the main focus was paid on investigating on how the data collection and analysis were made for ‘2018 University Teaching-Learning Survey’ and tested reliability of collected data. The chapter includes wide range of information on research methods, data cleaning and management process and how the analytical framework and tools have been revised for this research.

As for 4-year college, total 33,409 students have participated from 69 institutions(35.8%), and total 2,204 faculty members from 63 institutions(32.6%) have participated. As for 2-year colleges, total 14,168 students from 35 institutions(25.5%) and 821 faculty members from 33 institutions(24.1%) have participated. The average respond rate of 4-year college student and faculty members were 4.88% and 4.66% respectively. As for 2-year colleges, the respond rate of students and faculty members were 10.38% and 11.57% respectively. The level of statistical reliability on collected data was sufficient which scored over .7 Cronbach’ alpha.

In Chapter 3, it addresses results from various topics related to teaching and learning activities including proactive collaborative learning, faculty-student interaction, quality of student support, students’ satisfaction on their major and liberal arts classes, teaching and learning satisfaction and analyzed differences between institution, student, difference in perception of faculty-student and etc. Moreover, the study examined university faculty members’ time allocation, how they design and manage their classes, teaching and evaluation method and their perception towards university and education in general.

Followings are main findings from the chapter. First, as for 4-year colleges, the level of proactive collaborative learning, quality of student support, and students’

satisfaction on major program classes have increased. On the other hand, there were no clear signs of improvement on students' satisfaction on liberal arts classes and learning outcome and the level of faculty-student interaction was still low. As for 2-year colleges, there were no clear trend found on improvement on proactive collaborative learning and students' satisfaction on both major program course. Students' experience and satisfaction on liberal art classes were declining in 2-year colleges along with teaching and learning outcome. On contrary, the level of quality on student support was increasing. It is interesting to note that the quality of learning experiences were significantly lower for female students, students in early years and those who were enrolled in science and engineering programs regardless of university type. Also, there were clear differences in terms of perception between faculty members and students in both 2-year and 4-year institutions in terms of class satisfaction and collaborative learning.

Second, it was found that faculty members from 4-year institutions allocate substantial amount of their time on preparing and carrying out undergraduate classes as well as student consultation during the week. However, it is difficult to provide in-depth details on faculty members' time allocation characteristics due to limitation in data source which requires improvement in the future study. Faculty members who participated in this study paid most of their efforts on securing fair evaluation system in their classroom, and to make an effective linkage between theory and practice. On the other hand, they were putting less effort on providing opportunities for students to further practice and to apply what they have learnt. Faculty members who are employed as part-time or non-track contract were found to put more efforts to improve their teaching compared to tenured full time faculty members. Some faculty members from 2-year institutions had long teaching hours (e.g. over 13 hours a week) and most of the faculty members indicated that they are putting various efforts to achieve effective teaching. As for teaching method, traditional lecture style and

written-examination were most frequently used and there were limited number of faculty members who apply more cutting-edge teaching and evaluation methods such as discussion and team-project learning. Job satisfaction of faculty members in 2-year colleges were low especially in aspects of scholarly exploration opportunity and level of salary.

In Chapter 4, it provides various implications to establish strategies in regard to improving quality of Teaching and Learning on college education through investigating trend and characteristics of university students. Major theme of the chapter includes characterization on learning participation type of 4-year college students and its determinants, 2-year college students' characteristics on learning participation, relationship between collaborative learning experience and outcome, analysis on highly-effective learning experience of 4-year college students.

First, results of analyzing 4-year college students' learning participation type and their determinants show that their participation type can be categorized as total six groups including ① Lowest learning participating group, ② Low cognitive- Low behavior participation group, ③ Mid-cognitive and Mid-behavioral participation group, ④ Mid-cognitive and High-behavioral group, ⑥ Highly cognitive and highly behavioral learning participation. Determinant factors associated with such learning participation type are 'gender', 'semester', 'college immersion', 'discipline field', 'whether the student plans to pursue career in his or her discipline field', and as for institutional factors include 'establishment type', 'course satisfaction' and 'adequate class size.'

On the other hand, an analysis of the characteristics of a 2-year college student's study engagement was conducted by focusing on the effects of the student's work experience and spent time, military service experience, and area of studies they wish to pursue on their learning engagement and attitudes. Results

show that students' working experience had positive influence on their learning engagement and attitude. This implies that students' working experiences do not only have the side effects of losing learning time, but rather help them expand and build social skills they need. Students' military experience also had a positive impact on their learning engagement and attitudes. Students with military experience were actively participating in their study with a better academic attitude than those who did not. Students who served in the military may have developed their level of motivation which influenced on achieving higher learning skills such as critical thinking skills and challenge spirit. Also, the more students who entered the academic program they originally wanted, the level of learning engagement and participation was higher. These results indicate the importance for universities to constantly monitor students' academic adaptations to enhance their learning experience.

According to the analysis of the effects of cooperative learning experiences among 4-year college students, differences on their 'study time', 'study group activity' and 'activities that require high thinking skills' were mostly explained by individual characteristics rather than institutional characteristics. Among the distribution of these learning activity variables, less than 5 percent of the total variance was explained by school characteristics. And while the 'cooperative learning' that students experience during class which include discussion and team project performance and presentation activities are shown to increase students' average daily learning time, the magnitude of their actual influence is small. In addition, as for collaborative learning variable, interacting with professors and reading activity also have positive effects on the increase in learning time. Students' cooperative learning experience also showed that they were more active in studying activities. Through the collaborative learning experience in class, students experience interdependence skills and responsibilities, which in turn seems to facilitate the organization, operation, and participation of various study

groups involved in the class. Moreover, it was found that the students' experience of cooperative learning has a positive effect on intensive thinking activity taking place in their classroom. In addition, the students' thinking skills increased as they have more study time, study group activity, level of interaction with faculty, number of registration semesters and hours invested on reading.

Finally, analysis of the learning experience effectiveness of 4-year university students confirmed findings from previous studies and also new significant variables were identified in the current study. While active participation in class, highly thinking activity, challenging learning activity, and student interaction were shown to have a positive impact on all learning outcomes. In case of collaborative learning, problem-solving and critical analytic knowledge skills, interaction with peers had significant implications for each learning performance, but other learning experience variables had different outcomes depending on the learning performance. In the case of diversity experience, cognitive learning or problem solving, critical analytic thinking, communication skills, self-managing and global competences had significant implications, but they had no significant relationship with interpersonal or knowledge technology. The social club activities had a significant relationship with other learning outcomes except for communication and global competence. On the other hand, in the case of working activities, it has had a negative impact or no significant relationship on most learning outcomes, except on global competence. Global learning experiences have a significant impact on learning performance other than interpersonal and communicative skills. Having overseas global experience has been shown to have a negative relationship with communication skills, and has a positive effect on self-managing and global competence. On contrast, having domestic global experience has had positive effects on cognitive learning, problem solving, critical and analytical thinking and knowledge technology, but shows negative effects on global competence and has no significant relationship on communication or self-managing skills.

Some implications can be obtained from the results of the above analysis. First, as the types of college students' participation in learning show various combinations and aspects in both cognitive and behavioral aspects, each university should pay close attention to develop their own curriculum operation and quality management, considering the unique characteristics of their institution and students in terms of educational purpose, functions and resources. Second, in order to provide students with a customized learning experience according to their major categories, universities should develop and distribute specialized teaching and learning methods for each major group. Third, the more students plan their major-related careers, the more cognitive and behavioral levels of learning engagement have been found. Hence it may be necessary to provide students with various support system which can increase their interest in major programs.

Chapter 5 was designed to explore variables that influence on effective teaching and learning performance and the level of institutional efforts to improve students' learning outcome.

First, as a result of an analysis of the types and influences of professors-students interaction in 4-year universities, professors group showed significantly higher positive awareness of the degree of interaction between professors and students than students group. This result implies that there are huge differences in perception of the level of interaction between professors and students. This suggests that professors should enhance effective and meaningful interactions that students can actually 'realize'. In addition, students' gender(female), institutional loyalty and discipline (social science and medicine < humanities and arts < art and sports) were found to be influential factor that impact on level of interaction frequency. The higher frequency they have in terms of faculty-student interaction in classroom and career-advise, the level of perception on cognitive performance were also

found to be higher. University and program preference, class related learning experience(participation, cooperative learning, high thinking skills) were consistently providing significant impact to improve cognitive learning outcome. These results suggest that classroom participation, co-education, and class design and management, which have traditionally been valued as important factors should be continuously promoted. Also, efforts to improve the curriculum within the department, the professor's job satisfaction, and the number of students per teacher significantly affect most cognitive performance variables. In order to improve the performance of college education, more financial investment should be made to improve teaching quality such as securing more full-time faculty members.

Next, analysis of the types and factors of professional 2-year university's student-faculty interaction was conducted using both the student survey and the teaching survey data. As a result of analyzing the student data, while there was no significant difference between the location and size of the university, career-related professor-student interaction was found to be highly interactive by small and medium-sized universities. The result based on students' personal background was found to be consistent on all three types of faculty-student interaction. Student who supports family member, parents' with high level of education, higher level of high school academic performance, semester(3-4 semester), dependent family member, university and program preference level were found to have more meaningful interaction with faculty members. On the other hand, in terms of disciplinary difference, medicine and pharmaceutical course students showed lower level of interaction in all three areas.

Despite the fact that interplay between professors and students play an important role that determine students' learning experience in 2-year colleges, the results indicate that the level of interaction is very low. Analysis result shows that the difference in perception between faculty group and student group was significant. While the interplay of professors-students concerning university characteristics was

active in large-scale university professors, there were no significant differences between career and extracurricular teaching-student interactions in both types. Class-related professor-student interactions were found to be influenced by professors' gender, major activities, and positions. Career-related professor-student interaction were found influential according to professors' major activities, positions, degree of seniority, major activities. In common, professors' major activities, positions, and whether the faculty is tenured had significant differences in professor-student interaction. In class-related professor-student interactions, significant differences were identified depending on their major classes. It was analyzed that the level of interaction with students was different depending on the nature of faculty's major activity (teaching focused or industry cooperation focused). The analysis of the influence of interactions between professors and students on academic performance revealed that they acquire major knowledge corresponding to cognitive performance, critical and analytical thinking skills, problem-solving skill and institutional commitment and etc. It was analyzed that the higher the level of interaction between classes and career advise among student-faculty, students' learning performance improved. However, class and career interactions did not have any significant influence on other learning performance except for major knowledge acquisition, and they also have negative influence on major knowledge acquisition, which requires further analysis.

Next analysis regards the factors affecting faculty members to encourage more challenging learning activities to their students in 4-year universities. According to the analysis results, professors' gender, age, position, rank, discipline, individual will and effort, level of university education support awareness (student support), and research productivity (Korean academic journal publication) were found to be significant. The type of establishment of universities has had a statistically significant impact on the level of encouraging challenging learning activities. The analysis results provide the following implications. First, it is necessary to support

establishing teaching content and methods according to the characteristics of each professor or academic field. Female professors, young professors and low-ranking professors are more likely to recognize the importance of challenging learning experience which may lead them to encourage their undergraduates to learn in such a way. On the other hand, senior academics have a higher need for higher-level and critical thinking than challenging learning. There is also a difference in learning activities that are emphasized by the disciplinary field. Therefore, it is necessary to support the most appropriate educational activity in undergraduate classes through considering the characteristics and experience of each professor. Second, it is necessary to improve the climate and culture of universities so that university professors can focus on their teaching quality. Korean universities tend to place more effort to generate high research productivity and pay less attention on improving teaching quality. This study revealed that when a professor has higher willingness to become a good 'teacher', their teaching efficacy as well as students' learning experience were more positive. Current academic climate may result in many academics to neglect their teaching role which needs improvement. Third, the educational and research activities of university professors can contribute to enhancing the quality of education through proper linkage. Research productivity has had a positive impact on encouraging challenging learning activities despite the analysis was limited to academics' domestic journal publication performance. But even if research productivity has a static influence on encouraging challenging learning activities, it needs to be discussed about the fact that it depends on the nature of the journal. A journal article may be a challenging learning experience for a professor as it takes a lot of time and effort, but it also requires the sacrifice of time and effort to devote to their educational activities. Therefore, instead of simply asking professors to increase the number of academic journals, they need to find ways to help undergraduates participate in such research activities and share experiences.

Finally, the results of the analysis of the relative effectiveness of the teaching support system in 2-year colleges are as follows. First, out of the total 32 colleges surveyed, 15 colleges achieved efficiency of '1.0' under CRS assumption and in terms of VRS assumption about two-thirds of the universities surveyed have achieved a perfect efficiency of 1.00, but the rest have been identified as inefficient. The mean and standard deviation in the size-changeable assumptions and in the VRS assumptions show no significant difference between the overall efficiency of 32 universities. Although it may be difficult to generalize due to the limitations of the variables used in this analysis, the ecosystem of the teaching support system at a 2-year university is seemingly experiencing somewhat 'isomorphism' in terms of how their teaching support system is established. Second, in relation to determining the inefficiency of the teaching support system at a 2-year university, some universities have found that the cause of the inefficiency lies at a technical level, indicating the need to reconfigure the mix of resources invested into the university. In addition, some universities have found that the cause of inefficiency lies in large scale, and need to operate at optimum scale by restructuring the overall size of their institution and programs.

Chapter 6 was aimed to identify improvement tasks and measures by checking the validity of the '1st period University Faculty Survey and Analysis System' and reviewing changes and innovative efforts within and outside universities. Research tools and improvement plans were developed for the 2nd period to improve teaching and analysis of college education which include summarizing the theoretical background, major concepts and perspectives of university education models, and to analyze the changed university environment and innovation trends.

There are calls for changing trends in theoretical basis of students' participation in learning and experiences through reflecting reform and changes in the society. To identify specific needs for improvement, the latest trends in college teaching and learning were reviewed, focusing on the status of

reorganization of the NSSE 2013 survey, major analysis topics in the recent annual report, and major discussions in the OECD Education 2030 project. By summarizing the results of the trend analysis, the following implications can be obtained: First, the trend shows that students' own participation and investment in learning itself remains as important issue, but there is growing emphasis on the student's growth through peer interaction, faculty interaction and even with their surrounding community members outside university. Second, learning experiences are also effective when addressed in an integrated form rather than as separate. It is important to integrate and link classes, curriculum, majors as a whole.

Based on the results, numerous measures were drawn for further improvements and opinions from experts were reflected to secure feasibility of these measures. The revised model also emphasizes students' participation in learning, and role of colleges that support it, while paying attention to the performance of students' learning from a systematic perspective. However, followings are the major difference compared to the existing model. First, the areas of input-process-outcome was categorized in more detail. University level characteristics and student characteristics were categorized in 'input stage', and as for 'process stage', which was once sub-categorized into four ares was subdivided into six areas: interaction, challenging learning, and a high-impact learning environment, environment, staff and support areas. Lastly, students' cognitive and non-cognitive learning result was categorized for assessing 'outcome' stage of the model. Second, for the entrance phase university characteristics, various elements were included, such as student quota status, professor-to-student ratio, whether a particular organization or agency was established, and if a specific system was operated, as well as emotional and disciplinary characteristics. Factors such as university emphasis or atmosphere were adjusted to cultural climate, diversity respect, individuality respect, and quality of social relationships in the 'process stage'. Third, the professor's awareness and activities were expanded to those of the member of staffs, and the support service

elements were further expanded and subdivided into elements such as learning support, career counseling, job support, and living support. Whereas interaction, challenging learning, etc. were categorized into one independent area, the quality of major and liberal arts classes (satisfactory) was sub-components of the teaching staff area and active collaborative learning were adjusted as sub-components of interaction. Fourth, the newly established areas of high-impact learning activities included global learning (foreign learning), external activities established as extracurricular activities, and research, internship, and field training with professors. Some of the experts who participated in reviewing this tasks had different view but the overall validity is high.

Along with the modification and improvement of the university's teaching model, the tasks and methods for improving the survey system were also reviewed. The study points out necessity to improve the survey items on existing survey questions. Above all, university-specific code should be provided in order to reflect more university characteristics that can improve overall accuracy of the research finding. It is a necessary improvement that can enable application of time-series analysis or link with external data. Also, some of the question items should be considered for removal such as age, nationality, and parents' level of education. Improvements are also expected to be made to better assess students' academic readiness. It will be necessary to discuss whether it will be enough just to ask questions such as the grade of high school records, preference for their course and affiliated departments, and motivation to choose them. For the course stage, a review of the relevance and inclusiveness of the questions relating to the challenging learning activity is required. In particular, for the measurement of the high-impact learning experience, the development of new questions is requested along with the modification of existing ones. For the output phase, it is difficult to expect significant improvements in circumstances in which direct measurement of performance cannot be reflected. This requires careful consideration of the

links to performance-related external data. The biggest improvement in the professor's questionnaire is the survey item on the time-use of university teachers, which is difficult to pinpoint and even difficult to resolve within the current survey site. It would be appropriate to develop a separate time-use survey and use it in conjunction. Questions on study-faculty interaction should also be improved since current items are too simple which limits in-depth analysis.

As improved research tools can lead to increased investigation burden for universities, it is desirable to build a modular investigation system to reduce institution's burden. Also, survey can be divided into 'common' survey and 'optional survey'. The contents of the common survey can be based on the current student questionnaire, but some questions should be revised. Efforts are needed to develop a number of additional surveys (module surveys). Such research system is customized for the types of education, such as research, practice, and education, considering the educational characteristics of universities and the purpose and content of undergraduate education. If additional (module) surveys, such as research experience in undergraduate education and field experience are developed, it may be possible to combine with common surveys to establish a survey system that is suitable for reflecting university characteristics.

Moreover, in order to induce more participation from the universities to respond to survey, further improvements should be made on rationalizing and securing investigation system. A reliable and independent survey system that can execute, manage and utilize large-scale online surveys is needed to achieve more reliability and validity of the data. Also, additional efforts should be made on encouraging more student and professor to participate to the survey. It may be helpful for individual institution to design their own analysis plan and to utilize collected data. In such way, it can encourage institution's effort to induce more active survey participation to their members(student and faculty). As for survey investigation and management issue, university-level efforts are required to

establish its own utilization of survey data and to make active use of them for major institutional decision making process. KEDI, as a research institute, also needs to expand its efforts to support universities. It is necessary to improve the analysis reports that are provided to each university and advance the timing of the supply of raw materials. Efforts are also needed to support integrated and academic analysis of the collected data to achieve more effective usage of the research findings.

Keywords : Teaching-Learning in Higher Education, Learning Engagement, Strategic Plan for Advancement of Learning Quality, Survey of Student, Survey of Professor