Scientific Research

Factors Affecting Student Engagement

——An Analysis on How and Why Students Learns

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Abstract: For the past years, the inception of the Taiwan Higher Education Students Survey (THESS) has gathered much information regarding how students learn. Similarly, the National Survey of Student Engagement (NSSE) of the United States have long shown that students' engagement have contributed to the desired outcomes in college. To better understand the factors that affect students' learning, an analysis of the THESS using the NSSE construct was accomplished. More specifically within the five effective educational benchmark practices and three educational outcome gains, namely: level of academic challenge, active and collaborative learning, student-faculty interaction, enriching educational experiences, and supportive campus environment; general education gains, personal social gains, and practical competence gain. A total of 49,609 students were surveyed and data analyzed using the method of Structured Equation Modeling (SEM). Lastly, the study proposes a model of Taiwan student engagement with two mediating factors, namely: future goals and school satisfaction, depicting how and why the students learns.

Keywords: National database; student involvement; school satisfaction; future goals; school achivement

1 Introduction

The turn of the century did not only mark the start of the age of information technology, but it also marked the start of age of knowledge economy. After a decade of development, the maturation of the age of knowledge economy has brought forth a major challenge for higher education, which is to provide broad access while sustaining or improving the quality of education. The current drive towards massification of higher education has actually caused the average qualification for academics in many countries to decline [1]. To alleviate this problem, numerous researches regarding the concept of students' school engagement have emerged. More specifically, the National Survey of Student Engagement (NSSE) studies by Kuh have shown that students' engagement in the following effective educational practices, namely: level of academic challenge, active and collaborative learning, student-faculty interaction, enriching educational experiences, and supportive campus environment, have all contributed to the overall desired outcomes in college [2].

According to studies in the United States (US), the quality of students' university experience is more important than who they are or which institution they attend [2]. Similarly, student engagement or involvement in educationally purposeful activities positively is said to contribute to a range of outcomes including persistence, satisfaction, achievement, and academic success [3]. In reality, the student engagement idea is actually quite simple and easy to understand. Simply put the more students study (or spends time and engages with) a subject, the more they understand it. In addition, the more students interact with faculty and staff members with regards to their studies and lessons, the more the students can apply their learning to concrete situations and tasks.

Recently, the inception of the Taiwan Higher Education Students Survey (THESS) has gathered much information regarding how students learn. With a primary aim of understanding the Taiwan college students' learning behaviors and experiences, the THESS is indeed a source of valuable information. With the NSSE construct being an empirically proven framework of student engagement. Therefore, this study shall analyze the THESS within the construct of the NSSE and proposed a model of Taiwan student engagement using the method of Structured Equation Modeling (SEM).

2 Defining Student Engagement

For the past two decades, the concept of student engage- ment has been recognized as one of the major factors contributing to desirable collegiate outcomes [2]. How- ever, the definition and the method used in measuring student engagement vary from studies to studies [4]. The term *engagement* can be defined as involvement or commitment. Consequently, *student engagement* can be defined as student involvement or student commitment. Similarly, Astin's theory of student involvement noted that students learn by the concept of being involved. Beyond this definition, student engagement is also said to be multidimensional by nature [5]. Such multidimensional nature of student engagement has slowly shaped the concept into both a strategy for improving educa-

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tional achievement and as an independently valuable outcome of schooling [4].

Student engagement is frequently seen as a cure for the contemporary students' notion of school as boring or as a mere grade game [6]. Student engagement is also used to describe students' willingness to participate in routine school activities, such as attending class, submitting school work, and following class instructions. Some researchers considered student engagement to include students' participation in lesson and curriculum planning, classroom management, and other pedagogical involved tasks [7]. Other studies even defined engagement in terms of interest, effort, motivation, time-on-task; the time student spent on a particular learning task [8]. More recent concept of student engagement has placed much interest in the influence of school context, more specifically in the relationships between campus climate and students' experience of engagement.

3 Taiwan Higher Education Student Survey

The the Taiwan Integrated Postsecondary Education Da-tabase (TIPED) is a project sponsored by the Taiwan's National Science Council and MOE. Within the TIPED, a dataset called the THESS was used to gather informa- tion from junior college students. The THESS is sepa- rated into seven parts, namely: academic experiences, educational expenditures, academic lifestyle, future plans, school satisfaction, self-evaluation, and background de- mography.

- The *academic experiences* section includes the different learning processes of the students. Data gathered includes the various teaching method- ology, assessment methods, and curriculum de- signs the students are exposed to. Additional in- formation regarding their community participa- tion, course satisfaction, and course attendance are also noted.
- The *educational expenditure* section mostly deals with how the students pay for their education. Information gathered includes the students' source of tuition and living allowances, scholarship status, and work situations.
- The *academic lifestyles* section includes information regarding the students' learning styles. Data gathered are frequency of activities related to learning and status of peer interactions.
- The *future plan* section deals with the students' learning goals and future expectations.
- The *school satisfaction* section deals with the students' contentment regarding the various school related issues, such as course programs, faculty, and many others.
- The *self-evaluation* section deals with the students' perception of their own cognitive and emotional status.
- Lastly, the *background demography* section includes the different personal information of the students to differentiate the nominal data on participants' backgrounds and relevant personal details with the other scales.

4 National Survey on Student Engagement

In the NSSE, since its inception in 2000, more than one million randomly selected students from 1,100 different four-year colleges and universities have participated in the collection of information regarding highly effective educational practices. Currently, NSSE has been highly quoted in researchers and is adapted in countries such as Canada, Australia, and many others. In the conceptual framework of NSSE, Kuh mentioned that there are five key clusters of activities that are linked to desired out- comes in education [2]. These are level of academic chal- lenge, active and collaborative learning, student-faculty interaction, enriching educational experiences, and sup- portive campus environment. These indicators or bench- marks are well supported with not only the findings of the NSSE, but are also noted in findings of various stu- dent engagement studies [4].

- *Level of academic challenge* is the concept derived from Weiner's attribution theory, which mentioned that academic motivation in terms of task difficulty (or having the opportunity of a challenge) is one of the determining factors in the effort a student will expend on that activity [9].
- *Active and collaborative learning* recognizes that learning is collaborative and social. Active learning states that students learn more when they are intensely involved in their education. In general, active learning involves any instructional method that engages student in the learning process, and requires students to perform meaningful learning activities and think about what they are doing [10].
- *Student-faculty interaction* is the quality communication between student and faculty. Studies have shown that when students interact with faculty inside and outside the classroom, students tend to learn firsthand information and/or knowledge. The transformation of learning environments into places of effective teaching and deep learning requires new ways of looking at the roles of teachers [4].
- *Enriching educational experiences* encompasses learning opportunities both inside and outside the classroom. Besides the more common co-curricular activities found inside the school, some other enriching experiences includes opportunity to learn from and in a culturally diverse atmosphere, technology enhanced learning, internship experiences, and community service opportunity.

- *Supportive campus environment* indicates that students perform better and are more satisfied at institutions that are committed to their success and cultivate positive working and social relations among different groups on campus. In a broader sense, a group or a community is the result of interaction and deliberation by people brought together by similar interests and common goals [11].

3 Methodology

This study employs a quantitative research paradigm, wherein data from the THESS 2005 version are downloaded (data from recent years are not yet available for the public). The THESS utilizes a stratified random sampling method with a total of 49,609 students studying in the 156 colleges and universities from all over Taiwan (out of a total of 174,277 student enrollees) samples. A total of 23,607 (67.8%) valid questionnaires were collected and analyzed. On the first stage of the study, the THESS dataset was statistically analyzed using the mean, standard deviation, frequency and percentage, correlations, T-tests, regression analysis, and other cross-tabulations to determine the various descriptive summaries.

The second stage involves the identification of the THESS items that are similar to the five benchmark or key clusters of effective educational practices and the three outcome gains of the NSSE. In order to capture the true meaning of student engagement, additional factors from the THESS that are similar in essence with the NSSE but differs in context were also included. Factors are then validated using the confirmatory factor analysis method.

Lastly, a proposed model of Taiwan student engagement using the Structured Equation Modeling (SEM) procedures was accomplished. SEM analysis can be viewed as a combination of path analysis and factor analysis. Items from the five effective educational benchmark practices, three educational outcome gains, and other mediating factors were included and tested.

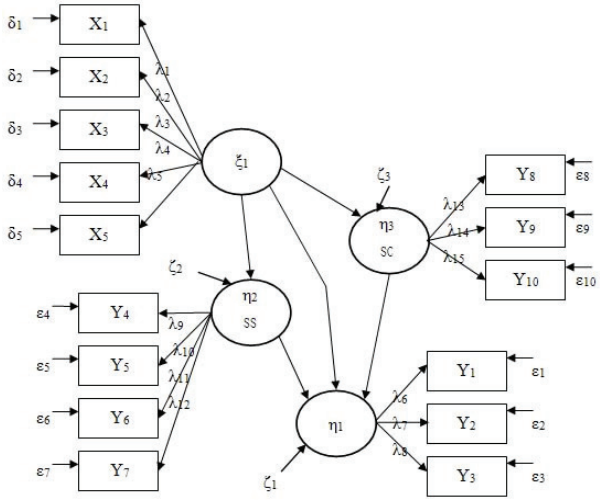
4 Results and Discussions

For the Taiwan student engagement model, SEM results have shown that the five effective educational benchmark practices and three outcome gains are clearly mediated by two factors, namely: future goals and school satisfac- tion. (Please see figures 1 & 2)

Previous studies have been focusing their efforts on the different context of student engagements, such as: *Classroom engagement* and *School engagement* [4]. The different context wherein student engagement is undertaken is also seen as a viable contributing factor to the overall experience of schooling. Although, some researchers mentioned that differences in institution types (e.g. public or private, big or small) are small and inconsistent to the students' level of student engagement [3]. However, what does matter is the *school* (or classroom) *climate* or *norm* of the institution. The school settings (climate) that provide opportunity for students to participate and develop social relations are in fact more important than school size.

In a classic study, Barker and Gump [12] mentioned that interactions are found to be greater in smaller schools than in larger ones. In reality, small and alterna- tive institutions are more likely to have the conditions that promote engagement, builds school membership (such as school inclusion and belongingness), and utilizes curriculum that characterized authentic work [13]. In a study of Australian student engagement, Fullarton mentioned that the school where a student attends actually does matter. In institutions that have the resources or willingness to commit and to provide a wide range of co-curricular activities, and encourage students to participate, generally have a higher levels of engagement than those in schools which do not [14].

Studies also differentiate student engagement in terms of engagement duration and intensity. In some cases engagement might be a *norm*, which is practiced religiously, and some are considered as *seasonal* or *strategic* by or even *deliberate* by nature [15]. With the complexity of the dimensions involved in defining and assessing stu- dent engagement, to keep it manageable, most studies involves variables exclusive within the context of the learning environment of the specific group within where the analysis is being conducted.



NOTE: ξ1- Effective educational benchmarks, η1-Educational outcome gains, η2-Future goals: Stability and security (SS), η3-Future goals: Social contribution (SC). SEM results: CFI=0.93; TFI, IFI=0.93; RMSEA=0.080 (fair fit)

Figure 1. Future Goals as Mediating Factor

Some also mentioned that learning takes place in the classroom or inside the school in general, however, stu-

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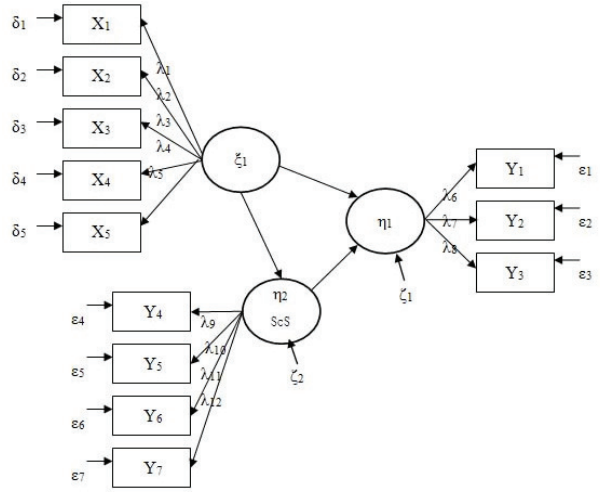
dents also learns during their time away from schools [16]. Some studies have actually included the concept of parents' participation (e.g. family engagement or parents engagement) to improved students' learning outcomes [17]. Furthermore, family, community, culture, and educational context are all said to have influence engagement. It is also mentioned that the students' reasons to perform and engage are primarily dominated by reasons such as learning goals, performance goals, obtaining future consequences, pleasing the teacher, and pleasing the family [18]. While some studies mentioned the phenomenon of taking remedial classes (more commonly known in Asia as cram school) during after school hours.

In essence, for the Taiwan student engagement model two mediating factors are found to have significant influence. ***Future goals*** which provides students with the reasons to perform and engage, while ***school satisfaction*** such as the students' perceptions of features of the college environment that are associated with achievement, satisfaction, and persistence including the extent to which the institution offers the support students need to succeed academically and the quality of relations among various groups on campus such as faculty and students.



NOTE: ξ1- Effective educational benchmarks, η1-Educational outcome gains, η2-School satisfaction (ScS) SEM results: CFI=0.94; TFI, IFI=0.94; RMSEA=0.078 (fair fit)

Figure 2. School Satisfaction as Mediating Factor

5 Conclusions

The primary aim of this study is to understand the complex multi-dimensions indicators that shape the interrela- tions between the students' behavioral, affective, and cognitive aspects of learning. Key implications indicate that the Taiwanese students' engagement shows signifi- cant correlation among the five benchmark practices in- cluding the three gains namely: general education gains, personal social gains, and practical competence gain. Furthermore, SEM analysis shows that these benchmarks and gains are mediated with two distinct factors, namely: future goals and school satisfaction. Such findings should be able to help administrators, educators, and parents alike, regarding what are the proper interventions that would be able to make learning persist in the students of today.

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