

# Verifying Student Engagement and Learning Development in Higher Education by SES

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**Abstract** - This study aims to explore the student engagement and learning development in higher education based on social economic status. The data were collected by using the student engagement questionnaire in Taiwan. There are 2,651 valid cases were analyzed in this study. Both t-test and one-way ANOVA were applied to interpret the data. The result reveals that the student engagement and learning development are in unsatisfied level; their participations are moderate; attitudes and approaches for learning are in middle level, and students' learning development is below the average level. Both low and high SES group are inferior in their engagement and learning development. The findings can be used to ameliorate this issue in the higher education system.

**Index Terms** - Higher education. Student engagement. Learning development. Social economic status (SES).

## 1. Introduction

During the last three decades, the capacity of Taiwan's higher education has expanded rapidly. In academic year 2013, there were 162 universities and colleges, including 120 universities, 28 independent colleges, and 14 junior colleges. The popularization of education has led to a rapid increase in student enrolment, although the figure has levelled off in the last decade. The number of students has increased from 358,000 in 1974 to 1,355,290 in 2013, an almost four-fold expansion in the system [1]. According to 2012 Education Statistical Indicators, the tertiary education gross enrolment rate (GER) has reached 84%, higher than in most other Asian countries [2]. The expanded higher education system also caused public concern about her quality. This study considered the student engagement and learning development issues in this system. Previous studies indicated that college students' time and energy devoted to purpose activities in campus has become one of useful predictors to explain their learning and personal development [3-6]. Various studies have addressed the issues from different viewpoints. However, the social economic status has little be considered in an expanded higher education system. Given this purpose, this study addressed the issue of student engagement and learning development issues in Taiwan.

## 2. Conceptual Framework of Student Engagement

Chickering and Gamson demonstrated that "Seven Principles for Good Practice in Undergraduate Education" has become well known engagement indicators. Their principles include student-faculty contact, cooperation among students,

active learning, Feedback, time on task, high expectations, and respect for diverse talents [7]. Student engagement is defined as a concept that requires psychological connections within the academic environment (e.g., positive relationships between adults and peers) in addition to student's active behaviours (e.g., attendance and effort). Effective interventions have also addressed related to student engagement comprehensively. The focusing has found not only on academic or behavioural skills, but also on social and interpersonal activities, particularly the need for supportive connections to other adults and peers[8].

Student engagement is not conceptualized as an attribute of the student, but rather a state of being that is highly influenced by contextual factors, like home, school, and peers, that will provide consistent support for student learning [9]. Various studies agreed that student engagement is a relevant and multidimensional conception with well construction. It can be used to integrate students' thoughts, feelings, and behaviours [10-11]. Generally, previous studies have incorporated the concept into affective, behavioural, and cognitive engagement[10][12]. Our conceptual research framework of student engagement argued that students demonstrate their levels of engagement through a variety of behavioural, emotional, and cognitive engagement. Participation, in terms of behavioural engagement, includes basic behaviours such as amount of reading and writing, frequency of learning activities of campus life, which will explain by active effort, student-faculty interaction, and civic issues. Affective component of student engagement refers to the student's feelings of belonging in campus and valuing the outcomes that college provided, which will explain by student's interest, motivation, and concentration on courses. Approaches, in the cognitive dimension, have divided into four cognitive strategies, namely analysis, integration, judgment, and application as our conceptual framework in this dimension.

Highly engaged students show that their behavioural involvement in learning activities accompanied by positive emotions. They usually demonstrate positive emotions during ongoing actions including enthusiasm, optimism, curiosity, and interest [13]. Furlong and Christenson pointed that student engagement has practical implications [11]. To determine the relationships, this study focuses on the variables that might have high relationships with student engagement.

### 3. Research Design

This study has followed the NSSE's questionnaire to collect students' view on their engagement [14]. The adapted questionnaire includes backgrounds, dimensions of student engagement, and learning development. The selected key variables in this study are listed as Table I.

TABLE I Key Variables of Questionnaire

Variables	Questionnaire contents
<b>Backgrounds</b>	
student background	Gender, major field, grade, family SES
university background	Public/private, general/vocational, location of universities
<b>Student engagement</b>	
participation	Amount of reading and writing, frequency of learning activities
attitudes	Experiences or attitudes to courses
approaches	Cognitive approaches
<b>Learning development</b>	
academic performance	GPA (score)
learning satisfaction	Satisfaction of learning activities
career development	Career ambition (internships, study abroad, community service, working on a research project, preparing for exams)

The participants were asked to fill their responses in the 5-point Likert scale (1 = strongly disagree/never, 2 = disagree/seldom, 3 = no comments/sometimes, 4 = agree/usually, 5 = strongly agree/always). The original set of questions includes 53 items. After experts' reviewing and pilot testing, the items were revised and reduced to 40. In participation of reading and writing, Cronbach's  $\alpha$  is .779 (with 59.114% of variance explained). In participation frequency of learning activities, Cronbach's  $\alpha$  is .914 (with 54.422% variance explained). In attitudes of experiences or attitudes to courses, Cronbach's  $\alpha$  is .627 (with 49.720% of variance explained). In cognitive approaches, Cronbach's  $\alpha$  is .796 (with 54.655% of variance explained). According to the Cronbach's  $\alpha$  test, the reliability of our questionnaire is quite fit. The samples are 2,651 students from 13 universities or colleges. It represents the sampling at 95% confident level. T-test and one-way ANOVA were used to analyze the data.

### 4. Results

#### A. Engaged in Reading and Writing

TABLE II Amount of Reading and Writing per Academic Year by Students

Reading/writing per academic year	None	1-4	5-10	11-20	20 or more
<b>Amount of reading</b>					
1. Number of assigned books	3.7	31.9	48.4	11.9	4.1
2. Number of non-assigned books	8.5	40.2	31.6	12.4	7.0
<b>Amount of writing</b>					
1. Number of papers of 20 pages or more	37.3	37.9	18.1	4.9	1.6
2. Number of papers of 5-19 pages	16.4	48.9	25.2	7.4	1.8
3. Number of papers of 5 pages or less	15.8	47.1	23.0	9.1	4.7

Note. The number represents percent (%).

Reviewing the number of assigned books to read per academic year, the result shows 84.0% of students reported

they read fewer than 11, while the non-assigned books to read fewer than 11, there are 80.3% of students say yes. In the writing engagement, referring the number of papers written per academic year, there are 37.3% of students expressed "none" in the item of 20 pages or more, and 15.8% of students said "none" in the item of 5 pages or less. The details amount of reading and writing per academic year for the students have presented in Table II.

#### B. Analysis of Student Engagement

TABLE III Descriptive Statistics for Student Engagement

Dimensions	Factors	Means	S.D.
Participation	Active effort	3.03	.68
	Student-faculty interaction	2.36	.77
	Civic issues	2.39	.87
Attitudes	Interest	3.09	.68
	Motivation	3.32	.87
	Concentration	3.34	.54
Approaches	Analysis	3.21	.90
	Integration	3.27	.88
	Judgment	3.13	.89
	Application	3.13	.98

Note. Means represent the data transform from 1-5 point scale.

TABLE IV Descriptive Statistics for Learning Development

Dimensions	Factors	Responses	Percent	Mean	S.D.
Academic performance	GPA (score)	low	2.8	3.22	.93
		middle-low	15.6		
		middle	35.6		
		middle-high	31.8		
		high	4.0		
		missing values	10.2		
Learning satisfaction	Satisfaction of learning activities	low	24.8	2.99	1.52
		middle-low	11.2		
		middle	13.1		
		middle-high	22.5		
		high	18.8		
		missing values	9.6		
Career development	Career ambition	low	22.4	2.80	1.29
		middle-low	18.2		
		middle	25.0		
		middle-high	24.7		
		high	9.2		
		missing values	.5		

Note. GPA represents low = under 60 points, middle-low = 61-70 points, middle = 71-80 points, middle-high = 81-90 points, high = above 91 points".

The descriptive statistics of student engagement shows that participation is weighted in mediocre level; attitudes and approaches are similarly weighted in middle level, see Table III. The mean of student active effort is 3.03. While the student-faculty interaction and civic issues are 2.36 and 2.39 respectively. In the attitudes dimension, the means of interest, motivation, and concentration are 3.09, 3.32, and 3.34. Furthermore, the mean of cognitive approaches (analysis) is 3.21, integration is 3.27, judgment is 3.13, and application also is 3.13, see Table III.

The result reveals there are about 36% of students expressed below average level in their learning development. Specifically, there are 54% of students reported their academic

performance left behind; approximately 50% of students reported they are unsatisfied with learning activities. Besides, there are 40.6% of students expressed their career ambition was in middle-low or low level, see Table IV.

C. Differences between Student Engagement and Learning Development

The result reveals that main differences of student engagement significantly derived from students' grade and location of universities. Senior students have significant student engagement, which can be explained by the factors of active effort (Mean = 3.16, S.D. = .70, F-value = 6.560,  $p < .001$ ), student-faculty interaction (Mean = 2.48, S.D. = .77, F-value = 9.732,  $p < .001$ ), civic issues (Mean = 2.52, S.D. = .89, F-value = 5.153,  $p < .01$ ), motivation (Mean = 3.45, S.D. = .91, F-value = 3.725,  $p < .05$ ), concentration (Mean = 3.46, S.D. = .58, F-value = 9.341,  $p < .001$ ), and cognitive approaches (Mean = 3.30, S.D. = .74, F-value = 9.836,  $p < .001$ ) respectively. In addition, college students in the central of Taiwan have shown better student engagement than do those in northern and southern areas. These differences also can be explained by the factors of active effort (Mean = 3.19,

S.D. = .63, F-value = 14.262,  $p < .001$ ), student-faculty interaction (Mean=2.45, S.D. = .71, F-value = 25.797,  $p < .001$ ), and motivation (Mean = 3.40, S.D. = .80, F-value = 4.466,  $p < .05$ ) respectively.

On the other hand, the main differences of learning development are derived from students' major and sector to attend (public/private universities). Students majored in humanities and social sciences have better learning development than those majored in technology, which can be explained by the factors of academic performance (Mean = 3.38, S.D. = .90,  $t$ -value = 9.472,  $p < .001$ ), learning satisfaction (Mean = 3.39, S.D. = .79,  $t$ -value = 5.974,  $p < .001$ ), and career development (Mean = 3.39, S.D. = .79,  $t$ -value = 5.974,  $p < .001$ ). Students in public universities have better learning development than those in private, which can be explained by the factors of academic performance (Mean = 3.40, S.D. = .88,  $t$ -value = 10.906,  $p < .001$ ), learning satisfaction (Mean = 3.33, S.D. = .80,  $t$ -value = 1.984,  $p < .05$ ), and career development (Mean = 2.54, S.D. = .84,  $t$ -value = 2.380,  $p < .05$ ).

TABLE V Difference of Student Engagement by SES

Dimensions	Factors	Responses	Mean	F-value	Post Hoc test
Participation	writing	low	2.24	5.300**	High < middle-low
		middle-low	2.33		
		middle-high	2.19		
		high	2.13		
	reading	low	2.72	8.547***	Low < middle-low; middle-high and high < middle-low
		middle-low	2.92		
		middle-high	2.74		
		high	2.70		
	active effort	low	2.98	4.236**	Low < middle-low
		middle-low	3.11		
		middle-high	3.04		
		high	3.04		
	student-faculty interaction	low	2.34	3.094	
		middle-low	2.45		
		middle-high	2.39		
		high	2.32		
civic issues	low	2.38	4.309**	High < middle-low	
	middle-low	2.49			
	middle-high	2.40			
	high	2.28			
Attitudes	interest	low	3.07	.665	
		middle-low	3.09		
		middle-high	3.12		
		high	3.12		
	motivation	low	3.29	2.232	
		middle-low	3.40		
		middle-high	3.33		
		high	3.30		
	concentration	low	3.32	4.642**	Low < middle-low; middle-high < middle-low
		middle-low	3.41		
		middle-high	3.30		
		high	3.35		
Approaches	cognitive approaches	low	3.17	4.560**	Low < middle-low; high < middle-low
		middle-low	3.29		
		middle-high	3.17		
		high	3.12		

Note. Values are indicated in \*\* $p < .01$ . \*\*\* $p < .001$  (N = 2,651).

*D. Student Engagement and Learning Development Explained by SES*

This study has considered the impact of students with different social economic status (SES) on their engagement and learning development. We classified the students into four groups for comparing which are low, low-middle, high-middle, and high. The result reveals that students with low-middle SES exert better student engagement, which can be explained by the factors of active effort (Mean = 3.11, S.D. = .73, F-value = 4.236,  $p < .01$ ), civic issues (Mean = 2.49, S.D. = .94, F-value = 4.309,  $p < .01$ ), concentration (Mean = 3.41, S.D. = .56, F-value = 4.642,  $p < .01$ ), and cognitive approaches (Mean = 3.29, S.D. = .79, F-value = 4.560,  $p < .001$ ), see Table V.

Meanwhile, the result also demonstrates that students with low-middle SES have better learning development, which can be explained by the factors of academic performance (Mean = 3.32, S.D. = .98, F-value = 3.877,  $p < .01$ ), and career development (Mean = 2.62, S.D. = .84, F-value = 6.450,  $p < .001$ ), see Table VI.

TABLE VI Difference of Learning Development by SES

Dimensions	Factors	Responses	Mean	F-value	Post Hoc test
Academic performance	GPA (score)	low	3.16	3.877**	Low < middle-low
		middle-low	3.32		
		middle-high	3.19		
		high	3.22		
Learning satisfaction	Satisfaction of learning activities	low	3.26	1.662	
		middle-low	3.34		
		middle-high	3.33		
		high	3.34		
Career development	Career ambition	low	2.50	6.450***	High < middle-low
		middle-low	2.62		
		middle-high	2.52		
		high	2.38		

Note. Values are indicated in \*\* $p < .01$ ; \*\*\* $p < .001$ ; N = 2,651.

**5. Conclusions**

This study demonstrates that the student engagement survey can be used to determine how well college students learn, what to learn, and why to learn. What level of the undergraduate students' engagement reflected not only the quality of higher education but the learning effectiveness. The results reveal that both student engagement and learning development are in unsatisfied level; their participations are moderate; attitudes and approaches are in middle level, and students' learning development is below average level. The findings might reflect the core issue of the over expanded

higher education system.

Theoretically, we support that enhancing student engagement could prompt to students' critical thinking, problem solving, effective communication, and responsible citizenship. Therefore, higher education institutions need well organized curriculum and meaningful campus activities for enriching their students' learning experiences. Specifically, this study demonstrates both low and high SES groups are inferior in their engagement and learning development in this system. We suggest reconsidering the SES issue to ameliorate this phenomenon directly in campus.

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