AN EXPLORATORY STUDY ON STUDENTS' ACADEMIC ENGAGEMENT ACTIVITIES

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ABSTRACT

Since student engagement in academic activities is generally considered a qualified predictor of learning and personal development, this exploratory research study was conducted ***to find a tool*** *to objectively measure students' academic engagement activities. The main constructs of the tool named the "Student academic report questionnaire," were firstly replicated from the well-known "National Survey of Student Engagement" (NSSE) developed by Indiana University Center for Postsecondary Research and Planning, but the details were modified to be congruent with the Thai educational and environmental context. The validity, reliability, and credibility of the tool were examined with the data gathered from two-wave pilot surveys. Factor analysis and reliability analyses were performed, and the results showed high construct validity and internal consistency with an alpha-coefficient of 0.8342-0.9118. A questionnaire was primarily used to collect data. The initial sets of data on students' academic engagement activities were gathered and analyzed.*

INTRODUCTION

To ensure the quality of educational services provided for the undergraduate students, information about student engagement in academic activities is generally considered among the better predictors of learning and personal development (Carini, Kuh, and Klien, 2004). The very act of being engaged in academic activities would be the foundation of skills and dispositions that is essential to perform productive activities in college. These activities help students to develop habits of mind and heart that enlarge their capacity for continuous learning and personal development (Pike, 2003). Thus, the more students study and practice a subject, the more they learn about it. Likewise, the more students practice and get feedback on their analyzing and problem solving, the more adept they should become (Kuh, 2001). As characteristics of student engagement can serve as a proxy for judgingquality of both sides; students and university, the results of the survey provide comparative benchmarks for determining how effectively colleges are contributing. The survey results yield the effectiveness of college learning in five areas: 1) level of academic challenge; 2) active and collaborative learning; 3) student/faculty interaction; 4) enriching educational experiences; and 5) supportive campus environment. This study is an exploratory research aimed **to find a tool** which can objectively measure students' activities and educational experiences which relates particularly to classroom activities as well as specific faculty and peer practice. It can also measure the degree to which students are engaged in their studies, the quality of student learning and their overall educational experience. The main constructs of the tool were firstly replicated from the well-known "National Survey of Student Engagement" (NSSE) developed by the Indiana University Center for Postsecondary Research and Planning, but the details were modified to be congruent with the Thai educational and environmental context.

Background and Rationale

To establish methods for assuring quality in higher education, "quality" has been focused largely on measuring university resources and processes rather than assessing student learning and development. In contrast, the information on quality of students was found to be more valuable than that of institutions (Kuh, 2001). On the other hand, the degree to which students are engaged in their studies would impact directly on the quality of student learning

and their overall educational experience. As such, characteristics of student engagement can serve as a proxy for quality. At least as important, calling attention to the presence or absence of such practices can highlight specific things that individual colleges can do. Therefore, the quality measurement tool should be designed to query undergraduates directly about their educational experiences and perception including the particular classroom activities and specific faculty and peer practices to high-quality undergraduate student outcomes.

The student academic engagement activities were developed on the basis of psychometric measurement. Psychometric, literally means measuring of the mind and systematic assessing of the mental characteristics could come into this category (Kline, 2005). Since psychometry attempts to measure and express numerically the characteristics of behavior in individuals, it is therefore usually seen as an objective and scientific way of describing people and their behavior as it provides lots of data, which is easy to analyze statistically. The conceptual framework underpinning the "Student academic report" questionnaire is drawn from Chickering and Gamson's (1987) "Seven Principles of Good Practice in Undergraduate Education." The questionnaire was designed to ask students about their engagement in activities that reflect good practice in undergraduate education in five areas; level of academic challenge, active and collaborative learning, student interaction with faculty members, enriching educational experiences, and supportive campus environment. These five areas serve as proxy measures to identify opportunities for improving undergraduate education (Pike, 2003).

The "student academic report" questionnaire contains items directly related to both actual behaviors and perceptions of student as well as university contributions to student engagement, important college outcomes, and university quality in the students' point of view. It asks students to report the frequency with which they engage in a number of activities that represent good educational practice, such as using the institution's human resources, curricular programs, and other opportunities for learning and development that the university provides. The amount of reading and writing students did in the past academic year, the number of hours per week they devoted to schoolwork, extracurricular activities, employment, and family matters, and the nature of their examinations and coursework were assessed. The activities associated with social and community service were also asked. Then, students' perception on their personal growth and development in the areas of general knowledge, intellectual skills, communication skills, and social & cognitive development were identified. The questions can be categorized into three broad categories 1) **Academic actions and requirements** cover six dimensions of academic activities; class effort, knowledge integration, class participation, interaction with instructor, social relationship with instructor, and relationship with other students, as well as the amount of reading, writing, and reporting students have done, 2) **Student behaviors** to identify the time management of students, their reactions to the university and academic activities, and their perceptions on their achievement, social and professional relationship, and support and encouragement they received from the university, 3) **Students' personal growth and development** includes self-reported questions about what skills, growth and development, including academic, personal, and cognitive development, students gained as a result of attending the university. Besides, the students' evaluation on their academic achievement in five levels, **memorizing, analyzing, applying, synthesizing and organizing** has been examined. Additionally, students' personal data about their background, including age, gender, race or ethnicity, housing, educational status, major field, working status and parents' education were examined. Finally, students' satisfaction with the entire educational program was included.

To develop the "Student academic report" questionnaire, five sessions of depth interviews with students were initially conducted to gather qualitative data on educational and personal activities students have currently performed. The first draft of the questionnaire was developed in Thai based on the original NSSE questions items together with qualitative data from depth interviews. Then, validity, reliability, and credibility of the "Student academic report" questionnaire were extensively examined since the accuracy of self-reports can be affected by two general problems; the inability of respondents to provide accurate information in response to a question (Pike, 1995; Kuh, 2001) and the unwillingness of respondents to truthfully provide the information (Aaker, Kumar, & Day, 1998). The second problem represents the possibility that students intentionally

report inaccurate information about their activities or backgrounds (Kuh, 2001).

Two-wave pilot surveys were administered with the primary objective of examining the utility of the questionnaire. In the first "tryout" wave, the first draft of questionnaire was distributed to 100 students enrolling in Psychology class in the second semester of 2004. The students were asked to respond to the questionnaire as well as provide written comments on each item along with their responds. Then, reliability of each dimension was tested with the Cronbach alpha and item-to-total analysis. The alpha-coefficient varied from 0.68-0.80 which was acceptable but the verbal comments from students indicated that some items were too broad, not clear, or not specific. Therefore, based on these comments, those question items were modified.

The second wave of pilot survey was performed at the beginning of summer semester in the same academic year. In this wave, the revised version of "Student academic report" questionnaire was distributed to 100 students enrolled in the Business Research subject. The students were, again, asked to respond to the questionnaire and give written comments on each item. Then the Cronbach alpha and item-to-total tests were performed to examine the reliability of the questionnaire. The results of this pretest are illustrated in Table 1.

The pretest yielded a highly satisfactory result with the alpha exceeding 0.7 (Nunaly, 1978) which are 0.8166, 0.8149, 0.9118, and 0.9118 for the dimensions of academic activities, perception towards university, personal growth & development, and overall items, respectively. Thus, with this high reliability, the questionnaire was sufficiently reliable for the survey; no other modifications were required.

Moreover, the exploratory factor analysis (EFA) was performed to find the dimensions of each construct. From the exploratory factor analysis of the first construct "academic activity", six dimensions including class effort, knowledge integration, class participation, interaction with others, including instructor & classmate, relationship with the instructor and relationship with friends were found . This result indicates high construct validity. Similarly, EFA results of other constructs, perception on university and personal growth and development, yielded consistent results, therefore, the construct validity was confirmed. The details are illustrated in the Appendix.

Survey data collection

To ensure that the "student academic report questionnaire" is applicable, the survey data were initially collected. Samples were randomly selected from the classes available in summer semester of 2004. Since this study is only an exploratory one, the norms for sampling technique and sample size were not strictly followed. The purposive sampling technique was applied. Twenty sections of five subjects were randomly selected. Six classes of Introduction to Business and six classes of Managerial Psychology were selected to represent foundation courses. Four classes of Product Management and two classes of Business Research Methods were selected for the business core courses. And two sections of Purchasing were selected to be the representative of an elective course. The foundation courses are available for all students enrolled in Business Administration and Business Arts program wherein most of the students are freshmen and sophomores. However, since Business Arts is not the target population of this study, all data from Business Arts students were discarded. In addition, the business core courses are for the junior and senior students (all majors) and elective courses are available for students within a particular major i.e., purchasing is specific for students majoring in marketing only. Data collected from the above classes were expected to cover BBA students in all majors and of all academic status—freshmen to seniors.

Table 1: Reliability of the questionnaire

Construct	Cronbach Alpha
Overall Items	.9118
Academic Activities	.8166
Perception toward the Assumption University	.8149
Personal Growth & Development	.9118

Six hundred questionnaires were distributed, Thai version questionnaire were distributed to Thai students while the English version were distributed to foreign students. Five hundred eighty questionnaires were returned but 42 questionnaires were considered incomplete and had to be discarded. Therefore, a total of 538 complete samples with response rate of 89.67% was gathered.

Sample Profile

The samples, 329 females (59%) and 285 males (33%) composed of BBA students from all majors, see Figure1. Eighty-six samples (15%) are marketing students, 29 samples (5%) from international business management, 27 samples (5%) from accounting, 20 samples (4%) from integrated marketing communication,15 samples (3%) from hospitality & tourism management, 12 samples (2%) from management, 11 samples (2%) from business information system, 9 samples (2%) from finance, 5 samples (1%) from property valuation and 115 samples (21%) with no declared major.

Most (460 samples-82%) are Thai, the rest are Chinese (34 samples-6%), Non-Thai nor Chinese Asian (26 samples-5%), European/American (6 samples-1%), and other nationalities (3 samples-1%), respectively. One hundred seventy three samples or 31% were senior students, 153 samples (27%) were juniors, 115 (21%) were sophomores, and 89 samples (16%) were freshmen. The categorization of samples by these demographic characteristics showed that the samples were uniformly represented all subgroups of students.

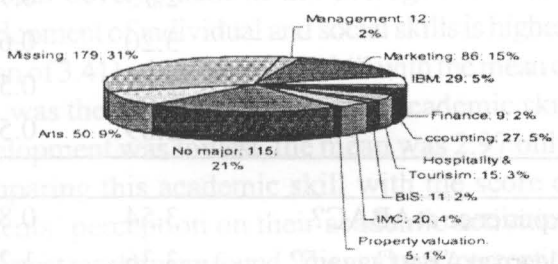
Research Findings and Discussion

The data analysis can be categorized into three parts; firstly, frequency, mean and standard deviation of each construct were presented descriptively in order to present an overall picture of student academic engagement activities in the big picture. Second, regression analyses were performed to examine the relationship between students' activities & perception and their satisfaction with the overall academic program. Finally, ANOVA and cross tabulations were applied to identify the differences of student activities, behavior, perception, and personal growth & development among several groups categorized by some demographic characteristics i.e., major and academic status.

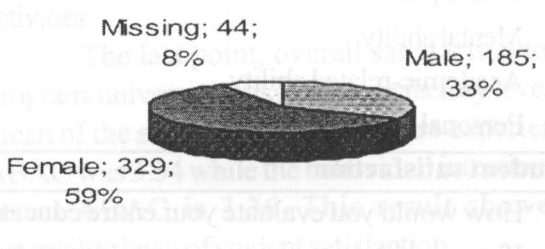
Overview

To understand the entire picture of ABAC student engagement activities, the mean and standard deviation of each related construct were identified, the details are illustrated in Table 2 as follows:

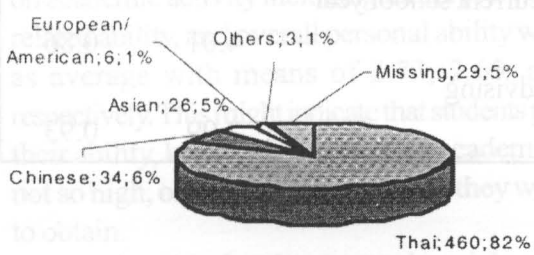
Figure 1: Sample categorized by major, gender, nationality, and academic status



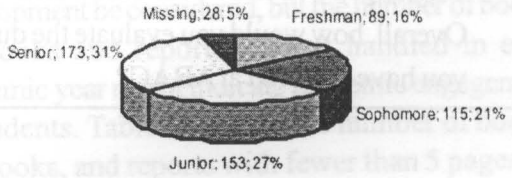
Samples categorized by major



Samples categorized by gender



Samples categorized by nationality



Samples categorized by academic status

Table 2: Mean and standard deviation of each dimension

Academic and personal outcomes	Mean	S.D.
Class activity	**3.06**	**0.46**
Class effort	3.12	0.61
Integration of the ideas	3.81	0.60
Class participation	3.45	0.78
Social Interaction	2.78	0.67
Relationship with instructors	2.11	0.92
Relationship with friends	2.80	0.83
Perception on University policy	**3.13**	**0.70**
Perception on university encouragement	3.64	0.79
Perception on university support	2.95	0.74
Personal growth and development	**3.41**	**0.60**
Academic skill development	2.97	0.51
Personal skill development	3.41	0.61
Cognitive skill development	3.21	0.59
Cognitive skill development		
Memorizing of ideas learned from the course	3.24	.728
Applying ideas, theories or concepts to practical problems or in new situations.	3.26	.825
Analyzing the basic elements of those ideas	3.24	.812
Making judgments about the value of ideas, information, etc.	3.19	.798
Synthesizing and organizing new ideas from the learned knowledge	3.15	.878
Student interpersonal relationship		
Relationship with other students	3.72	1.07
Relationship with instructors	3.31	.907
Relationship with university staff	2.61	1.09
Student ability		
Future plan	2.73	0.77
Mental ability	3.20	0.63
Academic-related ability	2.65	0.57
Personal-social activity	2.69	0.52
Student satisfaction		
How would you evaluate your entire educational experience at ABAC?	3.54	0.85
If you could start over again, would you choose to learn at ABAC again?	3.36	1.26
What is the extent to which your examinations during the current school year challenged you to do your best work?	4.01	0.86
Overall, how would you evaluate the quality of academic advising you have received at ABAC?	2.99	0.93

For the academic activity, the means of all dimensions were higher than the mid-point except relationship with the instructors. The integration of ideas yielded the highest mean followed by class participation, class effort, social interactions, and relationship with friends with the means of 3.81, 3.45, 3.12, 2.78, and 2.80, respectively. The lowest mean (2.11) indicated low level of relationship between students and instructors. Even though the results presented positive relationships between students and instructors, university staffs, and other students, the relationship with instructors, university staffs were shown to be lower than that with friends. These results were consistent with another question set, student interpersonal relationship, designed to measure type of relationship between students and instructors, university staffs, and other students in either positive and negative dimensions. Since the questions were designed as a semantic differential scale, the highest score of 5 showed the most positive relationship and the lowest score of 1 showed the most negative relationship. Based on this finding, the university may need to create certain strategies to enhance professional relationship between students and instructors and supportive relationship between students and university staffs. The more positive and higher relationships with instructors and staffs would help students to perform better academic activities which, in turn, would enhance the quality of students.

For the perception on university policy, students perceived both encouragement and support in the positive way. Next, students perceived their personal development in the average level. The development of individual and social skills is highest (mean of 3.41) while cognitive skill with the mean of 3.21 was the second. The score of academic skill development was lowest, the mean was 2.97 only. Comparing this academic skill with the score of students' perception on their academic activities, consistent results were found. The students' perception on academic activity including future plan, academic related ability, and overall personal ability were rated as average with means of 2.73, 2.65, and 2.69 respectively. This might indicate that students perceived their ability, knowledge, and other academic results not so high, or, maybe not as high as they would like to obtain.

Considering the personal-social activity, the time students spent for their personal and academic activities was interesting. For example, most students (57%) spent 1-5 hours/week for "Preparing for class: studying, reading, writing, doing homework or lab work, analyzing data, rehearsing, and other academic activities," while 4% of them did not spend their time on this core academic activity at all. In contrast, the time student spent for "Participation in co-curricular activities (organizations, campus publication, student government, social fraternity or sorority, intercollegiate or intramural sports, etc.)" was mostly (45%) "Not at all" meaning that most ABAC students are NOT interested in extracurricular or student activities. Moreover, the following question might be "if students do not spend a lot of time in both their academic study and co-curricular activities, what are the activities that they spend their time on?" The answer might be that students spend their time in other personal or social activities and transportation. The data on time spent for relaxing and socializing can not provide a better explanation since most of students (30%) spent 6-10 hours/week while the remaining spent 1-5 hours/week, 11-15 hours/week and even more than 15 hours/week in the same proportion (21%, 20% and 23%, respectively). But the data about transportation time was interesting. Data from Figure 2 indicated that most of students spent 1-5 and 6-10 hours/week for transportation (34 and 30%, respectively) while 17% spent 11-15 hours/week and the rest 14% spent more than 15 hours/week for transportation. Since transportation takes up a great deal of students' time, the university may create some strategies to help students to manage their time effectively by reducing the transportation time as well as promoting students to perform their academic-related and co-curricular activities

The last point, overall satisfaction toward program/university was in the satisfactory level. The mean of the satisfaction on the entire experience at ABAC was 3.54 while the behavioral intention to re-select ABAC is 3.36. This result showed an acceptable level of student satisfaction.

Not only should academic activity, perception on university policy and student personal growth and development be considered, but the number of books, textbooks and reports student handled in each academic year might indicate academic engagement of students. Table 3 showed the number of books, textbooks, and reports with fewer than 5 pages, 5-19 pages, and more than 20 pages student handled during the whole academic year.

Figure 2: students' personal-social activity

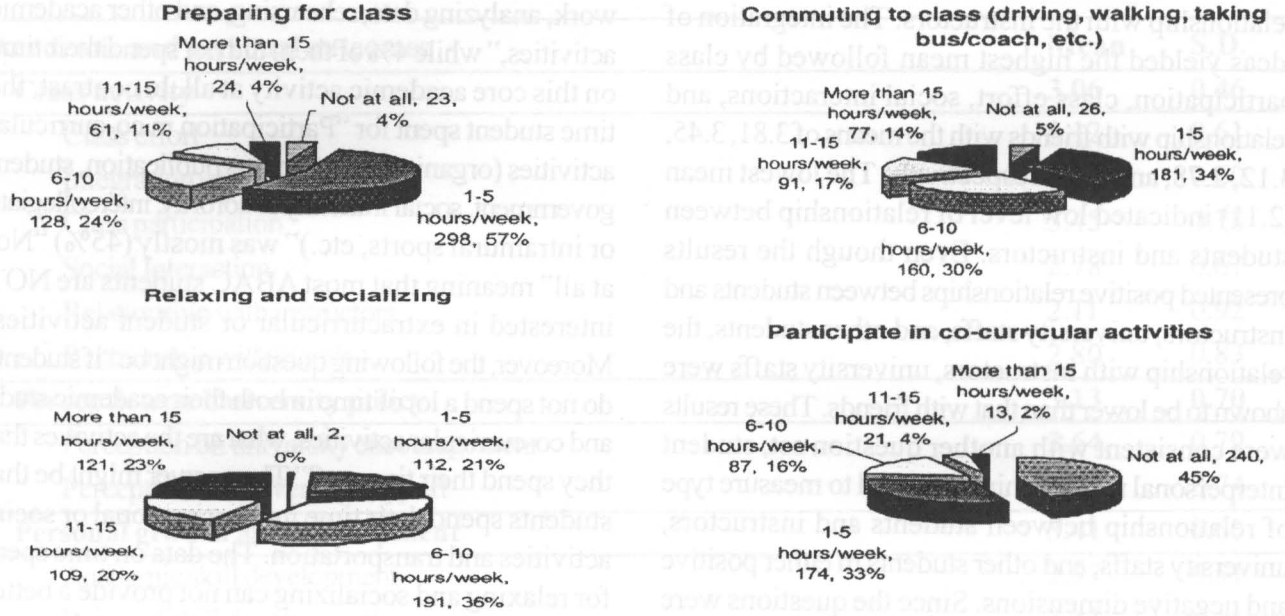


Table 3: Number of Books/reports students handled in the last academic year

Number of books/papers	Number of									
	Assigned books for course reading.		Non-assigned books		Written papers of 20 pages or more.		Written papers between 5-19 pages.		Written papers fewer than 5 pages.	
NONE	21	(3.90)	75	(13.94)	87	(16.17)	58	(10.78)	136	(25.28)
Between 1-4	179	(33.27)	198	(36.80)	185	(34.39)	190	(35.32)	175	(32.53)
Between 5-10	176	(32.71)	148	(27.51)	141	(26.21)	170	(31.60)	137	(25.46)
Between 11-20	99	(18.40)	76	(14.13)	82	(15.24)	100	(18.59)	58	(10.78)
More Than 20	61	(11.34)	39	(7.25)	41	(7.62)	16	(2.97)	28	(5.20)
Missing	2	(0.37)	2	(0.37)	2	(0.37)	4	(0.74)	4	(0.74)
Total	**538**		**538**		**538**		**538**		**538**	

Remarks: percentages are presented in parentheses

The data showed that most students (65.98%) had 1-10 books assigned for the course, and read 1-10 books for their personal academic enhancement or enjoyment (64.31%). Most reports they handled were 5-19 pages and over 20 pages which varied from 1-10 pieces.

The analysis of relationship between student satisfaction and their perception and academic activities

To examine the relationship between student engagement activities and their satisfaction, four regression analyses models were performed. Firstly, between students academic activities and their satisfaction, the regression analysis results indicated a significant relationship ($F= 7.48$, $p<0.01$).

The Beta coefficient of each dimension showed that only knowledge integration had a positive relationship with satisfaction while class participation, interaction with instructors and relationships with friends were not significantly related to satisfaction. The negative relationship of class effort and relationship with instructors were shown. This might infer that the students didn't need to put a lot of effort into the class work. Moreover, the negative relationship between relationship with instructors and overall satisfaction might indicate a psychological distance between

Table 4: Regression analysis of student satisfaction and their academic activities

Model		Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	t	Sig
1	(Constant)	2,419	.307		7.876	.000
	Class effort	-.171	.063	-.130	-2.709	.007
	Knowledge integration	.294	.073	.199	4.015	.000
	Class participation	9.113E-02	.048	.083	1.889	.059
	Interaction with instructors	.115	.075	.088	1.529	.127
	Relationship with instructors	-.122	.046	-.130	-2636	.009
	Relationship with friends	5.890E-02	.053	.055	1.104	.270

Remarks: Dependent variable: "How would you evaluate your entire educational experience at ABAC?, Model summary: $F = 7.48$, $P<0.01$; $r^2 = 0.079$

students and their instructors. In addition, as knowledge integration shown to have strongest relationship with satisfaction, it meant that if students could integrate more knowledge, they would have more satisfaction with the university. However, as the r^2 is only 0.079, it implies that only 7.9% variation of student satisfaction on the entire educational experience at ABAC was influenced by all dimensions of academic activities.

The regression analysis of students' perception on university policy and the overall evaluation of the entire educational experience indicated a highly significant relationship ($F= 25.564$, $p<0.01$). Both university encouragement and support were found to have positive relationship with student satisfaction. However, since the r^2 was 0.097, the perception on university policy could influence only 9.7% of the overall satisfaction of students. The third regression analysis indicated a highly significant relationship between students satisfaction and their personal growth and development ($F= 25.736$, $p<0.01$). But the beta coefficients of each dimension showed that only academic and personal skill developments were significantly related to student satisfaction while cognitive development was not. It inferred that the higher the students develop their academic and personal skills, the higher satisfaction on the entire experience at the university they experienced.

Finally, to understand the non-significant relationship between student satisfaction and cognitive skill development when it was considered together with other personal growth and development, the student satisfaction was analyzed separately with five dimensions of cognitive development; memorizing of ideas learned from the course, analyzing the basic elements of those ideas, synthesizing and organizing new ideas from the learned knowledge, making judgments about the value of ideas, information, etc. and applying ideas, theories or concepts to practical problems or in new situations. A significant relationship ($F= 4.457$, $p<0.01$) was found, but only memorization and application skills, were positively significant. Since these two dimensions are considered to be in the lower range of cognitive skills, this might indicate that students were not aware of the importance of the higher cognitive skills which are analytical skills, judgmental skills and synthesizing skills. **This finding must be considered as critical and one which should be solved by the university as soon as possible**.

Comparison of academic engagement activities among majors

As shown in Table 5, some differences of academic activities of the students across majors were found. The level of knowledge integration, class participation, and interaction with instructors from all majors were not different, but the class effort, relationship with instructors and friends were different. Students majoring in Accounting, Hospitality & Tourism Management, IBM, Management, and Property Valuation had less class effort than students

Table 5: Level of academic activities categorized by major

Major	Class effort	Knowledge integration	Class participation	Interaction with instructors	Relationship with instructors	Relationship with friends
Accounting	2.96	3.80	3.54	2.80	2.31[a]	2.69
BIS	3.06[a]	3.93	3.32	2.58	2.09[a]	2.64
Finance	3.37[a]	3.91	3.28	2.71	2.22[a]	3.56[a]
Hospitality & Tourism	2.93	3.64	3.37	2.71	2.43[a]	2.89
IBM	3.02	3.84	3.21	2.82	2.04[a]	2.56
IMC	3.27[a]	3.76	3.40	2.73	2.20[a]	3.08[a]
Management	3.03	3.97	3.54	2.71	1.92[a]	3.19[a]
Marketing	3.09[a]	3.89	3.40	2.91	2.22[a]	2.80
Property Valuation	2.33	3.52	3.30	2.71	1.60	2.72
No Major	3.14[a]	3.68	3.52	2.62	1.87	3.20[a]
F	3.819**	1.461	1.71	1.16	2.134*	1.988*
Sig	0.00	0.15	0.08	0.32	0.02	0.03

Remarks: [a]indicated the group of students with significantly higher means in each dimension ($p<0.05$)
*$p<0.05$; ** $p<0.01$

majoring in BIS, Finance, IMC, Marketing, and non majors. Property Valuation and non major students seemed to have less relationship than other majors. Moreover, students majoring in Finance, IMC, Management, and no major were found to have higher level of relationship with friends than those from other majors. In contrast, there were no differences in perception toward policy of university and personal growth among students with different majors.

Comparison of academic engagement activities among status

The comparison of academic engagement activity of students with different academic status is also interesting since status of student may infer to the different levels of personal adjustment as well as the different treatments from instructors, i.e. instructors seem to have higher expectation from senior students than freshmen. Data indicated some differences in each dimension of academic activity, i.e., the freshmen and sophomores tended to put more effort to their classes than junior and senior students ($F=4.25$, $p=0.01$) and freshmen showed higher level of class participation than other groups, $F=2.99$, $p<0.05$. Junior students were shown to have higher knowledge integration than others groups ($F=5.20$, $p<0.01$). Moreover, freshmen were shown to have the lowest social interaction and relationship with instructors ($F=3.68$ and 8.09 $p<0.01$). However, the differences of relationship with friends, perception on university policy, and personal growth and development could not be found.

Conclusion and Recommendation

In general, the psychometric properties of the "student academic report questionnaire" are very good, as the vast majority of items equal or exceed recommended measurement levels. The face and construct validity and also reliability of the questionnaire are strong. This is not surprising since the original English version was well established and development process of the Thai version was based intensively on qualitative data gathered from depth interviews as well as cognitive testing, and psychometric analyses based on the results of pretests.

As discussed previously, the main objective of this study was to develop a tool to measure student engagement activity which is the proxy of quality of university educational services, hence,the data analyses is not a major concern of the report. In fact,

the data gathered from the "student academic report questionnaire" can be analyzed in several ways. The instructors/managerial personnel who use this data should make effective use of such data to design a data analysis plan that can respond effectively to match their needs and requirements. The data analyses presented in this report is only a small example of the use of the data.

Since this study is just a pilot study of the application of this tool, the change and development of students' academic engagement activities should be monitored and the tests should be continuously performed from one year to the next. The data gathered from this tool would be beneficial to both students and the university in several ways as previously discussed.

References

Aaker, D.A., Kumar, V., & Day, G.S. (1998). **Marketing research**. 6 ed., New York: Wiley.

Anastasi, A., & Urbina, S. (1997). **Psychological testing**. Upper Saddle River, NJ: Prentice Hall.

Carini Robert M., Kuh George D., and Klein Stephen P. (2004) **Student Engagement and Student Learning: Testing the Linkages.** Paper presented at the annual meeting of the American Educational Research Association, San Diego, April 2004.

Klein Stephen P and Shavelson (2005), An approach to measuring cognitive outcomes across higher education institutions. **Research in higher education (46)** 3, 251-276.

Kuh, G.D. (2001). Assessing what really matters to student learning: Inside the National Survey of Student Engagement. **Change, 33(3)**, 10-17, 66.

Kuh, G.D., & Siegel, M.J. (2000). **College Student Experiences Questionnaire: Tentative norms for the fourth edition**. Bloomington, IN: Indiana University Center for Postsecondary Research and Planning.

Pike. Gary R. (2003) **Measuring Quality: A Comparison of U. S. News Rankings and NSSE Benchmarks**, Paper presented at the annual meeting of the Association for Institutional Research, Tampa, FL (May, 2003).

Sorcinelli, M.D. (1991). Research findings on the seven principles. In A.W. Chickering and Z.F. Gamson (Eds.), Applying the Seven Principles for Good Practice in Undergraduate Education, **New Directions for Teaching and Learning, (47),** 13-25.

Appendix

Table A: Rotated Component Matrix of Students' personal growth and development

Personal Growth and Development	Component		
	1	2	3
Academic skill development			
Acquiring a broad general education		.597	
Acquiring job or work related knowledge and skills.		. 748	
Writing clearly and effectively.		.799	
Speak clearly and effectively.		.749	
Thinking critically and analytically.		.486	
Analyzing quantitative problems.		.567	
Using computer and information technology.		.546	
Personal skill development			
Working effectively with others.	.549		
Aware of the importance of voting in any elections	.625		
Learning effectively on your own.	.543		
Understanding yourself.	.645		
Understanding people of other racial and ethnic backgrounds.	.669		
Solving complex real world problems.	.614		
Developing a personal code for values and ethics.	.692		
Contributing to the welfare of your community.	.700		
Developing a deepened sense of spirituality.	.767		
Cognitive skill development			
Memorizing facts, ideas, or methods from your courses and reading so you can repeat them in pretty much the same form.			.616
Analyzing the basic elements of an idea, experience, or theory such as examining a particular case or situation in depth and considering its components.			.800
Synthesizing and organizing ideas, information, or experience into new, more complex interpretations and relationship.			.758
Making judgments about the value of information, arguments, or methods, such as examining how others gathered and interpreted data and assessing the soundness of their conclusion.			.733
Applying theories or concepts to practical problems or in new situations.			.696

Table B: Rotated Component Matrix of Students' Academic Activities

Academic Activities	Component					
	1	2	3	4	5	6
Class effort						
Asked questions in class or contributed to class discussions	0.66					
Made a class presentation	0.68					
Prepared two or more drafts of the paper or assignment before turning it in	0.45					
Knowledge integration						
Worked on the paper or project that required integrating ideas and so on.		0.45				
Included diverse perspectives in class discussion or writing assignments		0.56				
Worked with classmates outside of class to prepare class assignments		0.63				
Put together ideas or concepts from different courses when completing assignments or during class discussions		0.60				
Used an electronic medium to discuss or complete assignment		0.74				
Class-participation						
Come to class without completing readings or assignments*			0.65			
Worked with other students on projects during class*			0.78			
Interaction with instructor, classmate, and social						
Tutored or taught other students (either paid or voluntary)				0.61		
Participated in a community-based project as part of regular course				0.51		
Discussed grades or assignments with an instructor				0.60		
Talked about career plans with a faculty member or advisor				0.59		
Discussed ideas with faculty members outside of class				0.66		
Received prompt feedback from faculty on academic performance				0.63		
Worked harder than thought to meet an instructor's standards or expectations				0.47		
Relationship with instructor						
Used e-mail to communicate with an instructor					0.81	
Worked with faculty members on activities other than coursework					0.61	
Relationship with other students						
Discussed ideas with others outside of class						0.48
Had serious conversations with students of a different race or ethnicity						0.70
Had serious conversations with students who are very different in religious beliefs, political opinions or personal values						0.69

Remarks: The scales of both items in the dimension of class participation were reversed since the question items were stated in the negative way.

Table C: Rotated Component Matrix of Students' perception toward University

Perception toward University	Component	
	1	2
Encouragement		
University encourages students to spend significant amounts of time studying and academic work.	0.87	
University encourages students to using computers in academic work.	0.70	
Support		
University provides the support students need to help students succeed academically.		0.58
University encourages contact among students from different background.		0.82
University helps students cope with their non academic responsibilities.		0.85
University provides the support students need to thrive socially.		0.80
University supports students to attend campus events and activities.		0.67