Factors Affecting Graduates Satisfaction about the Learning Process at Prince of Songkla University

Niramon Leesoh[1], Nittaya McNeil[2*], Paktra Kooburat[2] and Achara Thummarpon[1]

ABSTRACT

The purpose of this study is to investigate the satisfaction of graduates with their studies and the relationship between satisfaction with the study program and relevant determinants. The study design is cross-sectional, using data obtained from structured questionnaires developed by the Graduate School, Prince of Songkla University, and completed by graduates who finished their Master's Degrees and attended the graduation ceremony in September 2002. The sample comprised 307 graduates who responded to 39 questions measuring satisfaction. Statistical methods used are factor analysis, t-tests, one-way analysis of variance, and multiple regression analysis. The results of this research show that (1) the satisfaction of graduate students with their studies is divided into a number of dimensions, namely *friendly classmates*, *expert teacher*, *well known institute*, *good facilities*, *good technology*, *good management*, *good curriculum*, *practical program*, *friendly teacher*, and *good teaching*; (2) the satisfaction on the *expert teacher, well known institute*, and *friendly teacher* dimensions are associated only with area of study; (3) and satisfaction on the *good facilities* dimension is associated with area of study and whether the thesis is completed continuously or intermittently.

Key words: graduates, satisfaction, Prince of Songkla University

INTRODUCTION

As in most developing countries, the education system in Thailand is of paramount importance, because it is the basis for the future development of the nation. In the past, government planners have tended to focus on the development of the primary and secondary education systems. More recently, attention has turned to tertiary education, as new private universities have been created and have thus provided healthy competition to the longer established public universities. As these universities have matured, attention has turned to graduate programs.

Several Thai universities, including Prince of Songkla University in Southern Thailand, have developed strong graduate programs, particularly at the Master's level. Moreover, they have largely refused to slavishly follow the trend to proliferate purely coursework Master's Degrees that have become lucrative income-earners in many western countries, but which downgrade research. Given the greater cost associated with graduate programs involving thesis supervision, it is important to develop efficient and cost-effective practices for

[1] Graduate School, Prince of Songkla University, Pattani Campus, Muang, Pattani 94000, Thailand.
[2] Faculty of Science and Technology, Prince of Songkla University, Pattani Campus, Muang, Pattani 94000, Thailand.
* Corresponding author, e-mail: nittaya@bunga.pn.psu.ac.th

running these programs.

In this study we report the findings from a survey of students graduating with higher degrees from Prince of Songkla University in September 2002. This survey focuses on levels of satisfaction with respect to various aspects of the students' academic programs. Such studies can provide important information that can be used to improve the quality of graduate education.

There are several studies exploring the levels of satisfaction among students. Pongpullponsak *et al.* (2004) studied factors associated with students' satisfaction about the learning process in a computer education program in Southern Rajabhat Institutes in Thailand. The results indicated eight factors that effected the student's satisfaction. These factors were the behaviour of the president, parents, teachers and students, the condition of classrooms, laboratories and libraries, the character of student's activity and area of study. Rascha (2004) studied opinions on learning environments of students at Prince of Songkla University, Pattani Campus in 2004. He reported that the "student's opinions on the learning environments in all aspects were found to be appropriate at a medium level" and "student's opinions from different faculties on learning environments in all aspects were statistically different". The Graduate School, Michigan State University (1996) surveyed graduate students' opinions on the quality of their education. The sample comprised students who had been enrolled in the Graduate School in 1996. Of 6500 masters and doctoral students surveyed, there were 1391 valid responses, 1026 from graduate students who had been enrolled for more than one year and 365 from new students. It was found that the majority of the respondents were generally positive about their graduate experience. For example 74% of experienced students agreed or strongly agreed with the statement that they would recommend their program to prospective students. Interestingly, the percentage of positive responses was even higher (84%) among new students. Vanitsuppavong (2003) investigated the factors affecting decisions to enrol in the master's degree programs in Education at Prince of Songkla University. The relevant factors were found to be expertise of teaching faculty, and appealing and flexible curricula.

METHODOLOGY

Our study aims to examine the satisfaction of graduates in selected areas, and the relationship between satisfaction with the study program and other relevant determinants of graduate students in the Graduate School, Prince of Songkla University.

Population and sample

The population for this study is 733 graduates who finished their master's degrees and could graduate in September 2002 at Prince of Songkla University. The sample comprised 307 graduates who attended the ceremony and completed the questionnaires. Table 1 shows the response rates by area of study.

Study design

The study design is a cross-sectional survey, which investigates the association between a suspected determinant and an outcome of interest by sampling from a population and classifying subjects with respect to both the outcome and exposure to determinants of interest. The data are obtained from a structured questionnaire developed by the administration and checked for correctness by staff in the Graduate School, Prince of Songkla University in 2002. A 5-point scale is used for the questionnaires (1=very little to 5 = very much).

Data collection

The data were collected by the Graduate School at Prince of Songkla University. The data from these questionnaires are linked to records in the Registrar's Office.

Research variables

1. The determinants of interest are (1) area

Table 1 Response distribution of study sample.

Area of study	Graduates	Responded	% Responded
MPA	219	53	24.2
Education	179	48	26.8
Chemistry	27	26	96.3
Environment	37	26	70.3
Natural Resources	31	23	74.2
Nursing	36	23	63.9
MBA	42	21	50.0
Humanities	27	19	70.4
Engineering	21	17	81.0
Agric. Industry	64	14	21.9
Bio-Science	12	11	91.7
Others	38	26	68.4
Total	733	307	41.9

of study (graduate's major), (2) program, (3) gender, (4) marital status, (5) age group, (6) occupational status, (7) prior research experience, (8) prior knowledge of methodology, (9) computer skill for data acquisition and analysis, (10) ability to search English articles, (11) ability to search articles at other institutes, (12) family, work or financial problems, and (13) the manner of thesis completion (continuous or intermittently).

2. The outcomes of interest in the study are 39 measuring satisfaction of students graduating with scores coded on a five-point scale.

Statistical procedure for data analysis

The data were analysed using descriptive statistics including frequency distributions and numerical summaries. Factor analysis was used to reduce the dimensionality of the multivariate outcomes, two sample t-tests was used to compare the means of continuous outcomes and binary determinants, one-way analysis of variance (anova) was used to compare the means of continuous outcomes and nominal determinants, and multiple regression were used to assess the relationships between the factors and the determinants.

RESULTS

Background of the respondents

The questionnaires showed that most respondents are female (59.3%) and single (68.6%) with aged less than 30 (59.0%). Most of them had been studying in a full-time program requiring a thesis (65.5%). Half had full-time work during their study (49.4%). Most of the graduates didn't have research experience before their study (63.6%). Half needed some additional knowledge about statistics and methodology (52.8%), half could use computers for data acquisition and analysis (51.3%), over one third could search articles or reports in English for their research (37.0%), and most could search about articles or reports at other institutes (89.6%). Nearly half had some problem such as family, work or financial (44.6%), and more than half had done a thesis continuously (58.4%). (Table 2)

Factor analysis and reliability

There were 307 observations corresponding to 39 outcomes in our data. There were a relatively small number (21) of missing values for 16 outcomes; these were replaced by the mean value of the outcome variable in each case. We used the

Table 2 Distributions of determinants.

Determinant	Category	Count	Percent
Program	Full-time	199	65.5
	Part-time	105	34.5
Gender	Male	125	40.7
	Female	182	59.3
Marital status	Single	210	68.6
	Married	92	30.1
	Separate	4	1.3
Age group	Less than 30	181	59.0
	30-40	102	33.2
	More than 40	24	17.8
Occupational status	Unemployed	97	36.9
	Part-time	36	13.7
	Full-time	130	49.4
Prior experience about research	Research direction	25	8.2
	Assistant	86	28.2
	No experience	194	63.6
Prior knowledge about	Sufficient	36	11.9
statistics and methodology	Need some additional knowledge	160	52.8
	Need much additional knowledge	107	35.3
Computer skill for data	Can use computer	156	51.3
acquisition and analysis	Need additional knowledge	135	44.4
	Cannot use computer	13	4.3
Ability to search articles or	Pretty good	112	37.0
reports in English for research	Good, but need much attention	107	35.3
	Can, but not confident	84	27.7
Ability to search about	No	31	10.4
articles at other institute	Yes	267	89.6
Have any problem such as	A lot	49	16.1
family, work or financial problem	A little	136	44.6
	Very little	120	39.3
Thesis timing	Not continuously	13	5.9
	Stop for a while	79	35.8
	Continuously	129	58.4

maximum likelihood method for factor extraction with varimax rotation to obtain a pattern of loadings. Four of the questionnaire items did not contribute to the factor analysis because of poor uniqueness coefficients. These were *number of credits*, *activities*, *evaluation and measurement*, and *up-to-date program*. According to the goodness-of-fit criterion available in maximum likelihood estimation, eleven factors were extracted (χ^2 = 411.9 with 265 df).

We labeled the factors as follows: (1) *friendly classmates*, (2) *expert teacher*, (3) *well-known institute*, (4) *good facilities*, (5) *good technology*, (6) *good management*, (7) *good curriculum*, (8) *practical program*, (9) *friendly teacher*, (10) *good*

teaching, and (11) *good environment*.

The reliability coefficients of all factors were high ($\alpha > 0.75$) except for factor 11 (*good environment*, $\alpha = 0.51$), which was omitted from further analysis.

The correlations between these 10 satisfaction dimensions varied from 0.13 to 0.62, the highest being between *Expert teacher* and *Friendly teacher*, and *Expert teacher* and *Good teaching* (both 0.62), and *Well-known institute and Good management* (0.59). The correlations were lowest between the *Friendly classmate* and *Good curriculum* (0.13), and between pairs *Friendly classmate* and *Practical program*, and *Friendly classmate* and *Good facilities* (both 0.18).

Association between satisfaction outcomes and determinants

Table 3 shows the p-values for the associations between the 10 satisfaction factors with high reliability and the 13 determinants, using two-sample t-test for the binary determinants and one-way analysis of variance for the others.

Given that 130 statistical tests are conducted simultaneously, the p-value needed to reject the null hypothesis for each one should be 0.05/130 = 0.0004 to allow for multiplicity. Using this criterion, there are associations between four of the satisfaction factors and three of the determinants. *Expert teacher* is associated with major group, *well known institute* and major group are associated, *good facilities* is associated with major group, program, and thesis timing, and *friendly teacher* is associated with major group.

Figure 1 shows 95% confidence intervals for means illustrating the associations between the satisfaction on the *expert teacher, friendly teacher, and well known institute* dimensions and area of study. In this graph,

Table 3 P-values relating factor variables to determinants using two-sample t-tests and one way analyses of variance.

Determinant	Friendly class mates	Expert teacher	Well-known Institute	Good facilities	Good technology	Good management	Good curriculum	Practical program	Friendly teacher	Good teaching
Major (area of study)	0.599	**0.000**	**0.000**	**0.000**	**0.001**	**0.001**	**0.002**	**0.002**	**0.000**	**0.040**
Program	0.854	0.593	0.066	0.000	0.053	0.317	0.392	0.914	0.314	0.411
Gender	0.993	0.079	0.690	0.729	0.770	0.639	0.207	0.363	0.154	0.510
Marital status	0.323	0.117	0.157	0.540	0.967	0.480	0.182	0.180	0.099	0.525
Age group	0.080	0.349	**0.013**	0.152	0.720	0.164	**0.040**	**0.004**	0.194	0.822
Occupational status	0.543	0.102	0.245	**0.015**	0.519	0.927	0.451	0.245	0.220	0.916
Research experience	0.494	0.152	0.186	0.368	0.506	0.323	0.279	0.117	0.295	0.479
Prior knowledge	0.841	0.542	0.525	**0.014**	0.026	0.108	0.145	0.160	0.454	0.118
Computer skill	0.409	0.125	0.162	0.609	0.603	0.975	0.254	0.368	0.143	0.155
Eng search skill	0.616	0.834	0.066	**0.011**	0.285	0.256	0.767	**0.042**	0.995	0.718
Article search skill	0.322	0.679	0.639	0.477	0.199	0.165	0.052	0.846	0.662	0.923
Problems	0.837	0.785	**0.040**	0.684	0.269	0.345	0.513	0.477	0.195	0.437
Thesis timing	0.735	0.457	0.074	**0.000**	**0.030**	0.176	**0.013**	0.593	0.090	0.073

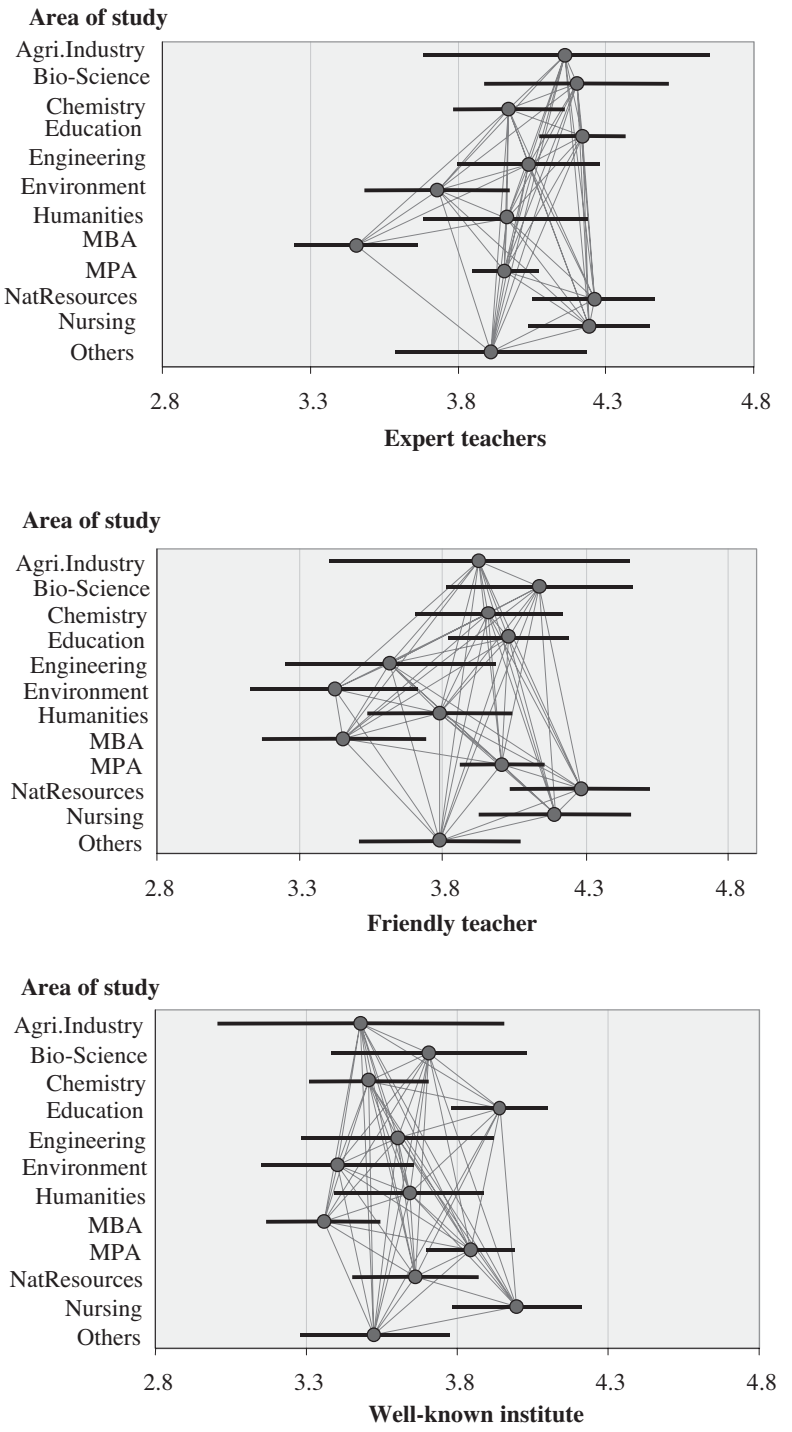

Figure 1 Confidence intervals for means of satisfaction on *expert teacher, friendly teacher, and well-known institute* dimensions by area of study.

pairs of points denoting the means are joined by thin lines whenever the corresponding pair-wise comparison is not statistically significant at the 5% level according to the Kramer-Tukey criterion (Cheung and Chen, 1996). The main source of the comparative difference is due to the relatively low score achieved by the MBA major for *expert teacher*, the high score achieved by the education and nursing for *well known institute*, and the low score achieved by the MBA and Environment major for *friendly teacher.*

Similarly, Figure 2 shows 95% confidence intervals for means illustrating the associations

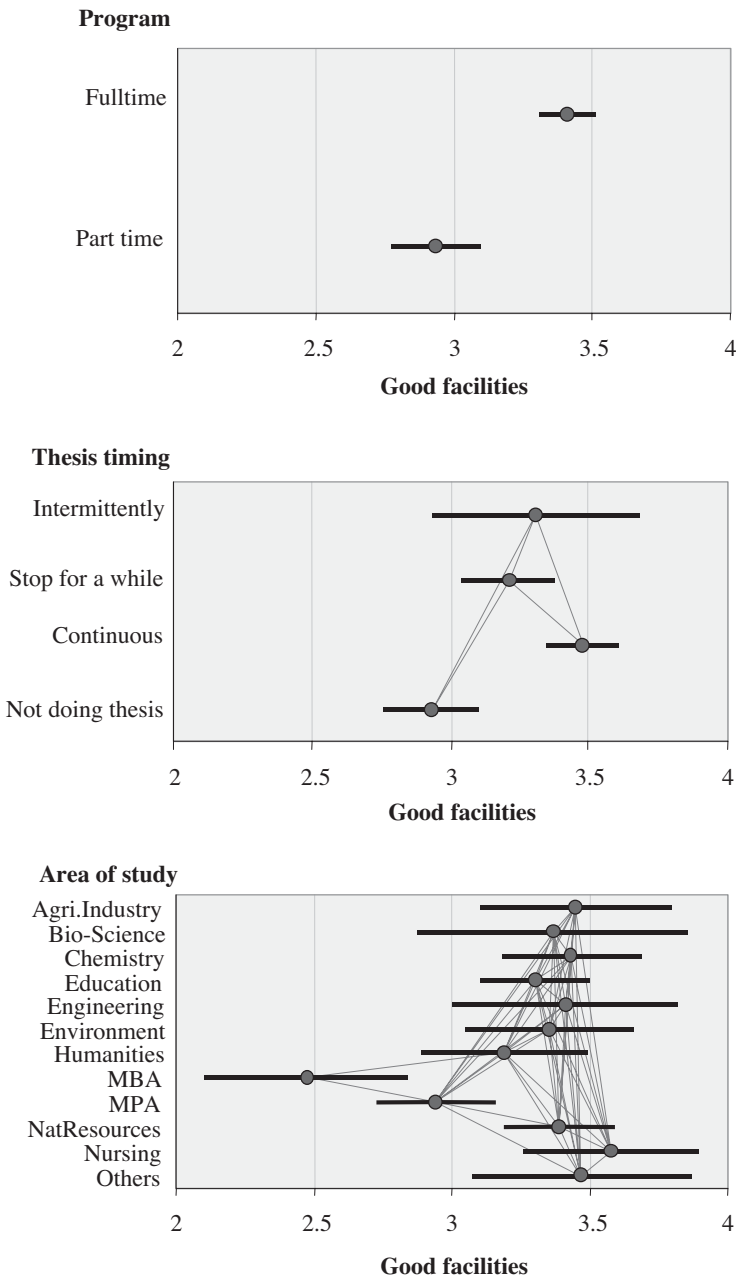

Figure 2 Confidence intervals for means of satisfaction on *Good facilities* factors by program, thesis timing, and area of study.

between the satisfaction on the *good facility* dimension and three determinants: program, thesis timing, and major. The main source of the comparative difference is due to the relatively high score achieved (by approximately half a unit on the scale from "medium" to "much") for graduates who studied full time. The graduates who were not required to complete a thesis had low scores, and lowest scores are achieved by the MBA major.

Multiple linear regression analysis

We have only one continuous outcome of interest associated with more than one determinant, satisfaction on the *good facilities* dimension. Multiple linear regression analysis is used to investigate the relation between *good facilities* and three determinants (area of study, program, and thesis timing), considered jointly. The finding indicates that the association with each determinant is no longer statistically significant after adjusting for the other determinants (Table 4). However, after *program* is omitted, both *area of study* and *thesis timing* (whether the thesis is completed continuously or intermittently) were jointly associated with the *good facilities* factor. (Table 5)

DISCUSSION AND CONCLUSION

The satisfaction of graduate students with their studies is divided into eleven factors. Among these factors, the teachers' expertise, the institute's recognition rating, the quality of its facilities, and the friendliness of its teachers are all correlated with the graduate's choice of major. This result is not surprising and is consistent with findings of the Graduate School, Prince of Songkla University (2004) that the following roles of the supervisor or

Table 4 Multiple regression model for *Good facilities* factor: three predictors.

Linear Regression Analysis: Outcome = **Good facilities**

Determinant	Coefficient	StError	p-value
Constant	3.8845	0.2491	0.0000
Major	Baseline:	Agricindustry	0.0652
BioScience	-0.4479	0.3292	0.1746
Chemistry	-0.3569	0.2813	0.2055
Education	-0.2234	0.2344	0.3413
Engineering	-0.3445	0.2973	0.2476
Environment	-0.4259	0.2787	0.1275
Humanities	-0.5435	0.2881	0.0602
MBA	-0.9352	0.2679	0.0006
MPA	-0.4693	0.2368	0.0484
Natural resources	-0.4261	0.2875	0.1394
Nursing	-0.2693	0.2914	0.3562
Other	-0.3449	0.2807	0.2202
Program	Baseline:	Full time	0.2205
Part time	-0.2230	0.1816	0.2205
Thesis timing	Baseline:	Continuously	0.0865
Stop for a while	-0.2423	0.1179	0.0408
Not continuously	-0.1661	0.2251	0.4610
Not doing thesis	-0.3352	0.1546	0.0309

R^2: 0.1513 df: 291 RSS: 169.9387 s: 0.7642

Table 5 Multiple regression model for *Good facilities* factor: two predictors.

Linear Regression Analysis: Outcome = **Good facilities**

Determinant	Coefficient	StError	p-value
Constant	3.7725	0.2320	0.0000
Major	Baseline:	Agricindustry	0.0334
BioScience	-0.3416	0.3179	0.2834
Chemistry	-0.2392	0.2647	0.3668
Education	-0.2028	0.2340	0.3869
Engineering	-0.2383	0.2847	0.4033
Environment	-0.3189	0.2649	0.2296
Humanities	-0.4500	0.2781	0.1067
MBA	-0.9641	0.2671	0.0004
MPA	-0.5174	0.2337	0.0276
Natural resources	-0.3180	0.2739	0.2466
Nursing	-0.1598	0.2776	0.5654
Other	-0.2382	0.2672	0.3734
Thesis timing	Baseline:	Continuously	0.0317
Stop for a while	-0.2312	0.1176	0.0503
Not continuously	-0.1482	0.2248	0.5103
Not doing thesis	-0.4090	0.1425	0.0044

R^2: 0.1469 df: 292 RSS: 170.8193 s: 0.7649

lecturer were important: to provide students with understanding, care and kindness, and to give advice appropriately when students do something wrong in their thesis. This study is also consistent with findings of Pongpullponsak *et al.* (2004) that a good characteristic of the lecturer is a good relationship between lecturer and students, and library resources, computer service sufficiency and laboratory equipment are important for student satisfaction, and with a finding of Vanitsuppavong (2003) that the factor most affecting decisions to enrol in the master's degree programs in Education at Prince of Songkla University is the teachers' expertise. Based on these findings we conclude that the university should provide a better environment for graduate students, especially with respect to its facilities for study and the expertise and friendliness of the teachers.

LITERATURE CITED

Cheung, S. and W. Chen. 1996. "Simultaneous Confidence Intervals for Pair Wise Multiple Comparisons in a Two-way Unbalanced Design." *Biometrics* 52: 463-472.

Michigan State University, 1996. Graduate Student Opinions on the Quality Graduate Education at Michigan State University. (Online) Available: http://www.msu.edu/user/gradschl/all/96intro.htm. [2004, November 25].

Pongpullponsak, A., P. Kiattikomol, W. Borvonsiri, N. Supapon and P. Somjittt. 2004. "The Study Factors of Students' Satisfaction About Learning Process in Computer Education Program in Southern Rajabhat Institutes". *Paper Presented at the 5th North Applied Statistical Seminar*, Science faculty of Chiang Mai University May, 27-29.

Rascha, T. 2004. "Opinions on Learning Environments of Students at Prince of Songkla University." Pattani Campus, *Songklanakarin Journal Social Sciences and Humanities* 10(2) May-Aug.: 235-254.

The Graduate School, Prince of Songkla University, 2004. A report of the study on the role of prospective supervisor of graduate school at Prince of Songkla University (in Thai).

Vanitsuppavong, P. 2003. "Factors Affecting Decision to Enroll in the Master's Degree Programs in Education Prince of Songkla University." *Songklanakarin Journal Social Sciences and Humanities*. 9(3) Sep.-Dec.: 257-274.