A Follow–Up Study of Bachelor of Science Graduates in Applied Statistics from Suan Sunandha Rajabhat University during the 1999-2012 Academic Years

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Abstract—The purpose of this study is to follow – up the graduated students of Bachelor of Science in Applied Statistics from Suan Sunandha Rajabhat University (SSRU) during the 1999 – 2012 academic years and to provide the fundamental guideline for developing the current curriculum according to Thai Qualifications Framework for Higher Education (TQF: HEd). The sample was collected from 75 graduates by interview and online questionnaire. The content covered 5 subjects were Ethics and Moral, Knowledge, Cognitive Skills, Interpersonal Skill and Responsibility, Numerical Analysis as well as Communication and Information Technology Skills. Data were analyzed by using statistical methods as percentiles, means, standard deviation, t- tests, and F- tests. The findings showed that samples were mostly female had less than 26 years old. The majority of graduates had income in the range of 10,001-20,000 Baht and experience range were 2-5 years. In addition, overall opinions from receiving knowledge to apply to work were at agree; mean score was 3.97 and standard deviation was 0.40. In terms of, the hypothesis testing's result indicate gender only had different opinion at a significance level of 0.05.

Keywords—Follow up, Graduates, knowledge, opinion, Work performance.

I. INTRODUCTION

CURRENTLY, Thailand is rapidly developing country under economic and social conditions. Improving human is the most important which will make the stability and progress country. Education is the foundation for social and economic development in addition it is tool for using in everyday life make peace for human and society [1]. This is reason to the academy emphasize to improve an efficient curriculum.

SSRU offers undergraduate programs, graduate programs, and doctoral degree programs to full and part-time students. The mission is to produce high quality graduates; to create and develop knowledge and innovation; to provide academic services, which serve society; to preserve art and cultural heritage; and to promote the teaching professionalism. When 1996, Applied Statistics Program was established which consist of three branches were Information and technology, Financial, and Quality Control to focus on applying statistics such as analysis, research, and processing by computer. At the present, who graduated during the 1999 – 2012 academic

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years have 240 graduates but they had not been followed-up at all. Therefore, getting quality graduates accord with requirement of social should follow-up them after graduation in terms of using knowledge from study to apply to work.

Follow up helps academy to study the change behavior of graduates in many ways such as living, working, and obstacle that reflect to improving curriculum for the better. Moreover, this result can indicate the quality of curriculum which is method to develop to accord with economic and social [2].

II. LITERATURE REVIEW

A. Follow-up

Academics define Follow- up is process or tool which uses data collection from a graduate in order to get current data. To know the quality and defect of the graduate after graduation as feedback data to academy so as to develop the curriculum and accord with the requirement result in efficient study [3]. Moreover, a program conducts the graduate follow–up to evaluate how well the program meets community and student needs. It is essential to monitor the quality of teacher preparation programs [4].

B. Related Research

Lorraine Smith studied from 214 graduates of the Bachelor of Nursing degree, University of Glasgow. Overall, this study provides continuing support for the findings from earlier surveys which demonstrated that graduate nurses continue to work in the clinical field, that undergraduate nursing does not necessarily provide career acceleration, and that midwifery is the most sought-after additional qualification. More of Glasgow's graduate nurses are to be found working in high dependency units than would appear to be the case from other surveys on degree nursing courses. Glasgow's graduate nurses hold an ethos which values university education and life [5].

Kamolvan Limpanattonn and Sritana Boonyasait followed up 323 graduates on their using of knowledge gained from STOU. The graduates' present status: majority of graduates were male, government employees, work positions related to construction jobs; earning 10,000-15,000 baht and 41-45 years old. After finished their study their income increased and income rate was higher than bachelor's degree rate. The use of knowledge, the general knowledge and competence were rated at high level, Working skills was at high rate, using professional knowledge in the professional practice was at high rate, knowledge gained from using instructional media

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was at medium rate, when studying at STOU the graduates used textbooks and workbooks at high rate, and knowledge gained from the activities for increasing discipline efficiencies were at medium rate [6].

III. RESEARCH OBJECTIVES AND HYPOTHESES

A. Research Objective

1) To study the graduate opinions of Bachelor of Science in Applied Statistics from SSRU during the 1999 – 2012 academic years toward applying knowledge to work.
2) To analyze and compare the opinions of graduates from demographic background differences.
3) To analyze and compare the opinions of graduates from course of academic years (before the 2007 academic year and during the 2007 – 2010 academic years).

B. Research Hypotheses

Based on Research Objective the following hypotheses have been derived:

1) Graduates with different demographic background have different opinion in terms of applying knowledge to work.
2) Graduates with different course of academic year have different opinion in terms of applying knowledge to work.

IV. METHODOLOGY

The sample used in this study was 75 graduates from all of the students graduated of B.Sc. in Applied Statistics from SSRU during the 1999 – 2012 academic years was about 240 graduates. Size of samples is calculated by using Taro Yamane [7] at sampling error is ±10%, selected by using Stratified Random Sampling followed a population proportion. After that, evaluating the questionnaire which are divided into 2 parts; Part 1: Graduate' demographic details such as age, gender, salary as well as employment years and Part 2: Graduates' aspects level toward knowledge from study was applied to work consist of 5 subjects follow Thai Qualifications Framework for Higher Education (TQF: HEd) such as Ethics and Moral, Knowledge, Cognitive Skills, Interpersonal Skill and Responsibility, Numerical Analysis as well as Communication. This second part of questionnaire used a 5-point Likert scale: Strongly agree, Agree, Moderate agree, Disagree, and Strongly Disagree.

The validity of each question in the questionnaire was tested using Item-Objective Congruency or IOC index was 0.5 or more. Then, 30 pilot samples were tested by using this questionnaire. The Cronbach's Alpha coefficient [8] was more than 0.80. Data was collected by interview and online questionnaire. The results were analyzed using statistical methods (1) Descriptive statistics: Frequency, percentage, mean, and standard deviation. (2) Inferential Statistics: This method can be used to test hypothesis, using paired sample t-test and compared three or more means F-test (ANOVA).

V. RESEARCH RESULTS

Research analysis is divided into 2 parts; Part 1: Demographic of graduates, using descriptive statistics and Part 2: Hypothesis testing, using inferential statistics.

Part 1: Demographic Characteristics of Graduates.

Table I exhibited the frequency and percentage of the target group was 75 samples who graduated from Bachelor of Science in Applied Statistics from SSRU during the 1999 – 2012 academic years. A demographic profile indicated that more female (65.3%) than male (34.7%). Proportions of age range were less than 26 years (38.7%), more than 30 years (32.0%) and 26-30 years (29.3%) respectively. Most graduates had income range was 10,001-20,000 Baht (66.7%) the next most were 20,001-30,000 Baht (16.0%), 30,001-40,000 Baht (9.3%) , less than 10,001 Baht (4.0%) and more than 40,001 Baht (4%) respectively. The proportions of Experience was 2-5 years (38.7%), more than 9 years (25.3%), less than 2 year (18.7%), and 6 – 9 years (17.3%) respectively.

TABLE I
DEMOGRAPHIC CHARACTERISTICS OF GRADUATES

Characteristics	Frequency	Percent
Gender		
Male	26	34.7
Female	49	65.3
Age		
Less than 26 years	29	38.7
26-30 years	22	29.3
More than 30 years	24	32.0
Income		
Less than 10,001 Baht	3	4.0
10,001-20,000 Baht	50	66.7
20,001-30,000 Baht	12	16.0
30,001-40,000 Baht	7	9.3
More than 40,001 Baht	3	4.0
Experience		
Less than 2 year	14	18.7
2-5 years	29	38.7
6 – 9 years	13	17.3
More than 9 years	19	25.3
total	75	100

Table II provides descriptive statistics for each variable. As the responses used a 5-point Likert scale to complete the questionnaire, the following statistics are used in interpreting the results of the study:

1.00 – 1.80 Strongly Disagree
1.81 – 2.60 Disagree
2.61 – 3.40 Moderate Agree
3.41 – 4.20 Agree
4.21 – 5.00 Strongly Agree

TABLE II
MEAN AND STANDARD DEVIATIONS OF SUBJECTS

Subjects	Mean	S.D.
1. Ethics and Moral	4.38	0.39
2. Knowledge	3.69	0.58
3. Cognitive Skills	3.91	0.47
4. Interpersonal Skill and Responsibility	4.17	0.44
5. Numerical Analysis and Communication	3.67	0.57
Overall	3.97	0.40

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As shown in Table II, the overall results were the graduates' opinions were at agree (mean = 3.97, SD = 0.40) with Interpersonal Skill and Responsibility (mean = 4.17, SD = 0.44), Cognitive Skills (mean = 3.91, SD = 0.47), Knowledge (mean = 3.69, SD = 0.58) and Numerical Analysis and Communication (mean = 3.67, SD = 0.57). Moreover, they had opinions at strongly agree with Ethics and Moral (mean = 4.38, SD = 0.39).

Part 2: Statistical Hypothesis Testing.

From the two main research hypotheses research can be analyzed in statistical hypotheses to assume populated as follows.

TABLE III
T-TEST, TESTING DIFFERENCES OF MEAN

Subjects		Mean	S.D.	t	df	Sig.
- Course of	Before 2007	3.98	0.06	0.37	73	0.72
academic years	2007 – 2010	3.94	0.07			
- Gender	Male	3.83	0.07	-2.11	73	0.04*
	Female	4.03	0.06			

* P value is less than 0.05

From Table III, a t-test was performed to compare between course before the 2007 academic years and the 2007 – 2010 academic years and it shows that graduates' opinions did not differ. Meanwhile, Man and female had a different opinion and it was significant at the level 0.05.

TABLE IV
F-TEST ANOVA, TESTING THREE OF MORE MEANS

Subjects		SS	df	MS	F	Sig.
Age	Between groups	0.06	2	0.03	.20	0.82
	Within group	11.83	72	0.16		
	Total	11.89	74			
Income	Between groups	0.28	4	0.07	0.42	0.79
	Within group	11.61	70	0.17		
	Total	11.89	74			
Experience	Between groups	0.58	3	0.19	1.21	0.31
	Within group	11.31	71	0.16		
	Total	11.89	74			

From Table IV, to answer hypothesis, one way ANOVA test was performed to test the difference of age, income, and experience toward applying knowledge from study to work. Therefore, this indicated that there were no differences of opinions' graduates.

VI. CONCLUSION

This study aimed to follow – up graduates and evaluate the level of graduates' opinions toward applying knowledge from study in Applied Statistics to perform work. The results show that all the course period can use to work not differ as the course was improved in order to blend a current work. Furthermore, graduates' demographic didn't effect to opinion except gender had an influence on opinion of graduates.

The main limitation of this paper came from address of graduate not update. Therefore, sample was surveyed by online questionnaire and telephone interview methods and then some graduates cannot contact. This study had small sample size by using Taro Yamane at sampling error is ±10%.

The suggestion for this study should follow up graduates every three to five years continuously in order to improve course for better and meet requirement of establishment. Furthermore, future studies should compare graduates' opinions between who work at Government and enterprise in terms of applying knowledge to use.

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