DISCRIMINANT ANALYSIS OF FACTORS AFFECTING THE CLASSIFICATION GROUPS OF EMPLOYED AND UNEMPLOYED RECENT GRADUATES, YEAR 2015. CASE STUDY: THE FACULTY OF SCIENCE AND TECHNOLOGY, THAMMASAT UNIVERSITY

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ABSTRACT

The purpose of this study was to determine the factors affecting the group classification of recent graduates as employed or unemployed. The population of the research was 629 recent graduates who had finished a bachelor degree at the Faculty of Science and Technology, Thammasat University in 2015. Systematic Sampling was employed to sampling data from the population, sample size was 516 cases. The instrument used in this study was a questionnaire. Data were analyzed by frequency, percentage, mean, standard deviation, and discriminant analysis.

The study found that the percentage of recent graduates who were employed and unemployed were 55.0% and 45.0% respectively. Six independent variables: gender, grade point average (gpa), duration of job seeking (seeking), the desire to further study at master degree level (desire), duration of additional training (training) and achievement motivation (achieve), these variables were able to correctly predict the members of the both groups of recent graduated with an accuracy of 81.6% and correctly predict the members of the employed and unemployed group with an accuracy of 82.4 % and 80.6 % respectively. The Unstandardized discriminant equation for determining success in finding employment was

D = - 3.720 - 0.267 gender - 0.228 gpa + 0.112 seeking - 0.924 desire + 0.040 training + 1.127 achieve

KEYWORDS

Classification of Recent Graduates, Faculty of Science and Technology, Discriminant analysis

INTRODUCTION

The Faculty of Science and Technology was founded in 1986 and the first at Rangsit Center. It was the ninth faculty of Thammasat University, one of the top five universities in Thailand. Initially, there were five disciplines: Mathematics and Statistics, Computer Science, Environmental Sciences and Health Sciences. The faculty has been extending its teaching areas by adding new disciplines and establishment of the Faculty of Engineering and Health Science. Currently the faculty consists of ten departments: Mathematics and Statistics, Chemistry, Agricultural Technology, Rural Technology, Biotechnology, Physics, Computer Science, Environmental Science, Food Science, and Textile Technology. There are approximately 30 courses at the undergraduate and graduate level. Each year approximately 1,000 students enroll at all levels, including normal, special, and graduate programs, and more than 20 generations of students have graduated. In addition, the faculty offers foundation courses for other faculties and also has its own Master and Doctoral degree courses.

The Faculty of Science and Technology is responsible for teaching basic science courses to all other faculties at the Rangsit Center. It aims to produce graduates with in both theoretical and practical knowledge, and also with strong moral principles. The Faculty of Science and Technology has to produce graduates in accordance with the Ministry of Education directives set out in the "Standard Higher Education Act", 2006. This specified the standard of quality for graduates, namely having knowledge, ethics, and the ability to learn and develop themselves (Bureau of Standards and Evaluation in Higher Education in 2010), and also according to the "Qualifications Framework of National Higher Education" ministerial rules about the system, criteria and procedures for quality assurance in 2010.

The Commission of Higher Education uses the guidelines for internal quality assurance by following-up and monitoring the quality of education in higher education institutions as appropriate, and developing educational quality assurance at the faculty level. The monitoring of the quality of education is performed at least once every three years and the results are reported to the Higher Education Commission (Thai Royal Gazette, 2010). The indicator of quality of education for graduates in science and technology, as specified by the Office of Public Sector Development, is the percentage of Bachelor degree graduates who were employed or self-employed within one year of graduation. The Faculty of Science and Technology has a target of 92.0% for the percentage of Bachelor graduates that are employed or self-employed within one year of graduation (Faculty of Science and Technology, Thammasat University, 2012 : 23).

Researchers are therefore interested in studying the factors that influence the classification of recent graduates who were employed or unemployed; to identify the main features that characterize recent graduates who were employed or unemployed six months after graduation; to use this information as a basis for planning guidelines for the development of teaching and learning, and to suit the needs of the labor market in order to develop the country in the future.

RESEARCH OBJECTIVES

1. To identify factors which affected the employment and unemployment of recent graduates.

2. To study the ability of the discriminant equation to predict membership of the groups of employed and unemployed.

TARGET POPULATION AND SAMPLE

The target population of the research consisted of 629 recent graduates who had finished a bachelor degree from 10 departments of Faculty of Science and Technology, Thammasat University in 2015. Systematic Sampling was used for data collection. The sample comprised 516 recent graduates who were on the rehearsal graduation day.

INSTRUMENT AND DATA ANALYSIS

A questionnaire was used as the research instrument to obtain data, which was analyzed by frequency, percentage, mean, standard deviation and discriminant analysis.

VARIABLES

1. The independent variables consist of : gender, domicile, grade point average (gpa), duration of job seeking that measured by the number of months for seeking a job after graduation (seeking), desire to do further study at Master degree level (desire), duration of additional training that measured by the number of days used for additional training (training) and achievement motivation level (achievement).

2. The dependent variable is getting a job (job).

RESULTS

The survey found that 55.0% of the recent graduates from the Faculty of Science and Technology were employed, but it is 67.8% of the recent graduates who were employed, if excluding the recent graduates who were continuing to study. (see Figure 1-2).

Figure 1 Percentage of the recent graduates classified by working status and doing further study

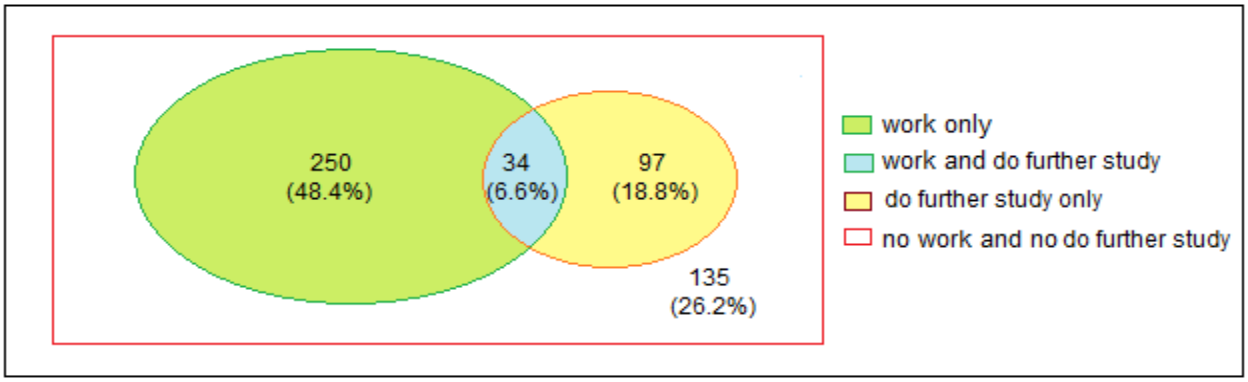

Figure 2 Percentage of the recent graduates excluding those were continuing to study classified by working status

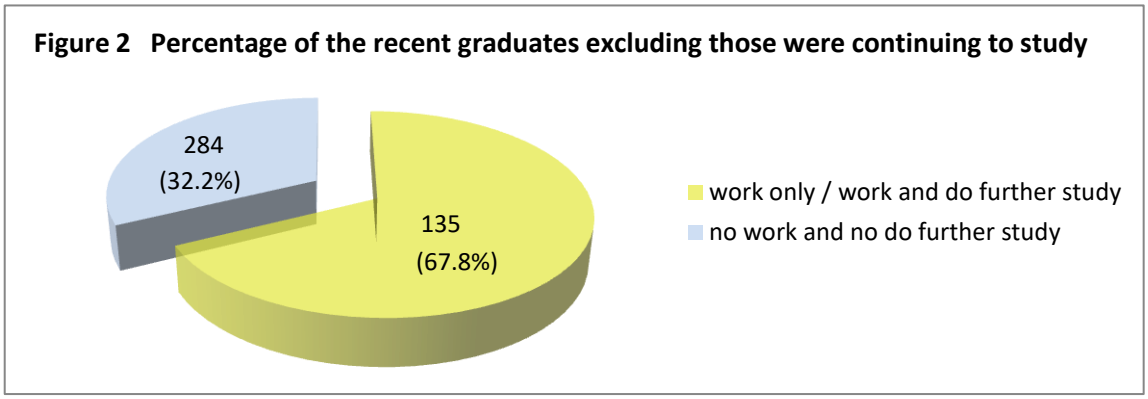

Table 1 shows that almost three quarter of the recent graduates were female (73.1%) and spent not more than three months for job seeking (73.6%). Almost 60% of the recent graduates domiciled outside Bangkok (58.6%) and desire to do further study (56.8%).

By comparison, the percentage of the attributes of the recent graduates who were employed and unemployed (in Table 1), it is noteworthy that only 15.9% of the recent graduates who were unemployed spent more than 3 months for job seeking, while 34.9% of recent graduates who were employed spent more than 3 months for job seeking. Most of the recent graduates who were unemployed (77.6%) desired to do further study, while only 39.8% of recent graduates who were employed desired to do further study.

It was also found that most of the recent graduates who were employed (57.4%) spent about 15-60 days in additional training, while most of the recent graduates who were unemployed (59.1 %) spent not more than 14 days in additional training. Most of the recent graduates who were employed 74.3%) had achievement motivation level rather high thru high, while most of the recent graduates who were unemployed (51.7 %) had achievement motivation level rather high thru high. (as shown in Table 1).

Table 1 The attributes of the recent graduates who were employed or unemployed

The attributes	Total	Employed	Unemployed
Total	**100.0**	**55.0**	**45.0**
Gender			
Male	26.9	23.2	31.5
Female	73.1	76.8	68.5
Domicile			
Bangkok	41.4	40.6	42.2
Outside Bangkok	58.6	59.4	57.8
Grade point average			
2.00-2.40	30.4	32.4	28.0
2.41-2.75	30.2	29.9	30.6
2.76-4.00	39.3	37.7	41.4
Job seeking			
Not more than 3 months	73.6	65.1	84.1
3-6 months	26.4	34.9	15.9
Desire to do further study			
Desire	56.8	39.8	77.6
No desire	43.2	60.2	22.4
Additional training			
Never (0 days)	4.3	2.8	6.0

Not more than 14 days	48.4	39.8	59.1
15- 60 days	47.3	57.4	34.9
Achievement Motivation			
Low	3.5	1.4	6.0
Rather low	2.9	3.9	1.7
Moderate	29.5	20.4	40.5
Rather high	39.5	41.9	36.6
High	24.6	32.4	15.1

By comparison, the average of the attributes (independent variables) of the recent graduates who were employed and unemployed (in Table 2) revealed that the proportion of males in the employed group was 23.0% and in the unemployed group was 31.0%. The proportion of recent graduates who wish to study at Master degree level was 40.0% in the employed group and in the unemployed group was 78.0%.

The grade point average (gpa) of recent graduates who were employed was less than that of those who were unemployed, while the duration of job seeking (seeking), duration of additional training (training) and achievement motivation (achieve) of recent graduates who were employed was higher than that of those who were unemployed. In particular the average of difference achievement motivation score of the employed group was 4.00 (rather high level), while it was 3.15 (moderate level) for the unemployed group (as shown in Table 2).

Using ANOVA at the 0.05 level, there were a statistically significant differences on the gender, gpa, duration of job seeking, desire to do a further study, duration of additional training, and achievement motivation (as shown in Table 2).

Table 2 Statistical testing of the differences in attributes of recent graduates who were employed and unemployed

	Employed	**Unemployed**	**F**	**Sig.**
Gender	0.23	0.31	4.411	0.036
Grade point average (gpa)	2.64	2.71	3.896	0.045
Duration of job seeking (seeking)	2.13	1.68	12.831	0.000
Desire to do a further study (desire)	0.40	0.78	86.513	0.000
Duration of additional training (training)	19.55	10.03	81.726	0.002
Achievement Motivation (achieve)	4.00	3.15	212.596	0.000

Thus six independent variables were selected in the discriminant equation namely, gender, grade point average, duration of job seeking, desire to do further study, duration of additional training and achievement motivation.

The discriminant coefficients of independent variables for the employed and unemployed groups are shown in Table 3.

Table 3 Coefficients of independent variables in the discriminant equation

	Unstandardized	**Standardized**
Gender	-.267	-.118
Grade point average (gpa)	-.228	-.095
Duration of job seeking (seeking)	.122	.175
Desire to do further study (desire)	-.924	-.424
Duration of additional training (training)	.0400	.480
Achievement Motivation (achieve)	1.127	.737
(Constant)	-3.720	

From unstandardized coefficients and standardized coefficients in Table 3 the following discriminant equations can be obtained.

Unstandardized discriminant equation

D = - 3.720 - 0.267 gender - 0.228 gpa + 0.112 seeking - 0.924 desire + 0.040 training + 1.127 achieve

Standardized discriminant equation

$$D_Z = -0.118\, Z_{gender} - 0.095\, Z_{gpa} + 0175\, Z_{seeking} - 0.424\, Z_{desire} + 0.480\, Z_{training} + 0.737\, Z_{achieve}$$

The statistical test for discriminant equations in Table 4 shows that the groups could be classified by the equation, reflected in the high canonical correlation coefficient (coefficient = 0.664).

Table 4 The statistic value for testing discriminant equation.

Function	Canonical Correlation	Wilks' Lambda	Chi-square	df	Sig.
1	0.664	0.560	296.220	6	0.000

The discriminant equations were able to correctly predict, with accuracy of 81.6%, the classification of members into groups. The equations were able to correctly predict the employment and unemployment status of recent graduates with an accuracy of 82.4% and 80.6% , respectively (as shown in Table 5).

Table 5 Percentage of accuracy in predicting group membership

		The group forecast		Total
		Employed	Unemployed	
The actual data	Employed	234 82.4%	50 17.6%	284 100.0%
	Unemployed	45 19.4%	187 80.6%	232 100.0%
Accuracy in predicting group membership: 81.6 %				

CONCLUSION

This research shows that recent graduates who were employed were as a group that more ready to enter the labor market than those who were unemployed. The duration of additional training, job seeking, and achievement motivation of employed graduates were all significantly higher than those of unemployed graduates. This reflects the efforts of the graduates who found employment to improve themselves to be ready to enter the labor force and their determination in seeking a job after graduation.

A limitation of this survey is that the proportion of recent graduates who were unemployed was rather high because some graduates were waiting for recruitment by the potential employer or university in the case that they wish to pursue further study. We assume that after longer period from graduation the proportion of recent graduates who were employed would be higher. Therefore, necessary to follow up graduates who are unemployed over a longer period.

RECOMMENDATIONS

1. The analytical method presented research enables administrators to assess readiness and potential to enter the labor market of students who are currently enrolled. Administrators should be aware that additional training is necessary to help the students to get a job in the future and that they should encourage students to increase their achievement motivation.
2. There should be further study of other variables that may affect the employment of recent graduates in more appropriate ways. There should also be a careful follow-up of recent graduates for a period of one year after graduation.
3. From the point of view of instruction planning, to better meet the needs of the labor market, studies should be conducted of variables or attributes of employers of recent graduates, to understand the factors that influence their decision to recruit recent graduates.

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