Knowledge, Attitude and Skill Affecting to Internal Education Quality Assurance, Faculty of Information Technology, KMUTNB

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Abstract. Quality assurance has become an importance issue in the operation of tertiary education institutions in Thailand. This mechanism is used to ensure the quality of the education provision. However, due to the frequent changes of the quality assurance criteria, members of organization tend to lack the up-to-date knowledge in the quality assurance. This usually leads to misunderstanding and inefficient implementation of the quality assurance. To help reduce this problem, this research aims to study the knowledge, attitudes and skills in the quality assurance of the staff at the Faculty of Information Technology of King Mongkut's University of Technology North Bangkok. In addition, we study the relationship between knowledge, attitudes, and skills in the implementation of quality assurance in the faculty. We also determine the differences of the participants before and after participating in the quality assurance training using pretest and posttest. The population of this study is a specific group of staff of Faculty of Information Technology who perform the actual work in quality assurance. The results show that the knowledge is positively related to the skills in quality assurance personnel. However, the attendance of previous quality assurance trainings prior to this research does not affect the participants' score in the pretest and posttest.

Keywords: Knowledge, Attitudes, Skills, Relationships, Internal Education Quality Assurance

1. Introduction

Quality assurance ensures that the delivery of education maintains the quality in the management and activities according to the policies and purposes of the mission of education institutions in order to continuously improve the quality of education in all areas (including the quality of student, alumni, graduates, education programs, academic and administration staff, research, and academic services). These areas are important and necessary for educational institutions of all levels of education. Especially in the institutions that provide tertiary education or higher, it is most important to operate under the standard educational quality criteria. In Thailand, two agencies are responsible for defining these criteria for quality assurance: the Commission on Higher Education and the Bureau of Standards and Quality Assessment. The former is responsible for ensuring the internal quality assurance while the latter is responsible for the external counterpart. All educational institutions must be evaluated based on the criteria defined by these two organizations. The evaluation of the quality of education must cover four primary mission areas: teaching, research, academic services to the society, and cultural arts preservation. The Ministry of Education, Thailand, has issued regulations that include the rules and procedures for quality assurance including both internal and external aspects [1].

The Faculty of Information Technology is an education unit in the King Mongkut's University of Technology North Bangkok (KMUTNB). The faculty recognizes the importance of the quality assurance and therefore establishes a section dedicated to the quality assurance. This section is responsible for facilitating the operation of the faculty in order to meet the quality assurance criteria. It is also responsible for encouraging faculty staff to engage in the implementation of the internal education quality assurance. However, due to the recent increase in the size of the faculty and to the recent changes of the quality assurance criteria, faculty members lack the up-to-date knowledge in the quality assurance. This results in the misunderstanding and the inefficient implementation of the quality assurance. Ultimately, they lead to the boredom and neglect of the quality assurance.

To tackle the problems mentioned, we are interested in determining the knowledge, attitudes and skills of the faculty staff in the implementation of quality assurance in the Faculty of Information Technology,

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KMUTNB. We hope that the result of this research will be able to guide the staff to work on quality assurance more effectively and productively.

2. Related Work

Many variables and factors are involved in research on quality assurance. Such variables include work environment, psychological characteristics, and problems, knowledge, attitude, acceptance and skills in quality assurance.

Pongthawat [2] used Pearson correlation analysis with multiple regression analysis to study the work environment factor and psychological characteristics factor. The results showed that the two factors correlate positively with the participation of staff in ensuring quality of education. By using the two factors together, it is possible to predict the presence of involvement of personnel in the quality assurance. Haruethai and Nakwan [3] found that the knowledge did not correlate with attitude, but attitude is related to acceptance with the statistical significance level of 0.01 when analyzed by Pearson correlation. Other than the researches on the relationships between variables, some only focus singly on the attitude. [4-5]

Chalermchon [4] studied the attitudes of students in the School of Military Officers and found that personal background was not related to the attitude while level of education was related to the attitude. The study by Somsith [5] reported that different personal background and role of participation did not have any influence on the attitude. Janphen [6] found that knowledge and the attitude are positively related. This finding is inconsistent with Haruethai and Nakhwan [3]. As for the skills in quality assurance of executives, a research using the concept of Drake and Row showed that executives had high management skills facilitating the process of quality assurance [7]. Rusnee [8] studied three types of the quality assurance skill (management skills, academic skills, and quality assurance practice) of the quality assurance committee in private Islamic schools. It was found that the management skills and academic skills are positively related to the quality assurance practice.

3. Methodology

The population of this study is a group of staff of the Faculty of Information Technology. The group contains 28 samples selected from the individuals that work on quality assurance who score less than 70 percent in the test regarding quality assurance. The 28 samples then participate in four QA Knowledge activities. Each activity contains general information on quality assurance that the sample individuals should know along with the questions at the end of the activity. The information given in these activities includes the definition of systems and mechanisms involved in quality assurance, the importance of quality assurance, the 12-months duration of the evaluation (academic year, fiscal year, and calendar year), the grouping of the institutions, range of evaluation score, identity and uniqueness, the names of the 9 elements in quality assurance, the counting of lectures and researchers, and the cycle of quality (Plan-Do-Check-Act). The score of each sample individual is accumulated from the answers to the questions of the four activities.

Percentage is used to analyze the general status of the samples while arithmetic mean and standard are used to analyze knowledge, skills, and attitude. Pearson correlation coefficients technique is used to analyze the relationship between knowledge and attitude, the relationship between knowledge and skills, and the relationship between attitude and skills. Repeated measures technique is used to test the stability of the score of each activity.

4. Research Results

The results of the analysis are divided into 4 sections. Each section presents an analysis of the collected data using the tools mentioned earlier. Section 1 presents the preliminary result while Section 2 analyzes the relationship between knowledge, skills and attitudes. Section 3 presents the comparison between the scores of the pre-test and the scores of post-test. The stability of the score is presented in Section 4 using repeated measure technique.

4.1. Section 1: Preliminary results of the analysis

Initially, 40 staffs of the Faculty of Information Technology were given a questionnaire and their scores are collected. From the data, it was found that the majority had received training on the quality of education (72.50 percent). The analysis of the data showed that 28 persons have little knowledge in quality assurance (score range 0-6) and that 12 persons have more knowledge (score range 7-10). Therefore, the group of 28 persons with less knowledge in quality assurance was brought into the next phase of the study.

The overall attitude of the samples toward quality assurance was good (Mean = 3.67, S.D. = 1.100). The understanding of quality assurance was found to be the most critical (Mean = 4.48, S.D = 0.640). Most of the samples think that they have the skills in level range of 46 – 75%, while fewer samples fell respectively in the ranges of 18-45%, 75% or more, and 0%. The samples have the most experience in preparing data and documents as requested by other staff; the overall Mean is 46.65 (in the range of 0 to 100) with standard deviation of 28.82.

Out of the 28 samples, only 13 attended all four activities. Each activity contains five questions at the end of the activity; the full score of each activity is therefore 5. The scores of the 13 people in each activity are shown in Figure 1.
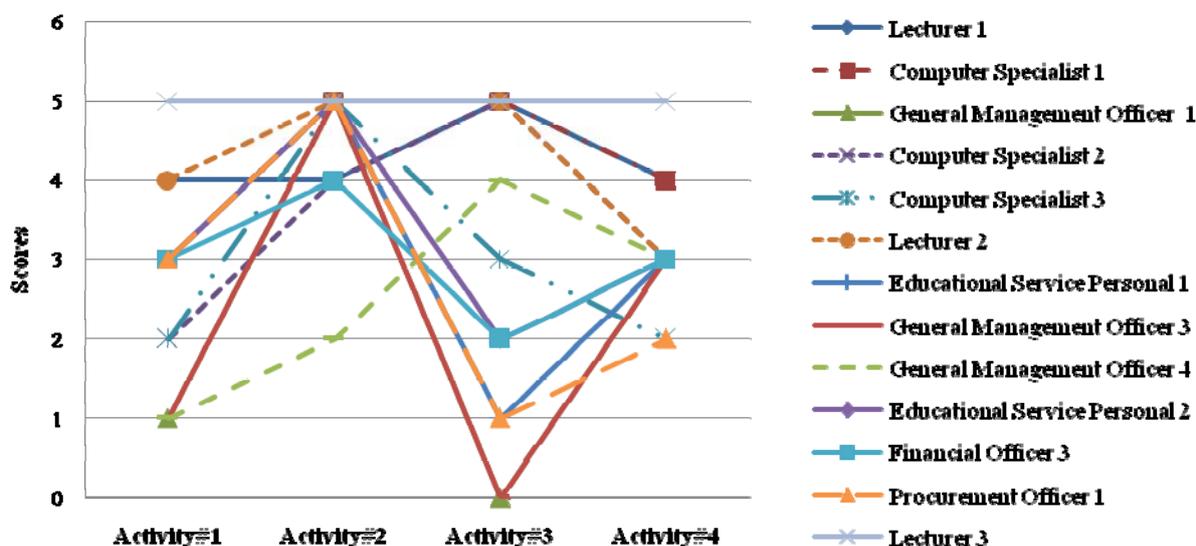

Fig. 1: Scores of the participants in four activities.

4.2. Section 2: The analysis of the relationship

Table 1: Matrix of Pearson correlation coefficient, Mean, Standard deviation of the knowledge, attitudes and skills related to quality assurance.

Variables	Knowledge	Attitude	Skill
Knowledge	1.000		
Attitude	0.038	1.000	
Skill	*0.380	0.054	1.000
Mean	5.73	3.325	48.83
S.D.	1.768	0.6789	25.900

*p < 0.05

Table 1 shows the results of relationship testing between the knowledge, the attitudes and the skills of the samples in quality assurance. It was found that the knowledge did not correlate with the attitude of the samples. Also, the attitude did not correlate with the skills in quality assurance. However, the knowledge is positively correlated with the skills of the samples with statistical significance at 0.05 (r = 0.380).

4.3. Section 3: The score comparison between before and after the activities

The scores before and after the four training activities were different with statistically significant at 0.05 (t = 4.757, Sig. = 0.000). The average score after the activities was higher than that of before the activities.

Some samples had previously received training in the quality assurance; this also affected the scores. The comparison of the scores is shown in Table 2.

Table 2: Comparison of results from participants about quality assurance affects the scores before and after the activities of knowledge.

Test	Received Training	N	Mean	S.D.
Pre-test	Yes	8	5.13	0.991
	No	5	4.40	1.517
Post-test	Yes	8	7.13	2.031
	No	5	7.00	2.000
Independent Sample Test				

Test	Variance	F	Sig.	t	Sig.
Pre-test	Equal variances assumed	0.611	0.451	1.052	0.315
	Equal variances not assumed			0.950	0.378
Post-test	Equal variances assumed	0.011	0.920	0.109	0.916
	Equal variances not assumed			0.109	0.916

Table 2 shows that the previous training attendance does not statistically affect the scores before and after the activities at the 0.05 significant level.

4.4. Section 4 Stability analysis of the scores

Table 3: Results of stability analysis of the scores of the four activities using repeated measures

Effect		Value	F	df	Error df	Sig.
	Pillai's Trace	0.758	10.458*	3.000	10.000	0.002
GROUP	Eilks' Lambda	0.242	10.458*	3.000	10.000	0.002
	Hotelling's Trace	3.137	10.458*	3.000	10.000	0.002
	Roy's Largest Root	3.137	10.458*	3.000	10.000	0.002
Mauchly's Test of Sphericity = 0.284, Approximate Chi-Square = 13.498, Sig. = 0.020						
Epsilon: Greenhouse-Geisser = 0.547						

Source	Type III SS	df	Mean Square	F	Sig.
Sphericity Assumed	26.827	3	8.942	6.648	0.001
Greenhouse-Geisser	**26.827**	**1.642**	**16.334**	**6.648**	**0.009**
Huynh-Feldt	26.827	1.868	14.359	6.648	0.006
Lower-bound	26.827	1.000	26.827	6.648	0.024
Multiple comparisons: LSD: 2 > 2,1 > 2,3 > 4					

*$p < 0.05$; 1 = Activity no.1 , 2 = Activity no.2 , 3 = Activity no.3 , 4 = Activity no. 4

From the analysis result: Mauchly's Test of Sphericity = 0.284, Approximate Chi-Square = 13.498, Sig = 0.020 to test for the sphericity, it indicated that the scores of the 4 activities are statistically different at 0.05 significant level. Therefore, we use the Epsilon consideration instead of the F value.

It was found that the value of Epsilon is less that 0.75, thus Greenhouse – Geisser formula is used which showed that the total scores from the four activities were different at 0.05 significant level. The analysis showed the difference in 3 pairs of activities; the score of the second activity is higher than that of the first, third, and fourth activities.

5. Conclusion and Discussion

It was found that the average total scores of the staffs in quality assurance before and after attending the four training activities are significantly different. The questions used in the training activities were able to reflect the understanding of the quality assurance criteria.

The stability analysis of the total scores of the 4 activities showed that the scores measured from the second activities had the highest average. The scores were low in the first activity and rapidly rose in the second activity. The scores suddenly decreased after the third activity and then increased slightly after the fourth activity. Nevertheless, in overall, the development of the knowledge in quality assurance tended to be linear. Especially in the third activity, the questions required the knowledge that was the content of the

second activity. The questions also required the application of the knowledge to analyze situations. Thus, some persons, who were unable to effectively apply the knowledge or had forgotten the second activity, obtained lower scores. However, the questions in the fourth activity were in line with those of the third activity; thus the scores rose in the fourth activity.

The correlation analysis showed that only the knowledge and the skills are closely related. The knowledge of the staffs has a positive correlation with their skills in quality assurance. A person who has the knowledge but has never actually practice will not be able to make correct judgment in quality assurance.

The analysis of the difference of the scores before and after the training activities showed that the training is effective. However, past attendance to previous quality assurance trainings did not affect the scores. This was because the lack of attention and concentration during the training.

6. Acknowledgements

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