

## INFLUENCE OF TRAINING AND KNOWLEDGE MANAGEMENT ON COMPETENCY AMONG QUALITY MANAGERS AT RAJABHAT UNIVERSITIES IN THAILAND

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### *Abstract*

*The competency concept has been widely implemented in several areas of human resource management in government sectors in Thailand. However, a study of factors affecting the competency of quality manager has been limited. Therefore, this quantitative research aims at the study of casual relationship among training, knowledge management (KM) and competency of quality managers (QM) at 40 Rajabhat Universities through the use of partial least square structural equation modeling. A questionnaire has its main function as measurement of this research, two factors are measured using 5-point interval scale and the reliability can be acceptable internal consistency: knowledge management composes of four latent variables, the reliability of test using Cronbach's Alpha range from .82 to .88; quality manager competence consists of six latent variables, the reliability of test found from .73 to .92; the training variable is measured four items with ratio scale, the reliability carries a alpha value of .68. The samples, drawn by simple random sampling method, are 132 quality managers. 105 completed questionnaires representing 83.33 percent are returned. SmartPLS is used in data analysis. The findings indicate positive relationship between knowledge management and competency of quality managers. In contrast, training has no impact on the competency, but both explain ability of quality managers at 60.50%. Based on the information mentioned above, the knowledge management process is a crucial factor to develop and elevate competence of quality managers.*

Keywords: training; knowledge management; quality manager; competency

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## **Introduction**

There are many factors influencing the success of organizational management. One factor referred by many administrators like Crosby, Juran, Ishikawa, Leonard and Sasser and Mondon, is the founding of a quality council or a unit directly responsible for quality assurance of an organization. These people as knowledgeable professionals in quality assurance system are able to advise the personnel of the organization (Saraph, Benson, & Schroeder, 1989). In their research, Karuppusami and Gandhinathan (2006) review crucial factors of success in the organization employing quality system and discover that of all major factors, role of quality department is vital as revealed in 13 researches. For example, in a study of factors in the success of TQM employment in industrial sector in Hong Kong which focuses on potential and competency of the department staff, Antony, Leung, Knowles, and Gosh (2002) assert that “role of quality department” is one among seven factors leading to success of the organization. Similarly, the findings from the studies by Saraph et al. (1989) and Badri, Davis and Davis (1995), who examine instrument in measuring factors affecting successful usage of quality tools in the organization reveals that role of quality department is 1 among 8 primary factors. TQM system previously employed only in business sector has been applied in tertiary institutes for improving academic standard, producing quality human resources, strengthening economic competition capacity and allowing stakeholders in inspecting overall outcome of the institute (Doherty, 2012). The concept of TQM is, therefore, a major principle hired in higher education for their quality system development. The term “quality assurance” is used as the proactive process in problem prevention and continual quality improvement (Doherty, 2012; Office of the Higher Education Commission; OHEC, 2011).

Quality assurance in Thailand has been operated as stated in the National Education Act B. E. 2542 (Revision B. E. 2545) (Office of the National Education Commission, 2003) with its objectives and principles emphasizing on educational management quality and standard. Section 6: educational standard and quality assurance covers the details of “internal quality assurance” and “external quality assurance”, as mechanism for maintaining quality and standard of tertiary institutes. Internal quality assurance is a construction of system and mechanism for developing, inspecting and evaluating institutional operation in accordance with the target policy and

quality levels of the institute and/or original affiliation. The establishment of quality assurance unit is, thus, required in tertiary institutes for a drive to educational quality certification and overall outcome dissemination. However, competency is a crucial instrument widely used in current human resource administration and is also officially employed in performance evaluation according to Civil Service Act B. E. 2551 (Office of Civil Service Commission; OCSC, 2005; 2010a; 2010b; 2010c). Thailand Quality Award (TQA) applied in different countries and fields also includes competency in section 5: workforce focus; in that, “workforce capability” must be operated based on knowledge, skills, abilities, and competency of the personnel (Thailand Quality Award Office, 2010; 2011; 2013; National Institute of Standards and Technology, United State Department of Commerce, 2011).

Training is one factor affecting performance competency of the personnel as the process provides them with knowledge, abilities, necessary skills, varied competency, positive attitudes and satisfactory behaviors required by the organization which will enhance their potential to work amidst changes as well as new principles, methods and technology (Wedchayanon, 2009). Bell, McBride, and Wilson (1997 *as cited in* Waddell & Stewart, 1999) state that field study and training are important to the personnel of all levels. Insufficient knowledge of quality managers probably causes failure in quality assurance. In their study of factors in the success of TQM employment in manufacturing sector in Australia, Sohal and Terziovshi (2000) mention that training is one among four major factors used in the development of organization. Moreover, Gagliardi, Majewski, Victor and Baker (2010) reveal that from 15 factors, training is the most important one that enhances the quality managers in hospitals in Canada to work effectively.

Knowledge management and training are also related. Úbeda-García (2012) studies the relationship between human resource management, training policy, knowledge management and business results of companies in Spain and finds out that training is positively related to knowledge management at a significant level of .01. Similarly, a study of Khaksar, Yaghoobi, Jahanshahi and Nawaser (2011), who examine the relationship between training, knowledge management and business profits by collecting data from all staff members of Kharg Petrochemical Complex (KPC) in Iran, demonstrates positive relationship between knowledge management and business profits. There is also a study of the relationship between professional training and

knowledge management of private sector in Viseu city, Portugal. The finding reveals three dimensions of knowledge management and two dimensions of professional training. The analysis shows that both factors are related at the significant level of .00 (Meireles, Cardoso, & Albuquerque, n.d.).

Based on the above information, the researchers need to study effects of training and knowledge management on competency of quality managers in Rajabhat universities. The results of which will be beneficial both to tertiary institutes in designing a development plan for educational quality assurance personnel and quality managers in effective self-development.

### **Conceptual Framework**

#### *Competency of quality managers*

Schneckenberg and Wildt (2006) state that competency is a person's managerial ability appropriately performed in accordance with social context under certain challenging circumstances. For Shippmann et al. (2000), competency means being knowledgeable and skillful in accomplishing tasks under care. Slocum, Jackson, and Hellriegel (2008) define competency as an element of knowledge, skills, behaviors and characteristics enhancing effective performances of a person. Spencer and Spencer (1993) regard competency as basic characteristics of a person including motivation, habits, self-concept, knowledge and skills. These characteristics assist in effective performances of a person which is higher than criteria reference or expected target. For Trinder (2008) and Van der Blij (2002 *cited in* Schneckenberg & Wildt, 2006), competency is a person's abilities in applying or integrating knowledge and skills in working successfully under different conditions and uncertainty. To summarize, competency is personnel's behaviors required by an organization. It presents potential in applying knowledge, skills and working ability in performing appropriately under organizational context and unstable situations. The Office of the Civil Service Commission believes that government officers whose working performances are in accordance with the requirements of the organization will accomplish their tasks successfully. This will bring the organization to the achievement and the government sector to the utmost goal of providing its people with happiness (OCSC, 2005).

### *Training*

Training is a systematic knowledge management process of accumulating knowledge, skills, abilities, and attitudes of the personnel for more effective working performance. Therefore, it is held with a purpose to improve working characteristics of the officers (Smitthikrai, 2005; Phisanbuth & Ketsakorn, 2002). Prawalpruek (1995) also asserts that training is a process in strengthening personal competency in order to increase the personnel's knowledge, abilities, skills and attitudes causing behavioral changes in their specific working performance leading to success of the organization. In conclusion, training is the process that provides the personnel with learning activities aiming at knowledge, skill and attitude improvement compatible with the goals and standard of the organization for effective individual performances.

Training for quality managers can be divided into 2 groups. Based on the research by Waddell and Stewart (1999), who study modes of training for the reinforcement of quality managers' competency in Australia, effective training means the one that balances personal development and professional development. Personal competency to be trained is leadership, teamwork, skill empowerment, communication and working instruction, while professional development covers ISO 9000 course, documenting, evaluation validation skill, path to quality management and organizational management toward excellence. According to this background, the following hypotheses are formulated:

- Hypothesis 1: training will be positively influence competency of quality manager.
- Hypothesis 2: training will be positively influence knowledge management.

### *Knowledge management*

Lorsuwanrat (2008) defines knowledge management as a process of constructing, processing, disseminating and applying knowledge for more effective operation. Similarly, Vicheanpanya (2004) explains that knowledge management is a systematic process of compiling information, ideas and actions as well as personal experience in constructing knowledge or innovation and storing it as a source of information accessible through different channels provided by the organization. Sharing and disseminating this information in working throughout the organization finally leads to successful accomplishment of the organization. Likewise, The Office of Public Sector

Development Commission (2012) points out that knowledge management is a process of acquiring, creating, sharing and applying information for the personnel so that they can learn and improve their potential in reaching the results required by the organization. In conclusion, knowledge management is a process of acquiring, compiling, disseminating, sharing and applying knowledge related to their responsibility in achieving their working goal. Supportive system, therefore, is required in order to create internal learning atmosphere of the organization.

Regarding tertiary institutes in Thailand, there was an establishment of University Knowledge Management or UKM on December 24, 2004. Earlier, 6 members including The Knowledge Management Institute (KMI) and 5 tertiary institutes namely Mahidol University, Prince of Songkla University, Naresuan University, Mahasarakham University and Khon Kaen University, signed in university partnership agreement on UKM with major objectives to support knowledge management; share knowledge and experiences as well as knowledge management within and between the network institutes; acquire and learn the instruments used in knowledge management; discuss and design action plan/ project; do research, hold seminars and workshops; and create shared database. The cooperation with organization knowledge management and other institutes is also required by holding continual meetings with different groups such as quality managers for the utmost benefits of educational institutes, community and society of the country (Division of Quality Development, Mahidol University, 2015).

Based on this background, this hypothesis is formulated:

- Hypothesis 3: knowledge management will be positively influence competency of quality manager.

Conceptual framework is shown in Figure 1.

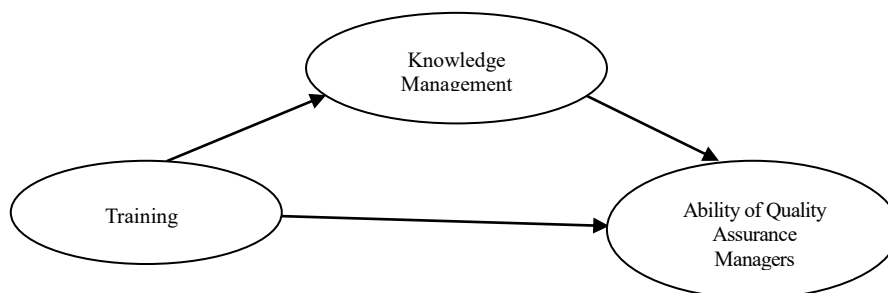


Figure 1. Conceptual framework

## Method

### *Participants*

The measurement test is developed and used with 126 samples, drawn by simple random sampling method, out of 132 quality managers of 40 Rajabhat universities around Thailand. 105 questionnaires, representing 83.33% of the respondents, are returned. The respondents' ages averaging 34 years old. There are more female (73.3%) than male respondents (26.7%). The most of respondents are single (58.7%), marriage (38.5%), and others 2.9%. Most of them have experienced in quality assurance task averaging 5 years. Their qualification varies from Bachelor's degree (51.4%), Master's degree (42.9%), Ph.D. (3.8%).

### *Instrument*

*Quality Manager Competence.* In accordance with the reviewed literature and the interview with the quality assurance experts, the competency used in this research includes 1) indicators and assessment criteria understanding; 2) work-system management; 3) motivating others to quality assurance initiative in the agency; 4) report preparation; 5) organizational holistic understanding; and 6) coordination (Tongsamsi, 2015). Cronbach's Alpha values range from .73 to .92. Multiple items with 5 point scale Likert ranging are used to measure the level of quality manager competency in this study.

### *Training*

This study emphasizes on professional development training related to internal and external quality assurance in the academic year of 2013 based on 4 courses of The Office of Higher Education Commission, The Office of National Education Standards and Quality Assessment, and tertiary institutes including: 1. Indicators and internal and external quality evaluation criteria; 2. Self-evaluation report writing; 3. CHE-QA online; and 4. Quality evaluation committee and/or secretary, which are ratio data. The reliability tested by 32 responses carries an alpha value of .68.

### *Knowledge management*

The primary focus in this research covers the 4 steps of knowledge management on quality assurance divided by Thanyasunthornsakun (2011) and

Úbeda-García (2012) which include 1) knowledge acquisition; 2) knowledge documentation; 3) knowledge dissemination; and 4) knowledge application. The research draws up a Likert-type 5 point scale. The reliability of the instruments used is confirmed by 32 responses. The alpha values range from .82 to .88.

#### *Data analysis*

An inspection of outlier of the samples by calculating Mahalanobis Distance and checking for skewness and kurtosis discovers common data which afterwards are analyzed for a partial least square structural equation modeling with SmartPLS 2.0 program according to causal comparative design. Outliner examination of the samples by means of the calculation for Mahalanobis Distance comes up with two types of structural equation modeling analysis as followed.

1. Criteria of Hair, Ringle, and Sarstedt (2014) are used in measurement modeling analysis in items 1.1-1.3.

1.1. The evaluation of variable reliability level through indicator loadings calculation should value over .70 with a significant level of .05.

1.2. The evaluation of variable internal consistency by composite reliability (CR) calculation should value over .70.

1.3. The evaluation of convergent validity by calculating average variance extracted (AVE) should value at least .50.

1.4. The evaluation of discriminant validity proves that each model indicating only its latent variables. A comparative analysis of AVE square root and inter-element  $R^2$  or Fornell-Larcker criterion (Fornell & Larcker, 1981) is employed in this step.

2. The analysis of structural equation modeling

The analysis of overall modeling quality by calculating coefficient of determination:  $R^2$  and ( $R^2_{adj}$ ) showing lower .25 value reveals low quality of modeling. On the other hand the value around .50 shows its moderate quality, while that over .75 means high quality (Hair, Hult, Ringle, & Sarstedt, 2014).

## **Results**

### *The analysis of measurement model*

The analysis of the first model discovers that most variables pass the criterion of 0.70. Only 2 training variables value .642 and .652. The loading is,



however, acceptable as its convergent validity values .511 passing the criterion. The highest loading of a variable equals .969. All variables have a significant level at .000 with validity between .412 and .939. Meanwhile, the second model comprising of two factors: abilities of quality managers and knowledge management shows path coefficient of latent variables between .749 and .916 at a significant level of .001. Coefficient of determination equals .561-.839. The consideration of other criteria shows that all latent variables pass the criteria. This assures good internal relationship of the latent variables in each factor as shown in Table 1.

Table 1. Path coefficient, coefficient of determination, Cronbach's Alpha coefficient, reliability and convergent validity

Factor	Latent	$\beta$	$R^2$	$\alpha$	CR	AVE
Quality Manager Competence	Indicators and Assessment Criteria Understanding: IAC	.838	.702	.958	.972	.922
	Work-system Management: WSM	.891	.795	.918	.938	.753
	Motivating Others to QA Initiative in the Agency: MO	.880	.775	.905	.934	.779
	Report Preparation: RP	.855	.731	.880	.918	.739
	Organizational Holistic Understanding: OHU	.916	.839	.936	.954	.840
	Coordination: CO	.804	.647	.919	.939	.756
	Knowledge Management	Acquisition Process: AP	.749	.561	.853	.900
Conversion Process: CP		.777	.604	.784	.867	.685
Dissemination Process: DP		.908	.824	.904	.933	.777
Application Process: APLI		.899	.808	.897	.929	.765
Training	-	-	.691	.805	.511	

Table 2. Root mean square of average variance extracted and latent variable relationship

	AP	APLI	CO	CP	DP	IAC	MO	OHU	RP	WSM
AP	.833									
APLI	.558	.875								
CO	.528	.694	.869							
CP	.416	.633	.517	.828						
DP	.560	.748	.626	.673	.882					
IAC	.455	.605	.612	.429	.500	.961				
MO	.563	.655	.688	.541	.546	.682	.860			
QHU	.587	.697	.721	.588	.653	.685	.769	.916		
RP	.466	.601	.806	.567	.581	.618	.716	.772	.860	
WSM	.418	.728	.697	.430	.627	.738	.700	.763	.659	.868

The analysis of root mean square of average variance extracted (AVE) shows that the root mean square of AVE in each latent variable is higher than that related to other latent variables. For example, root mean square of AVE in IAC latent variable equals .961 higher than correlation of other variables valuing between .429 and .738. This shows discriminant validity of the model (see Table 2).

#### *The analysis of structural equation modeling*

To analyze this, test on multicollinearity of determination factor without internal correlation at a statistical significance is required. The tolerance should be higher than .20 and VIF lower than 5.00 (Hair, Ringle, & Sarstedt, 2011). The analyses find out that both factors have tolerance of determination factor at .846 and VIF at 1.182 passing the criterion. Hence, there is no multicollinearity of external factors.

The analysis of structural equation modeling demonstrates that training and knowledge management assist in explaining variance ( $R^2$ ) of quality managers' abilities at 60.50% and  $R^2_{adj}$  at 59.84% or moderate level. The consideration of path coefficient discovers that knowledge management has an impact on quality managers' abilities ( $\beta=.752$ ;  $t=15.946$ ;  $p<.001$ ), and training plays a role on knowledge management ( $\beta=.392$ ;  $t=5.661$ ;  $p<.001$ ) but does nothing on quality managers' abilities ( $\beta=.060$ ;  $t=1.097$ ;  $p=.275$ ). In conclusion, only hypothesis 2 and 3 are supported.

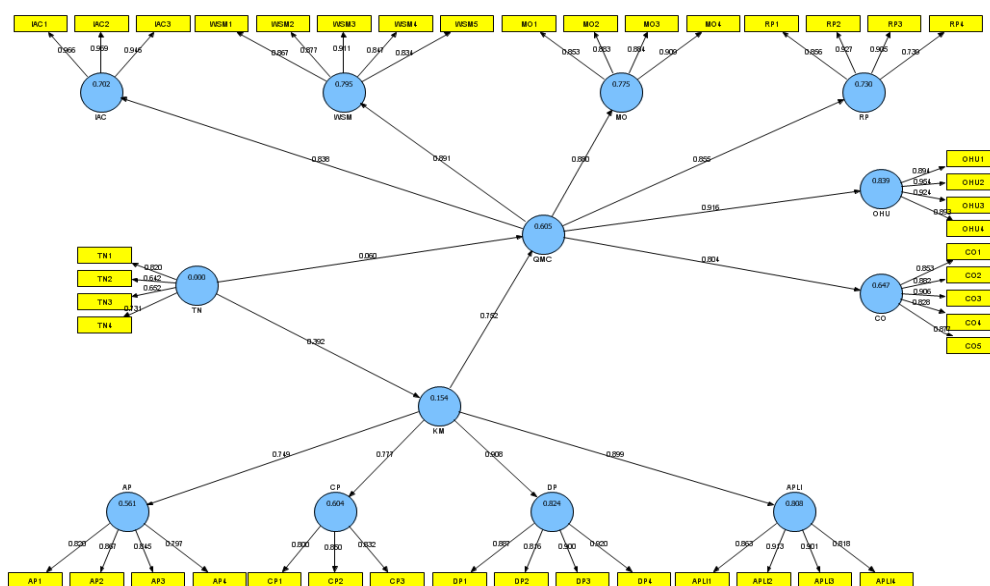


Figure 2. Partial least square structural equation modeling showing influences of training and knowledge management factors on ability factor of quality managers

From the first hypothesis, training seems positively influence quality manager. However, the study reveals controversial result; in that, no direct influence on competency of quality assurance managers differs from earlier studies finding that training directly influences working ability or competency. For example, Mathews, Ueno, Periera, Graca, Kekale, and Repka (2001) studies quality assurance training in European Union and discovers that training is a supportive factor in effective quality assurance management. Similarly, Wilkinson, Redman and Shape (1994) finds out the relationship between sufficient training of administrators and successful quality assurance management at a significant level of .001. Likewise, in thong and Hanyut (2014) point out differences in competency between trained and untrained nurses at a significant level of .05.

The hypothesis 2 stating that training will relate to knowledge management is confirmed by path coefficient and significance. Presently, knowledge management is widely used in developing working process. In tertiary institutes, there are official groups such as University Knowledge

Management (UKM) and university partnership agreement and manager community for knowledge and experience sharing. The Office of the Higher Education Commission often holds regional seminars to open a floor for tertiary institutes being internally evaluated and quality evaluation managers to discuss obstacles in using quality assurance system both in faculty and institute levels. For example, before the operation in 2013, Office of Qualifications and Evaluation for Higher Education, Office of the Higher Education Commission cooperated with 9 networks of internal quality evaluation for higher education in organizing seminars for all tertiary quality managers nationwide. The activity focuses on best practice presentation and idea sharing between the institutes and internal quality evaluation managers in specifying problem solutions for the use of quality assurance system in the following year (OHEC, 2013). After the completion of institutional evaluation, each institute organizes its own activities in summarizing quality assurance results of both faculty and institution level so as to offer the floor to the administrators and quality managers in obstacle and solution discussion.

The finding also supports the hypothesis 3 predicting that knowledge management will relate positively and significantly to competency of quality manager. From literature reviews found many researchers assert that knowledge management has been utilized in quality assurance. For instance, Prakart (2014), mentioned that National Institute of Development Administration applies knowledge management in 5 aspects of educational quality assurance including 1) knowledge indication; 2) knowledge acquisition; 3) knowledge storage and accessibility; 4) knowledge sharing; and 5) knowledge application with the purposes to develop more effective institutional quality assurance system, work out a solution to quality assurance management problems and encourage knowledge sharing and application among the personnel. Meanwhile, in their studies, Jatakanon, Boonyakalin, Saetang and Chaiburee (2011) discover that the development of quality assurance management requires knowledge and understanding among the personnel of all levels in cooperation through PDCA system. It also requires knowledge management, recognition and reward which will increase their working competency. Similarly, Chaikongkiat, Sivadumrongpong and Yeepaloh (2010) mention that educational quality assurance of Boromarajonani College of Nursing Yala is systematically developed. Lecturers and officers continually share and apply knowledge in working performance informally. Likewise, the

findings from Ondeekul and Rangkaurai's study (2006) of knowledge management at Naresuan University in financial year of 2006 indicate that successful management is due to explicit system and mechanism as well as activities / projects providing the personnel with more knowledge and understanding of knowledge management. Those personnel will then be able to operate internal knowledge management and coordinate with the university central unit in order to help each other in reaching the organizational goals. Knowledge sharing culture is another successful aspect of the university with university knowledge management as a supportive factor.

Moreover, in their study of knowledge management in developing quality assurance management through participatory action research, Arthan and Chatraphorn (2013) discover that in terms of knowledge management process, all personnel participate in planning, following knowledge management steps including knowledge acquisition, knowledge management organization, knowledge codification and refinement and knowledge sharing leading to learning and development of internal quality assurance system. For Prince of Songkla University, there is integration between knowledge management and quality assurance through best practice sharing. Interested personnel therefore can apply the information to improve their working performance in shorter period of time (Quality Assurance Office, Prince of Songkla University, 2013). The above studies indicate that knowledge management is a vital tool in the development of quality assurance system as a mediating factor.

### **Conclusions**

This research focuses on the impact of training and knowledge management on the competency of quality assurance officers. The factors used in the study are developed from previous researches. 105 questionnaires (83%) responded by quality assurance officers of 40 Rajabhat universities in Thailand are returned. Data screening shows the questionnaires are able to be employed in the analysis of structural equation modeling.

Measurement model and structural equation modeling are used in data analysis. Measurement model analysis discovers that competency and knowledge management are analyzed by second-order, while first-order is used in training analysis. The finding shows that both the first and the second factors

pass the criteria and the test on multicollinearity of external factors. They are, therefore, can be used in structural equation modeling analysis.

According to structural equation modeling analysis, knowledge management and training factors can explain 60.50% of competency variance. Knowledge management shows positive influence on competency at a significant level. Meanwhile, training is also positively influential in knowledge management, but not in competency. The findings are probably due to the research limitation, in which the test on measurement model of training discovers two items with the loading below 0.7 (.642 and .652). Hence, the item development of four courses may not be enough. Therefore, a survey of training courses in each institute should be done before questionnaire development process so that a questionnaire produced covers all kinds of training.

Another limitation of this research is that only two factors influencing quality assurance competency are studied, and 60.50% is merely explained. Therefore, a study of more factors is suggested for clearer explanation of competency. Moreover, the factors are also able to be used in planning competency development of Rajabhat's quality assurance staff. Mediating effect of analysis of knowledge management should be tested to prove if training, knowledge management and competency are related as full mediation, partial mediation or no mediation of competency.

Relatively small sample of this study is one limitation of this study. There are four types of government tertiary institutes which include traditional institutes, Rajamangala, Rajabhat and autonomous universities. All of them employ the same quality assurance system. The relation analysis of factors influencing competency of quality assurance officers should cover the four types of them as the findings from larger population and samples will be more statistically reliable.

The suggestion from the research results, training has positive influence on knowledge management which positively affects competency of quality managers. Knowledge management including knowledge acquisition must, therefore, be applied in tertiary institutes by encouraging the managers to regularly access information source both document and person for the increase in knowledge of the managers within the organization. The knowledge is afterwards processed in form of document or other forms of media and then disseminated to related people particularly quality managers in faculty and

curriculum levels. The application of knowledge by the related managers will later on be a model for other sectors. If quality assurance unit supports the operation of 4 factors, knowledge management will be a useful instrument in constructing knowledge, understanding and best practices for the personnel within the institute. In addition, knowledge sharing between quality managers after trainings will enhance concrete usage in working performance.

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