

A Structural Equation Model of Factors Influencing the Quality Culture of the Workforce in Thailand Public Higher Education Institutions

IsaraTongsamsi^{1*}, Akom Chaikeaw¹, Chidchanok Churngchow², &

Thoedtida Thipparat³

¹Faculty of Management Sciences, Prince of Songkla University, Thailand

²Faculty of Education, Prince of Songkla University, Thailand

³Graduate School, Prince of Songkla University, Thailand

*Corresponding author: Isara Tongsamsi, Faculty of Management Sciences, Prince of Songkla University, Thailand. E-mail: isara8391@gmail.com

Received: August 6, 2012 Accepted: October 7, 2012 Published: November 1, 2012

doi:10.5296/ije.v4i4.2195 URL: <http://dx.doi.org/10.5296/ije.v4i4.2195>

Abstract

This research aimed at developing a structural equation model of factors influencing the quality culture of the workforce in Thailand public higher education institutions. The subjects were 765 workforce from 60 public higher education institutions all over the country selected by multi-stage sampling method. The data were collected using a questionnaire and analyzed using SPSS and AMOS. It was found that the last model after the improvements had goodness of fit with the empirical information ($\chi^2/df=4.07$; RMSEA=0.06; GFI=0.95; AGFI=0.92; CFI=0.96; SRMR=0.05) and the power of estimates at a good level with the squared multiple correlation of 0.33. Factors with the total effect on the quality culture ranging from the most to the least were perception of the managerialism level, trust in the results of education quality assessment, commitment to quality, communication about education quality assessment and participation in education quality assessment.

Keywords: *quality culture; structural equation model; workforce*

1. Introduction

Globalization has brought about the moving of knowledge searching and workforce among countries, international economic competition, opening of free trade regions, and quick dissemination of information. These, in turn, have made higher education become commercial, resulting in the higher education free trade (Reddy, 2008). Public higher education institutions have offered diverse forms of education which are highly flexible to serve the needs of students and work market (Lemaitre, 2009). Apart from that, the need to take on the challenge of new public management has emerged almost at the same time, stemming the needs for the public higher education administrators to adjust their work paradigm to become new entrepreneurs with work values similar to those in business and industrial sectors (European University Association, 2007). The phenomenon forces the public higher education institutions to consider the education standard so as to guarantee that their graduates are truly quality ones. This eventually makes quality assurance and accountable work evaluation process essential. It means that public higher education institutions have the aims to foster the quality culture within the institutions.

However, having the quality assurance processes both from within and outside the institutions does not always mean that public higher education institutions have quality culture (Stravinskiene, 2010). This is because it appears that the processes have only been bureaucratic instruments or mechanics that specify rules, regulations, and guidelines aiming at investigating, monitoring and forcing compliances (Harvey, 2009). Education quality assurance is seen as alien because it does not show the real quality culture. Rather, it is the reflection of the rules, regulations and expectation of the audit culture. Besides, it has yielded negative results, for example, more adherence to bureaucracy both in terms of strictly following the rules and regulations and holding too tightly to the rules and regulations. The increasing workload of academics resulted from having to produce enormous number of documents for report and to achieve the standards, components and indicators specified (Cheng, 2010). Education quality assurance, moreover, instill the needs for time actually needed for teaching preparation and research, to frequently attend meetings, to compile reports and to brainstorm for the organization vision and mission specification (Travers, 2007).

Considering the concepts of quality culture proposed by the European University Association (2006), one would find that to cultivate true quality culture in higher education institutions, not only the instruments and mechanics used in assessment, evaluation, improvement and quality assurance should be focused on. This is because quality culture also includes values, beliefs, attitude, commitment, expectation, agreement, capacity, negotiation, participation, unity and trust of the individuals, groups and stakeholders involved with the quality. Furthermore, the quality culture in higher education institutions is the culture stress in terms of values the workforce holds which is a face-off between the values related to the general quality administration principles emphasizing effective management and the higher education institutions' traditional values emphasizing profession (Berings, 2010). This research, hence, aimed to develop a structural equation model of factors influencing the quality culture of the workforce in Thailand public higher education institutions. The results

gained will be beneficial for the public higher education institutions administrators in perceiving the present situation of the quality culture within the institutions and using them to help specify strategies for appropriate operation.

2. Literature review

2.1 *Quality culture of the workforce in public higher education institutions*

The cultivation of quality culture in higher education institutions needs to be approved by the institution from the bottom up. That is to raise the awareness of the needs in developing the quality culture which primarily involves the workforce's value change and gear it towards the quality culture. That actually means that the workforce needs to hold values which are in the same directions with those specified by the organization or institution in terms of quality (Harvey & Stensaker, 2008). It should be the internal cultivation of quality culture rather than monitoring using standards from outside the institution. The workforce needs to reorganize their thoughts about quality culture so that it becomes the common terminal values that the institution aims to reach (Jones, 1995). The workforce can define and reflect the content of the quality culture through their practice, decision-making, and attitude. They view quality culture as a cultural phenomenon consisting of values, expectations, tendency of behavior and ideology involving quality principles rather than instrument, process, or technical aspects of quality according to the Malcolm Baldrige National Quality Award criteria (Cameron & Sine, 1999).

There are 2 aspects of quality in higher education institutions. One is the top-down perspective in which the education quality is seen from the context of law and quality assurance mechanics from outside which monitor higher education institutions. The other is the bottom-up perspective which considers what is called quality culture which is the discourse in which quality infers the common values and responsibilities of all members of the higher education institution (Domovic & Vidovic, 2010). The adoption of quality management system is usually influenced by the values and culture of the organization. Hence, the study of quality management values of the workforce in the organization is an indicator to the congruence between the above-said values with the cultural values of the organization (Kull & Wacker, 2010). In the case of public higher education institutions, their traditional cultural values focused on academic freedom and individual autonomy. These values are obstacles to team working and shared visions of the workforce which are the heart of all types of quality management (Katiliute & Neverauskas, 2009). Hence, in applying the quality management system to higher education institutions, traditional cultural values must be changed to what is called quality values.

2.2 *Factors influencing the quality culture of the workforce in public higher education institutions*

Commitment to quality and attitude towards education quality assessment can encourage individuals or groups in the organization to behave and follow the conditions or regulations specified by the quality system (Gallear & Ghobadian, 2004; Grossman, Sands, &

Brittingham, 2010). The quality management of higher education institutions using the instruments for assessment, evaluation, improvement and quality assurance at the organizational level has instilled a change in quality culture of the workforce by applying the quality management system under new public management and managerialism (Smeenk, Teelken, Eisinga, & Doorewaard, 2009). The perception of the workforce about their institution's applying the administration and management principles borrowed from the private sector to develop the quality culture is the reflection of the quality management of each higher education institution and also influential to the attitude of the workforce towards education quality assessment.

Participation in education quality assessment, communication about education quality assessment and trust in the results of education quality assessment not only have direct influence in the quality culture of the workforce (Ehlers, 2009) but they also get in between the workforce's perception about the level of managerialism and commitment to quality and attitude towards education quality assessment (Viljoen & Van Waveren, 2008; Davison & Al-Shaghana, 2007). At the same time, participation of the workforce and communication in education quality assessment also foster agreement and eventually lead to mutual commitment in quality (Demirbag & Sahadev, 2008). Moreover, the building of trust in the workforce is taken as an essential condition that will also encourage the development of quality capacity which is the attitude towards the education quality assessment (Harnesk, 2004).

3. Research methodology

This research is a survey research. There were 765 subjects from 60 public higher education institutions all over Thailand under the Commission on Higher Education, Ministry of Education, selected by multi-stage random sampling method.

The variables in the study included 7 latent variables: quality culture of the workforce in public education institutions, participation in education quality assessment, trust in education quality assessment, commitment to quality, attitude towards education quality assessment, communication about education quality assessment and perception of managerialism level.

The instruments used were a questionnaire consisting of 8 parts of which parts 1-7 were questions about the 7 latent variables in the form of 5-point rating scale. Its Cronbach alpha coefficient values were between 0.70-0.94. The construct reliability of the latent variables were between 0.57-0.90, average variance extracted of the latent variables were between 0.40-0.76 and the squared multiple correlation were between 0.39-0.85. The eighth part of the questionnaire included questions on general information about the respondents in the form of a checklist.

The data analysis for goodness of fit between the structural equation model and the empirical data was considered by the goodness of fit measures, namely, Chi square and its ratio to df (χ^2/df) which should be less than 5.0 and the root mean square error of approximation (RMSEA) should be less than 0.08. Goodness of fits index (GFI), adjusted

goodness of fits index (AGFI), and comparative fit index (CFI) should be higher than 0.90 and the standardized root mean square residual (SRMR) should be less than 0.06 (Arbuckle, 2011).

4. Results

The general information about the subjects revealed that the workforce in the public higher education institutions who responded to the questionnaire were more females than males. Those aged 30-39 years were highest in number, followed those aged 20-29 years. Their highest level of education was the mostly master's degree level. The number of those who had worked 0-4 years was the highest, followed by 5-9 years. The academic supporting staff was in the largest number, followed by the academic staff and administrators. The highest number of subjects was from Rajabhat University, followed by those from public universities, the universities under the government supervision and Raj Mangala University respectively.

The result of the examination of the structural model with the empirical data revealed that the last model after the adjustment had high goodness of fit level. All goodness of fits measures values met those specified ($\chi^2/df=4.07$; RMSEA=0.06; GFI=0.95; AGFI=0.92; CFI=0.96; SRMR=0.05). All standardized regression weight values were significant at 0.01 and 0.05. The developed model had good level of probability of estimates with the squared multiple correlation of 0.33.

The results of the study about factors influencing the quality culture of the workforce in public education institutions showed that the quality culture of the workforce in the public education institutions were holistically influenced by the perception of the level of managerialism the most with the standard regression weight of 0.36, followed by trust in the education quality assessment results with the standard regression weight of 0.33, commitment to quality with the standard regression weight of 0.30, communication about education quality assessment with the standard regression weight of 0.24 and finally participation in education quality assessment with the standard regression weight of 0.07.

The structural model of the quality culture of the workforce in the public higher education institutions, specifically the latent variables, are presented in Figure 1 below.

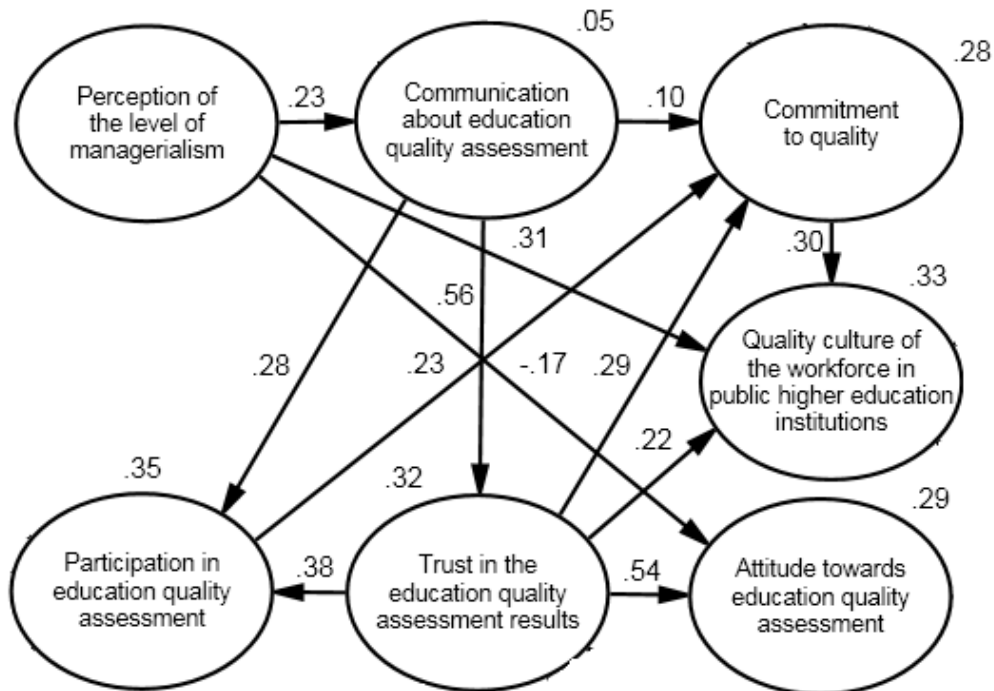


Figure 1. Structural equation model of quality culture of the workforce in public higher education institutions (latent variables only)

5. Discussion

The workforce in public higher education institutions perceived the fact that their institutions has applied administration and management principles borrowed from the private sector in developing quality culture in many forms, for example, the overall quality management, strategic management, good practice, etc. The results of the study were in concordance with the quality culture ideology of European University Association (2010) indicating that quality management of higher education institutions using the instruments in quality assessment and assurance has encouraged a change in the quality culture of the workforce in terms of common values, beliefs, attitude and expectation aiming at quality culture. However, the research results contradicted with those in the study of Smeenk, Teelken, Eisinga, & Doorewaard (2006) which stated that the universities' application of the private sector's values in management and administration could lead to conflicts in values of the workforce and result in the decreasing commitment in work. The workforce might feel antagonistic to the workplace, have no desire to work, resist the change and even behave in an unfriendly manner.

The workforce in public higher education institutions had increasing trust in quality assessment results, especially those new generation workforce who could very well use the results of the assessment to improve their work and their organization. The results were used to reengineer the management system under the supervision of the high level executives. The

results were in concordance with Ehlers's ideology (2009) that the cultivation of trust in each individual and groups are an important condition in encouraging the development of quality capacity as well as the components of quality culture. They are also in line with Tang, Aoieong & Tsui's study (2009) which stated that opportunities in communication between high level executives and the workforce, trust, mutual understanding and the workforce's opportunities to express opinions freely are important factors leading to the organization quality culture.

Commitment to quality resulted from the executives putting importance on the organization quality policy in terms of work result assessment, appropriate distribution of workload and the awareness of the workforce about quality work, taking quality as routine that has to be carried out continuously. The results were congruent with Gallear & Ghobadian's study (2004) which says that one necessary condition for a change in quality culture so that it can lend itself to the overall quality management and administration is the commitment of all level workforce who promise to improve the work process continuously. The workforce who had commitment to quality would intend to do their best in all activities. If it was found that some activities could not be achieved according to the quality standard set up, they would abandon such activities. Johns & Chesterton's study (1994) also said that the success of quality improvement stemmed firstly from management commitment before dissemination of knowledge, communication, quality assurance, or incentives.

Communication about education quality assessment is an incentive for an organization with the best practice or commitment to quality. It is to make the workforce proud in their organization and become a model for other organizations for knowledge management and experience sharing that would lead to the reengineering of the work system. The results are in concordance with Harnesk's study (2009) stating that effective communication is an important factor bringing about the workforce's commitment to quality. The workforce's easy access to the information about the education quality assessment because the institutions have collected the data and make them open for communication in terms of education quality assessment freely results in the workforce's thorough understanding that their decisions and their work operation all affect the quality operation of the organization. The findings were in concordance with Zadeh & Saghaei's work (2009) which stated that one important factor affecting the quality culture in an organization is effective communication between the quality assessment unit within the organization and all levels of workforce, as well as the use of communication technology to facilitate communication in all aspects and opportunities in communication with the organization high level executives.

The new generation workforce is adaptive to changes so they put importance on the participation especially to participate with the executives who are in the same generation. The workforce who participate little was because of the lack of understanding about the quality indicators and the boredom of having to do overlapping or repeating work caused by the unconnected database. The results were in line with Bunda & Baciu's study (2009) which says that the fostering of quality culture in education management is the education discourse indicating that education is the factor leading to the country sustainable development via the raising of awareness that the education institutions are competing with others around the

world and only quality players win. This can begin firstly by improving the quality assessment system of each education institutions. The quality culture can mainly result from cooperation, competition and responsibility of the workforce. This is similar to Johnson's study (2000) which said that the high level executives should promote organization culture of egalitarian culture by delegating more power in decision-making and more opportunities to participate to the workforce. In addition, incentives for innovations and creativity in work should be given.

However, the results of this study found that the attitude towards education quality assessment had no influence on the quality culture of the workforce in public higher education institutions. This might be because the workforce admitted that fostering the quality culture in a university is specified by law and cannot be refused. At the same time, they thought that doing according to the requirements was to add more burdens to their work and this resulted in the regular work becoming less effective. Besides, some quality indicators were difficult to implement and needed much more time for the workforce to develop themselves for them. The results of the study, hence, might not agree with Grossman, Sands, & Brittingham (2010) which says that though the success in the activities in quality assurance is one way to build quality culture, the success does not stem from rules and regulations in quality assurance from the national level organization alone. Quality culture has to rely also on the development within the higher education institutions via the awareness raising in the workforce to realize the necessities or cultivation of good attitude towards education quality assessment too.

6. Implications for practice and recommendations for future research

Higher education institutions administrators should pay attention to changes in organizational culture to serve the quality management system that is brought in to use in the organization. Bringing in any system for use should not be rushed if the workforce in all levels still lack understanding and sufficient awareness of the necessities in using the system. They also should establish understanding among the academic workforce that those involved in education processes all have to be responsible for the quality development process, not just focusing on the work done in their profession or view it as to be responsible for by the administrators and a few involved only. When all types of workforce sufficiently understand and see the importance of the quality issue, commitment to drive it forward will result and finally the quality culture of the higher education institutions both at the institutional and national levels will follow.

Since the subjects of this study were restricted to the workforce in the public higher education institutions, the future study should use the structural equation model developed here with the subjects which are similar, i.e. workforce in private higher education institutions or community colleges. The variables can be changed to suit the characteristics of the subject groups and multi group analysis should be used to examined the stability of the developed structural equation model by comparing genders, age, highest levels of education, length of time working in the institution, lines of work and types of higher education

institutions.

Acknowledgement

The research is supported by Graduate School, Prince of Songkla University, Thailand.

References

- Arbuckle, J. L. (2011). *IBM SPSS Amos 20 User's Guide*. New York: IBM Corporation.
- Berings, D. (2010). Quality culture in higher education: from theory to practice. *Proceedings of the Fifth European Quality Assurance Forum (EQUAF) of the European University Association (EUA)*. Lyon, France.
- Bunda, N., & Baciu, L. (2009). Continuity and change: building a quality culture in the Romanian educational system. *Contemporary Issues in Education Research*, 2(4), 71-76.
- Cameron, K., & Sine, W. (1999). A framework for organizational quality culture. *Quality Management Journal*, 6(4), 7-25.
- Cheng, M. (2010). Audit cultures and quality assurance mechanisms in England: A study of their perceived impact on the work of academics. *Teaching in Higher Education*, 15(3), 259-271. <http://dx.doi.org/10.1080/13562511003740817>
- Davison, L., & Al-Shaghana, K. (2007). The link between six sigma and quality culture - an empirical study. *Total Quality Management and Business Excellence*, 18(3), 249-265. <http://dx.doi.org/10.1080/14783360601152269>
- Demirbag, M., & Sahadev, S. (2008). Exploring the antecedents of quality commitment among employees: an empirical study. *International Journal of Quality and Reliability Management*, 25(5), 494-507. <http://dx.doi.org/10.1108/02656710810873899>
- Domovic, V., & Vidovic, V. V. (2010). Development of quality culture in initial teacher education in Croatia. In B. Hudson, P. Zgaga, & B. Astrand (Eds.), *Advancing quality cultures for teacher education in Europe: Tensions and opportunities* (pp.105-119). Sweden: Umea School of Education Umea University.
- Ehlers, U.D. (2009). Understanding quality culture. *Quality Assurance in Education*, 17(4), 343-363. <http://dx.doi.org/10.1108/09684880910992322>
- European University Association. (2006). *Quality culture in European universities: A bottom-up approach: report on the three rounds of the quality culture project 2002-2006*. Belgium.
- _____. (2007). *Embedding quality culture in higher education: A selection of papers from the 1st European forum for quality assurance*. Belgium.
- _____. (2010). *Examining quality culture: Part 1-quality assurance processes in higher*

education institutions. Belgium.

- Gallear, D., & Ghobadian, A. (2004). An empirical investigation of the channels that facilitate a total quality culture. *Total Quality Management and Business Excellence*, 15(8), 1043-1067. <http://dx.doi.org/10.1080/1478336042000255497>
- Grossman, G. M., Sands, M. K., & Brittingham, B. (2010). Teacher education accreditation in Turkey: The creation of a culture of quality. *International Journal of Educational Development*, 30(1), 102-109. <http://dx.doi.org/10.1016/j.ijedudev.2009.08.003>
- Harnesk, R. (2004). Partnership with internal customers-a way to achieve increased commitment. *The TQM Magazine*, 16(1), 26-32. <http://dx.doi.org/10.1108/09544780410511452>
- Harvey, L. (2009). A critical analysis of quality culture. *Proceedings of the International Network for Quality Assurance Agencies in Higher Education (INQAAHE) Conference*. Abu Dhabi, United Arab Emirates.
- Harvey, L., & Stensaker, B. (2008). Quality culture: understandings, boundaries and linkages. *European Journal of Education*, 43(4), 427-442. <http://dx.doi.org/10.1111/j.1465-3435.2008.00367.x>
- Johns, N., & Chesterton, J. (1994). ICL Kids grove: Engineering a quality culture. *International Journal of Contemporary Hospitality Management*, 6(1/2), 25-29. <http://dx.doi.org/10.1108/09596119410052053>
- Johnson, J. (2000). Differences in supervisor and non-supervisor perceptions of quality culture and organizational climate. *Public Personnel Management*, 29(1), 119-128.
- Jones, G. R. (1995). *Organizational theory: Text and cases*. Massachusetts: Addison-Wesley Publishing Company.
- Katiliute, E., & Neverauskas, B. (2009). Development of quality culture in the universities. *Economics and Management*, 1(1), 1069-1076.
- Kull, T. J., & Wacker, J. G. (2010). Quality management effectiveness in Asia: the influence of culture. *Journal of Operations Management*, 28(3), 223-239. <http://dx.doi.org/10.1016/j.jom.2009.11.003>
- Lemaitre, M. J. (2009). New approaches to quality assurance in the changing world of higher education. *Proceedings of the International Network for Quality Assurance Agencies in Higher Education (INQAAHE) Conference*. Abu Dhabi, United Arab Emirates.
- Reddy, Y. M. (2008). Global accreditation systems in management education: A critical analysis. *South Asian Journal of Management*, 15(2), 61-80.
- Smeenk, S., Teelken, C., Eisinga, R., & Doorewaard, H. (2006). The effects of HRM practices and antecedents on organizational commitment among university employees. *International Journal of Human Resource Management*, 17(12), 2035-2054. <http://dx.doi.org/10.1080/09585190600965449>

- _____. (2009). Managerialism, organizational commitment, and quality of job performances among European university employees. *Research in Higher Education*, 50(6), 589-607. <http://dx.doi.org/10.1007/s11162-009-9132-0>
- Stravinskiene, I. (2010). Quality culture development: a way to organizational change. *Proceedings of the International Practical Semeinar*. Kauno kolegija, Lithuania.
- Tang, S.L., Aoieong, R.T.M., & Tsui, C.S.L. (2009). Quality culture auditing for engineering consultants. *Journal of Management in Engineering*, 25(4), 204-213. [http://dx.doi.org/10.1061/\(ASCE\)0742-597X\(2009\)25:4\(204\)](http://dx.doi.org/10.1061/(ASCE)0742-597X(2009)25:4(204))
- Travers, M. (2007). *The new bureaucracy: Quality assurance and its critics*. United Kingdom: The Policy Press.
- Viljoen, S.J., & Van Waveren, C.C. (2008). An improved model for quantifying an organizational quality culture. *Proceedings of the Portland International Conference*. Cape Town, South Africa. <http://dx.doi.org/10.1109/PICMET.2008.4599797>
- Zadeh, S.M., & Saghaei, A. (2009). Using structural equation modeling for measuring quality culture in a construction company. *Proceedings of the CIE 2009 international conference*. Troyes, France. <http://dx.doi.org/10.1109/ICCIE.2009.5223780>

Copyright Disclaimer

Copyright reserved by the author(s).

This article is an open-access article distributed under the terms and conditions of the Creative Commons Attribution license (<http://creativecommons.org/licenses/by/3.0/>).