

Full Length Research Paper

A study on components of internal control - based administrative system in secondary schools

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The aim of this study was to study the components of the internal control-based administrative system in secondary schools, and make a Confirmatory Factor Analysis (CFA) to confirm the goodness of fit of empirical data and component model that resulted from the CFA. The study consisted of three steps: 1) studying of principles, ideas, and theories in related documents, 2) synthesizing and specifying them as components of the system, and 3) proposing these components to experts in the field for their confirmation on the appropriateness as components. Sample groups for the CFA comprised three groups with 300 samples i.e. 100 school directors, 100 school deputy directors, and 100 school teachers. A package program was applied to analyze collected data for mean, and standard deviation. Evaluation of the goodness of fit of the CFA Model was done by Chi-square, CFI, TLI, RMSEA and SRMR. Research results revealed that there were four components of the system i.e. Inputs, Process, Outputs, and Feedback. The Inputs comprised four components: 1) administrative resources, 2) learners, 3) administrative tasks in schools, and 4) policies, ideas, and directions on school administration. The Process comprised five components: 1) control environment including seven sub-components, 2) risk assessment including five sub-components, 3) control activities including seven sub-components, 4) information and communication including six sub-components, and 5) monitoring including three sub-components. The Outputs were considered from two results i.e. 1) school quality basing on the Thailand National Basic Education criterion, and 2) satisfaction of related people in the system. The Feedback data received was from school internal-control evaluation, and CFA results. It was found that the model had a good level of goodness of fit to empirical data when considering the goodness of fit index.

Key words: administrative system, internal control, secondary schools.

INTRODUCTION

Internal control is one of the equipment applied for administration and management. An idea of applying an internal control system in administration and management began after the events that occurred during business, and business organization failures in

1985 in the United States of America. Later on, in 1992, five associations on financial administration and professional institutes on audit jointly set up a working group to work for an appropriate internal control system suitable for modern circumstances and an improved

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financial report format to be more creditable. The stated working group was entitled the “Committee of Sponsoring Organization of Tread Way Commission” or “COSO”. After making a study and analysis, the Committee presented study results that revealed that an appropriate internal control process should consist of five components i.e. control environment, risk assessment, control activities, information and communication, and monitoring (Committee of Sponsoring Organization of the Treadway Commission, 1992). The presented study results were later, widely accepted and applied by leading business societies in various countries.

Thailand has rigorously accepted internal control to apply ever since 2001. The State Audit Commission issued a Regulation on Specification of Standard Internal Control B.E. 2544 which has been effective since the 27th October 2001. According to this regulation, a school is an auditee who needs to arrange an internal control system and report its results to the Commission at least once a year. In order to support the stated regulation, the Office of Basic Education Commission provided training courses for personnel of educational service area offices and educational institutes in Thailand to provide them with deeper knowledge on the internal control system and the reporting of its results so that they could be further developed, and performed in practice at their offices.

According to the regulation of the State Audit Commission, secondary schools are basic educational institutes taking a role as auditees. The school administrators are assigned to be responsible for academic, budget, personnel, and general administrations to achieve school objectives (Ministry of Education, 2003). With reference to a research report of Thammasart University Research and Consultancy Institute (2012), it was concluded that there are various problems and difficulties in basic education administration, for example, in an aspect of academic administration, schools have different variances of quality on educational curricula. For some schools which have resourceful teachers, school curricula can usually be developed collectively together as effective curricula. For schools which are not effectively able to develop their own curricula, they usually copy the curricula from other schools. In the aspect of budget administration, it is found that current budget allocation is not consistent with fact and is not obliging to classes arranged to serve various special projects. Budget for buildings and equipment restoration is late to be allocated. Budgets for public utility are not consistent with the fact. In the aspect of personnel administration, schools have problems with personnel capacity rate management, recruitment, appointment, transferring of unqualified school teachers to other schools, lack of professional personnel in the field of educational arrangement support for example education counselors, financial and procurement officers, lack of specific professional

officers, for example lawyers, nurses, etc. In the aspect of general administration, it is found that general basic performance, for example, student registration, specification of dates for the beginning of the term, and vacation, providing of special classes, mobilizing for educational resources, providing study trips for students, are all not consistent with each school’s context. Educational media and equipments are limited and out of date. All stated problems have affected national education quality. The results of many evaluations of Thai children and youths learning quality are lower than the standard (Office of the Education Council, 2012) are all important good reasons to confirm the prior statement. These are results of the weaknesses of school administration and improvement and development are urgently needed. Therefore, in order to enhance Thai education quality, school administrators need to have a more efficient control system to monitor work performance.

It is found that internal control process is an equipment usable for building up reasonable confidences i.e. work implementation will achieve the set objectives (State Audit Commission, 2008), being able to control or reduce risk to be at an acceptable level for the highest benefit to an organization in terms of being of worth devoted budget and resources, work will be performed transparently and inspectingly, preventions from risk, mistake and damage possibly occurred from work performance will be set (Niyamabha, 2007), opportunity for personnel in all levels to take part in the setting of a performance system and implementing it according to the set plan should be open in order to solve problems and develop efficient assigned tasks for the satisfaction of service receivers (Office of Director, Office of the Basic Education Commission, 2008). Nowadays, although an internal control system is applied in some schools, it still does not cover all aspects of schools’ tasks since the administration systems are driven by internal process that have not been developed specifically for educational institutions. The researcher, therefore, is interested in studying the components of an internal control-based administrative system in secondary schools. The components to be found from this study will be the direction for further development of internal control-based administrative systems in secondary schools.

Research questions

1. What are the components of an internal control-based administrative system in secondary schools?
2. What are the results of confirmatory factors analysis of process variables in an internal control-based administrative system in secondary schools?

Purposes of research

1. To study components of an internal control-based

administrative system in secondary schools,
 2. To analyze confirmatory factors of process variables in an internal control-based administrative system in secondary schools

MATERIALS AND METHOD

Research procedure

The Study on Components of an Internal Control-Based Administrative System in Secondary Schools consisted of three steps as follows:

Step 1: Study of principles, ideas, and theories published in related documents and researches as follows:

Study information on system components formerly studied by both Thai and foreign academicians and published in documents, text books, and research works including ideas of Malithong (1997), Rodprasert (1998), Hirankitti (1999), Khammanee (2002), Bertalanffy (1968), Bittel (1978), Katz and Kahn (1978), Smith (1982), Schoderbek et al. (1990) and Lunenburg and Ornstein (2012).

The study result was concluded that the system consisted of four components: 1) inputs, process, 3) outputs, and 4) feedback.

Study of internal control process according to ideas of COBIT, SAC, COSO, SAS 55/78 (Colbert and Bowen, 1996), the Canadian CoCo's framework (Pfister, 2009), the Turnbull Guidance on Internal Control framework (Institute of Chartered Accountants in England & Wales, 1999), and the State Audit Commission Internal Control framework (State Audit Commission, 2008). The study results revealed that an internal control process consisted of five components: 1) control environment, 2) risk assessment, providing of control activities, 4) information and communication, and 5) monitoring.

Study of task frameworks of secondary school administration from the Handbook on Administration of Basic Education Institutions as Juristic Schools (Ministry of Education, 2003), Regulation on Criteria and Procedure of Educational Administration and Management Empowerment B.E. 2550 of Thailand Ministry of Education (2007), and study the Secondary School Performance Standard B.E. 2009 (Upper Secondary Education Bureau, 2009). The study result could be concluded that task framework of secondary school administration consisted of four aspects: 1) academic administration, 2) budget administration, 3) personnel administration, and 4) general administration.

Step 2: Synthesis of all study results from related documents and research works committed in Step 1 and specified components of an internal control-based administrative system in secondary schools.

Step 3: Proposing of components of internal control-based administrative system in secondary schools resulted from the synthesis in Step 2 to seven experts for their inspection and confirmation on appropriateness as system components. These field experts consisted of three experts in secondary school administration, two experts in internal audit and control, and one education advisor who is an expert in providing education advice, and one higher education lecturer teaching a course of internal control.

Confirmation factor analysis (CFA)

The CFA of system variables of internal control-based

administrative system in secondary schools was done to assure the goodness of fit between empirical data results from the study on components and the component model resulted from the synthesis. The procedure of CFA including:

Sample group

Sample group for CFA consisted of 300 samples from 100 secondary schools, three samples from each school consisting of a school director, a school deputy director taking responsibility in supervising school internal control affairs, and a school teacher in charge of school internal control tasks. Purposive Sampling was applied for selecting sample schools. The selected schools consisted of 50 schools located in Roi Et Province, 25 schools in Kalasin Province, and 25 schools in Yasothorn Province.

Instrument for data collection

Designed and developed by the researcher, a questionnaire for appropriateness of components of internal control-based administrative system in secondary schools was applied for data collection. It was of a 5 rating-scale questionnaire with .92 of reliability.

Data collection

A letter requesting the cooperation in providing research data issued by the Faculty of Education, Mahasarakham University and a questionnaire were sent to each school in the sample groups. The fulfilled questionnaires were returned to the researcher within 15 working days. For those which had not been returned on the stated date, the researcher made contact by phone calls. In some cases, the researcher went to the sample schools in person to get the completed questionnaires. Total completed questionnaires received were 300.

Data analysis

A package program was applied for Confirmatory Factor Analysis (CFA).

Statistics for data analysis

Mean and standard deviation were applied for data analysis. Discrimination of questionnaire was analyzed by t-test, and its reliability was analyzed by Alpha-Coefficient, according to Cronbach's alpha reliability procedure. Evaluation of goodness of fit of the CFA analysis model was done by Chi-square, CFI, TLI, RMSEA, and SRMR.

RESULTS

Results of the study on components of an internal control-based administrative system in secondary schools

Study results on components of the stated system from related documents and researches could be summarized as follows:

There are four system components including 1) inputs, 2)

System Environment

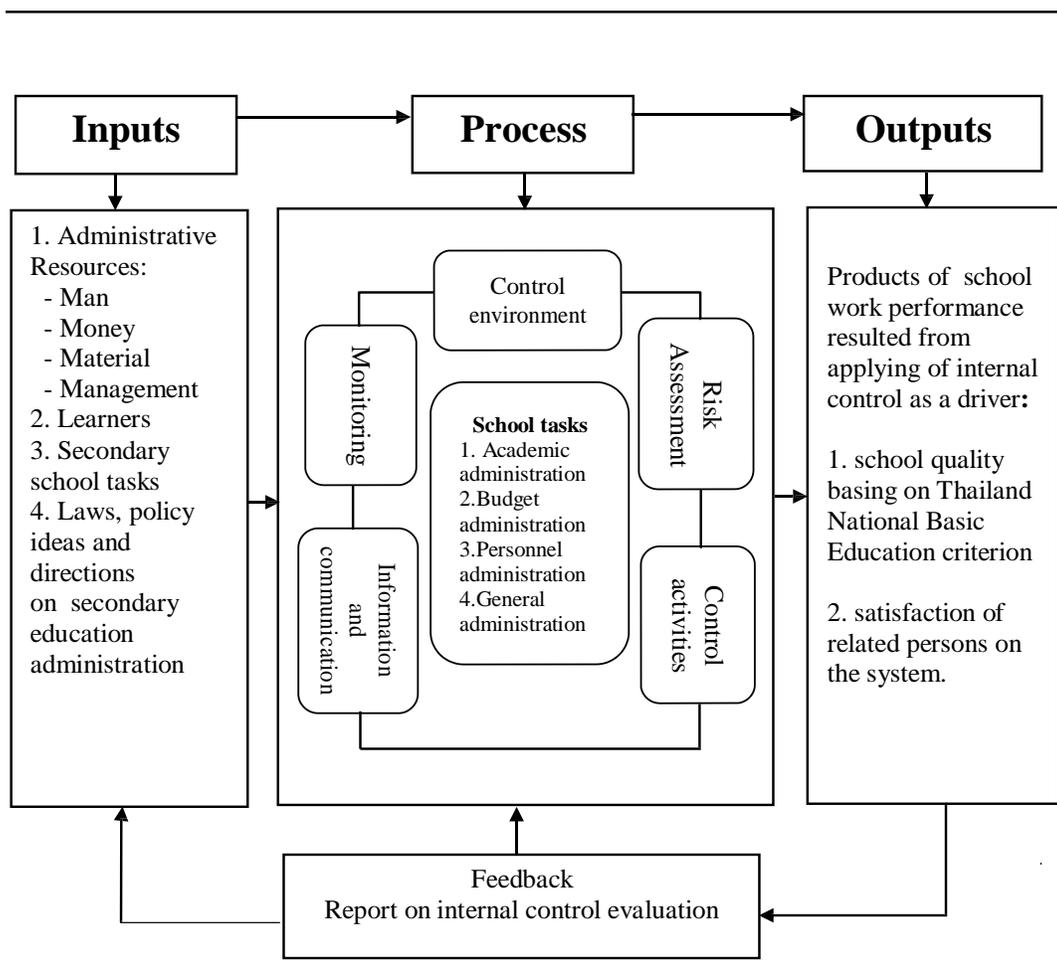


Figure 1. Components of internal control-based administrative system in secondary schools

process, 3) outputs, and 4) feedback. Internal process consisted of five components including 1) control environment, 2) risk assessment, 3) control activities, 4) information and communication, and 5) monitoring. Administrative tasks in secondary school consisted of four main tasks including 1) academic administration, 2) budget administration, 3) personnel administration, and 4) general administration. Based on synthesis results of ideas and theories learnt from related documents and researches in Step 1, components of an internal control-based administrative system in secondary schools could be defined as shown in Figure 1.

Results of Confirmatory Factor Analysis of components of an internal control-based administrative system in secondary school by field experts revealed the following components:

Inputs consisted of four components: administration

resources i.e. man, money, material, and management; learners; four school administrative tasks i.e. academic administrations, budget administrations, personnel administrations, and general administrations; laws, policies, ideas, and directions on school administration as mandated by higher affiliation

Process consisted of five main components and each consisted of sub-components as follows:

Control environment consisted of seven sub-components: philosophy and working forms of school administrative group, standard on honesty and ethics in school, standard on knowledge, skill and capability of school personnel, school-structure organization, empowerment and task assignment, policy and method on personnel administration, measures and mechanism for monitoring work performance.

Risk assessment consisted of five sub-components:

Table 1. Results of Confirmatory Factor Analysis (CFA) of internal control-based administrative system in secondary schools

Latent variable	Observable variable	Component weight	R ²	Component score coefficient
Administration process	Control environment	0.739**	0.546	0.454
	Risk assessment	0.752**	0.566	0.434
	Control activities	0.700**	0.491	0.509
	Information and communication	0.862**	0.743	0.257
	Monitoring	0.650**	<u>0.422</u>	<u>0.578</u>

Statistic values applied for testing of model's goodness of fit were Chi-square = 3.008, df = 4, Chi-square /df = 0.752, CFI = 1.000, TLI = 1.004, RMSEA = 0.000, SRMR = 0.010.

specification of school's objectives, specification of each work group's objectives, event identification, risk analysis, risk response.

Control activities consisted of seven sub-components: basic control activities, control activities for general administration, control activities for academic administration, control activities for budget administration, control activities for personnel administration, control activities for information administration, control activities for technology administration.

Information and communication consisted of six sub-components: information management, information evaluation, improvement of information, organizational communication, evaluation of organizational communication, improvement of organizational communication

Monitoring consisted of three sub-components: control-self assessment (CSA), assessment of internal control by outside assessors from time to time, improvement of internal control.

Outputs were products resulted from work performance with internal control process as a driver and by considering the following results: quality of secondary schools qualified basic educational standard, satisfaction of related persons with internal control-based administrative system in secondary school

Feedback was a report on internal control evaluation.

Results of Confirmatory Factor Analysis (CFA) are shown in Table 1. Table 1 indicated that there were five variables of components of the administration process were statistical significant at .01 level. They had component weight ranged from 0.650 to 0.862 and coefficient of prediction (R²) ranged from 0.422 to 0.743, and component score coefficient ranged from 0.257 to 0.578.

Results of CFA analysis of administration process model basing on internal control in secondary school revealed that the model conformed to empirical data at the good level, considering from the goodness of fit indices including Chi-square = 3.008, df = 4, Chi-square/df = 0.752, CFI = 1.000, TLI = 1.004, RMSEA =

0.000, SRMR = 0.010.

This indicated that in overall image, variables in the process model on an internal control-based administrative system in secondary schools were appropriate and data resulted from all variable measurement could be applied for analysis for further research study with SEM technique. Results of CFA could be transformed to a model as shown in Figure 2.

DISCUSSION AND SUGGESTIONS

According to the results of the Study on the Components of an Internal Control-Based Administrative System in Secondary Schools, there are some issues to be discussed as follows:

1. System components studied from related documents and research papers revealed that there were four main structures in the Internal Control-Based Administrative System in Secondary Schools i.e. inputs, process, outputs, and feedback. All of them were general basic structures of the system which were consistent with the ideas mentioned by Bertalanffy (1968), and by Bittel (1978) which also specified these four structures of the system. However, this idea differed from the ideas stated by Katz and Kahn (1987), Smith (1982), Schoderbek et al. (1990), and Lunenburg and Ornstein (2012) which specified the system environment as the fifth component of the system. However, as for the researcher, he analyzed the environment as something which was outside of the system. Although it might have influence on the system's working process, it was not a component in the system.

2. The results of Confirmatory Factors Analysis of the system made by field experts found that the "process" component of the Internal Control-Based Administrative System in Secondary Schools consisted of five components: 1) control environment consisting of seven sub-components, 2) risk assessment consisting of five sub-components, 3) control activities consisting of seven sub-components, 4) information and communication

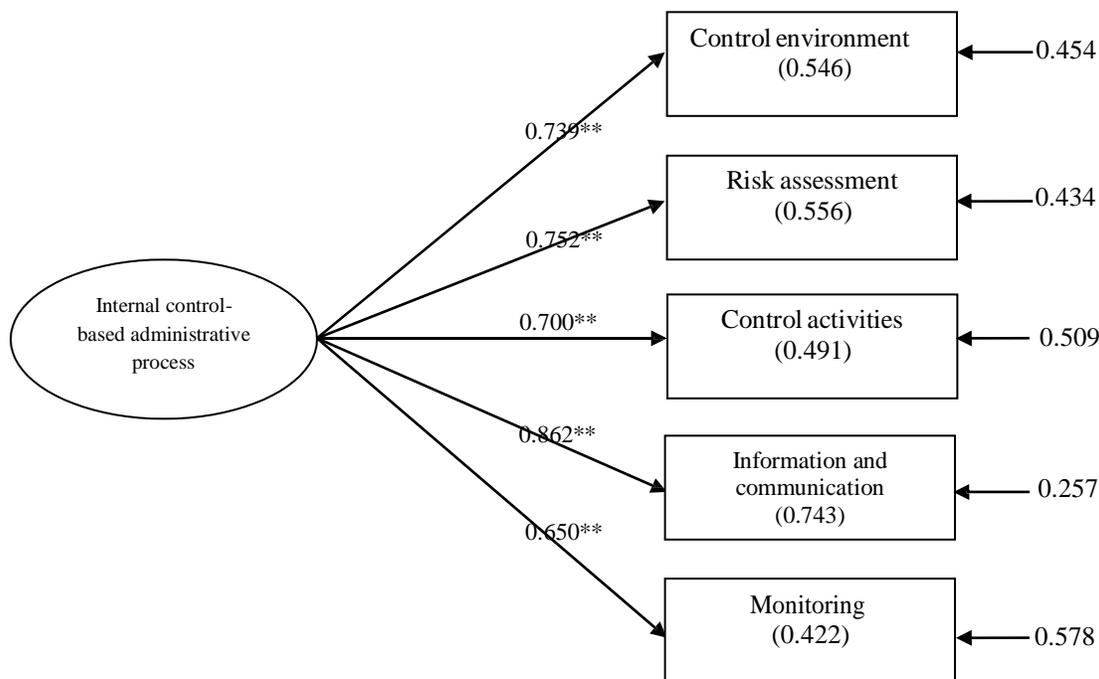


Figure 2. Model of Confirmatory Factor Analysis

consisting of six sub-components, and 5) monitoring consisting of three sub-components.

This was consistent with the ideas stated by COSO, SAS 55/78, the Turnbull Guidance on Internal Control framework, and the State Audit Commission Internal Control framework, which specified that there were five components in internal control system. However, it differed from ideas of COBIT, COCO, and idea of SAC specifying different components of internal control system. The possible reason was each model contained a different focus on each component, for example COBIT focused on information technology control, COCO in Canada gave precedence to financial reporting and management. Therefore, the model specially focused on human characteristics and feelings. While SAC gave precedence on internal audit so the set model had more focus on finding out the results that occurred than the setting of a controlling system. However, in general image, all models can be integrated as they contained similar goals that is to say, to control, prevent, decrease working weaknesses or risks, and solve organizations' problems.

3. The results of the Confirmatory Factor Analysis (CFA) revealed that the model was well consistent with empirical data when considering the Goodness of Fit Index: Chi-square = 3.008, $df = 4$, Chi-square/ $df = 0.752$, CFI = 1.000, TLI = 1.004, RMSEA = 0.000, SRMR = 0.010. It indicated that, in general image, variables in process model of Internal Control-Based Administrative System in Secondary Schools were appropriate. Data received

from every variable measurement were possible to be further applied in analysis for research study applying SEM technique. It indicated that the study process comprising of study on components from related documents, synthesizing them into components of Internal Control-Based Administrative System in Secondary Schools, and proposing the components to experts for confirmation, was systematically proceeded based on principles, and system theory. Therefore, when indices, which were observable variables, were proposed to related persons for their opinions and made a Confirmatory Factors Analysis, then consistent results were obtained. This, therefore, confirmed reliability of this research process that it was appropriate and consistent between theory and empirical data received from practical part.

Suggestions for further application of research results are:

1. Secondary school administrators and related people should study for deep understanding in components of Internal Control-Based Administrative System before application of the system elements for school planning and development, especially for the element on process having the internal control process as working driver. Deep understanding by school administrators and their ability in application of those components to their schools will enhance them to more success in school administration.
2. Each school has a different context from another. To

use these research results, a school administrator may need to adjust some sub-components or observed variables to be consistent with the school's context.

3. School administrators should deeply understand related theories, for example, system and system development, internal control, secondary school administration, etc.

Suggestions for further study,

1. Different components of sub-systems of the Internal Control-Based Administrative System in Secondary Schools, for example administrative systems on academic, budget, personnel, general administration, etc. should be further studied.

2. An Internal Control-Based Administrative System in Secondary Schools with the system components that resulted from this study should be developed for a new administrative system with an internal control as a working driver for success of school performance.

Conflict of Interests

The author has not declared any conflicts of interest.

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