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International Conference

on QA Culture: Cooperation or Competition

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Message from the Director

The Office for National Education Standards and Quality Assessment (Public Organization)

According to the National Education Act of B.E. 2542 (1999), the Office for National Education Standards and Quality Assessment (Public Organization) was established in order to assess and reflect results of educational provision of each educational institution. ONESQA has achieved 2 rounds of external quality assessment. The First Round of EQA (2001-2005) was a non-score assessment, but an assessment to confirm real circumstances of educational institutions. Likewise, the assessment developed an understanding of quality assurance among educational institutions. The Second Round of EQA (2006-2010) certified or decertified educational institutions at all levels. Also, ONESQA provided assessment results to institutions and their parent organizations for development purposes. Currently, ONESQA has conducted the Third Round of EQA (2011-2015) with the same objectives as the Second Round of EQA. Therefore, educational institutions must use assessment results to help development. Parent organizations must encourage, support, and be responsible for society, especially for students who will use assessment results that will help decide what institution the student may want to enroll.

The international conference on "Quality Assurance" 2013, held on 7-8 November 2013 at BITEC, was a step to become a part of ASEAN Economic Community. The topic of the conference was "QA Culture: Cooperation or Competition", providing opportunities to brainstorm assessment culture internationally. Moreover, it was a stage to present an overall operation, and to develop indicators of the Fourth Round of EQA by ONESQA, to the public. Also, the conference provided preparation for educational institutions for the next round of EQA.

I would like to show my gratitude to all staff. This proceeding presents keynotes, lectures, and discussions from education experts at the international conference. I strongly hope that these proceedings will benefit administrators of educational institutions, teachers, students, educational staff, researchers, academics, and the public, to take knowledge of internal and external quality assessments to continuously develop quality of institutions and the quality of education in Thailand.

(Professor Dr. Channarong Pornrungroj)
Director

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About The Conference

The objective of the 2013 International Conference, **QA Culture:** Cooperation or Competition or ICQA 2013 is to promote a partnership of 'Ten Thousand Friends' that can think and work together toward Quality Improvement, and to collaborate and create common goals and bonds among institutions, quality assurance organizations and other stakeholders. Moreover, this Conference will provide a forum for educators and assessors in the field of educational quality assurance, both internal and external, of basic, vocational and higher education levels to update knowledge and to share innovative ideas. Also, participants at this Conference will have an opportunity to disseminate information in the forms of publications, ideas, and information relating to external quality assessment which is considered vital and beneficial for educational evaluators, assessors, researchers, as well as the academics.

Conference Partnership

Asia-Pacific Quality Network (APQN)

A network of quality assurance agencies
in higher education in Asia-Pacific countries.
APQN has provided good practices for quality assurance
to its members and assisted the countries
that have no quality assurance agency.
The network has been expanded and developed through cooperation
of its members and support from external bodies,
particularly World Bank and UNESCO.
For more information, please visit **http://www.apqn.org/**

ASEAN Quality Assurance Network (AQAN)

AQAN was established by 10 ASEAN quality assurance authorities in order to promote harmonization of higher education, share good practices and strengthen quality assurance in South-East Asia region.
AQAN has developed the ASEAN Quality Assurance Framework with a view to facilitate the recognition of qualifications and cross-border mobility.
For more information, please visit **http://www.mqa.gov.my/aqan/**

ASEAN University Network (AUN)

AUN was founded in 1995 by ASEAN member countries. In 1998, AUN-QA was created to coordinate activities concerned with the harmonization of educational standards and continuous quality improvement of ASEAN universities.
For more information, please visit **http://www.aunsec.org/**

Association of Southeast Asian Institutions of Higher Learning Thailand (ASAIHL Thailand)

ASAIHL Thailand aims to assist higher education institutions to increase their performance and to achieve international recognition in teaching and learning, research and public services.
For more information, please visit **http://www.asaihlth.in.th**

International Network for Quality Assurance Agencies in Higher Education (INQAAHE)

INQAAHE is a global association of quality assurance agencies and relevant bodies. The network has offered its members various services, such as, academic journals, a good practices database, conferences and workshops.
For more information, please visit **http://www.inqaahe.org/**

Southeast Asian Ministers of Education Organization (SEAMEO)

SEAMEO is a regional intergovernmental organization established by governments of Southeast Asian countries to promote regional cooperation in education, science and culture in the region. The focal point of the organization is to increase the human capacity through the development of education.
For more information, please visit **http://www.seameo.org/**

Venue

Bangkok International Trade & Exhibition Centre
Bangkok ,Thailand

Keynote speech

Keynote speech

"Quality Assurance in Education"

delivered by
Phongthep Thepkanjana, Deputy Prime Minister

Standards are critically important in the world nowadays. Assessment of educational institutions is significant as well. As we can see, every sector, even the government of a powerful country has to be assessed. For example, each country's government bond must be assessed to rate its creditability. It is inevitable to avoid being assessed since there are many standards and criteria in all sectors. Now, people consider quality of companies, educational institutions, and organizations by certain standards. During the past 13 years, ONESQA has carried the burden which is highly essential for the educational development of Thailand. Hence, the society needs to know that to what extent that the results of external assessment are trustworthy because those results should be further utilized. For example, all parents need to find good schools for their children. Many people, however, have posed the question as to whether parents would take ONESQA's assessment results into consideration. Whenever parents use ONESQA's assessment results, then it can be said that ONESQA has achieved its goals. The assessment of educational quality is inevitable. It must align with the objectives for educational development. Today, in the educational sector the government has placed student quality as the first priority. Graduates must be ethical, have a sense of democracy, and promote peace in society. A process of quality assessment this year is an appropriate topic; Quality-student reflects quality-teacher.

When students start at the same level, students with better teachers tend to do better. You might have the same experience as I do. Some teachers taught me for one year, but I did not understand what they had repeated. On the other hand, some teachers taught me the same topic for only 5 minutes, but I could understand it. Obviously, quality teachers have a significant impact on students' learning. Moreover, to instill ethics in students is even more difficult. Teachers must consider how to foster ethics, morals, good values, and the sense of democracy. In order to teach students knowledge along with ethics, the teachers must dedicate themselves. Currently, the government has concern about the numbers of graduates; meanwhile there are many social science graduates, yet there is a lack of science graduates. ONESQA should set up systems in order to encourage educational institutions to focus on the improvement of increasing graduates in fields.

Another topic that the prime minister has stressed is that there are a great numbers of educational institutions and graduates. Somehow, there are too many graduates in certain fields; as a result, the graduates have to difficulty finding a job in their own fields.

In some cases, there is only 1 job per 500 graduates. Graduates who fail to secure a job must work in other fields that are not relevant to their background. The government has encouraged relevant organizations and public sectors to conduct research to find out the demand of manpower for the next 3 years from each field, such as, sciences, engineering, or French. By doing so, the educational institutions could plan to produce graduates that meet market demands. The government aims to improve infrastructure in Thailand, especially transportation, such as the high speed train and the dual rail system. Engineers and technicians are required to complete those projects. Without an appropriate plan, the country will definitely lack human resources. To produce graduates requires an amount of time, for example, 4 years for a Bachelor's Degree. The government has given a policy on graduate production to the Ministry of Education, and ONESQA has to participate in conducting the assessment.

In Thailand, as the director of ONESQA has mentioned that the assessment has benefits, but also brings about competitions either in the same educational institute, or with other educational institutions. Assessment has led to assumption that one needs to be better than others, resulting in the lack of cooperation across institutions. That is unfortunate because educational institutions could gain more benefits if they cooperate with others. Therefore, we should find a way to promote cooperation among educational institutions, such as through the method of assessment. For example, there might be an extra point for an institution that participates in the improvement of other institutions' quality. This will be a part of assessment development, and thus achievement of the assessment objectives.

Finally, ONESQA has been usually accused of causing more burdens to educational institutions since external assessment seems to overlap with internal assessment. I have informed the ONESQA executive committee that ONESQA, as a service provider, should develop a system to facilitate educational institutions, which are service receivers. To lessen burdens for educational institutions means to lessen burdens of ONESQA. That can be manageable. ONESQA has to work with educational institutions in managing the systems between external and internal assessments in order to lessen their burdens, but still gain the most accurate data.
At this conference, there are speakers and experts from Thailand and from the international community. Thus, I believe that all of you will have an opportunity to exchange perspectives in order to improve quality assessment systems and education standards in Thailand that will be widely recognized.

I strongly hope that the international conference on "Quality Assurance," held by ONESQA, will be successful and provide contributions to all participants. I would like to express my deepest gratitude to the Minister of Science and Technology (Dr. Peerapun Palusuk), the chair of ONESQA's executive committee, the director of ONESQA, and all participants. Now it is an appropriate time. Here, I declare the international conference on "Quality Assurance" open.

Keynote speech

"Quality-Student Quality-Teacher"

delivered by
Professor Dr. Channarong Pornrungroj
Director, Office for National Education Standards and Quality Assessment

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The Office for National Education Standards and Quality Assessment (ONESQA) would like to extend our gratitude to all participants for finding time in your busy schedule to attend our International Academic Conference. The fact that you are all here is clearly evident that you, educational professionals who are responsible for our national education, do care and understand the importance of Quality Assurance which is propitious to the development of Thailand's standard of education in the imminent future.

To reach that point; however, I would like to make it clear that:

ONESQA is responsible for assessing and reflecting the quality of education provision-both at institutional and national levels. The aspect of education development, however, is entirely incumbent on the institutions and their parent organizations. At present, there are scores of agencies abroad that publish the rankings on education in order to reflect the quality of a nation's education in an international arena. If we wish to upgrade our standard of education, it is imperative that academic institutions and parent organizations must be active, attentive and courageous enough to jointly accept responsibility by accepting and utilizing such ranking data to propel improvements in a serious and tangible way.

As such, in order to integrate into the ASEAN Economic Community, this year, ONESQA has organized an International Conference on the topic "QA Culture: Cooperation or Competition" in parallel to the aforementioned effort. The conference is designed to represent a stage for brainstorming activities on QA culture and to be able to ascertain that it is actually cooperation or competition, before determining ourselves what we really want to be-collaborator, or competitor.

For the sake of modernization and catching up with the world, ONESQA has established a Philosophy, Goal, Vision, Mission, and Values that are associated with our Institutional Assessment tasks, as follows:

Philosophy:

Breaking Barriers toward a Millennium of Quality. Breaking barriers does not mean ignoring the problems or obstacles, but rather overcoming them and moving forward as His Majesty the King once said "When working, do not make excuses of what you lack, but do work amidst insufficiencies to achieve the desirable ends."

Goal:

Assessing for Continual Improvement. It is crucial that such improvements are carried out ceaselessly.

In this regard, both the assessor and the assessed must understand that results from assessments must be used for improvements and such improvements must be carried out ceaselessly.

Vision:

Maintaining ONESQA's Competencies, Increasing Credibility, and Enhancing Public Confidence.

Mission:

Assessing and Accrediting the Quality of Educational Institutions.

ONESQA is responsible for assessments and accreditations to assure that quality of education is in compliance with the standards, as well as offering recommendations to academic institutions and parent organizations for their improvements and developments under the "Ten Thousand Friends" policy.

Also, to become one of the global organizations, ONESQA has modified its English logo to be "ONE'S QA" by changing the color of the letter "S" into blue and make the font bigger to represent both Yin and Yang at the same time. This is different from "ONCE QA" since quality must begin with an individual and then the quality should be molded into a way of life, a daily activity. It should be performed each day without fail. To perform once in awhile is burdensome, but a daily act would become a habit and then a behavior.

ONESQA's main values are as follows:

O	=	Overcome Limitations
N	=	Nurture Creativity
E	=	Enhance Ethics
S	=	Social Responsibility
Q	=	Quality Awareness
A	=	Amicable Agency

At the same time, ONESQA has developed a flexible tool for assessment called the "3-D-KPIs". ONESQA has also adjusted the assessment system to be an Area-based Assessment capable of reporting assessment results by province, thus giving high visibility over education areas. The information obtained from the new system can be used as fundamental information that the national developments are based on. Also, the institutions with "excellent" quality assessments are encouraged to help improve the quality assessment of other institutions. This is called "1 for 9." ONESQA also established a monitoring system of Assessor and Assessment Unit or QC100

to help an assessor to improve upon one's self to become a Quality Ambassador and to use an amicable approach in performing assessments. The Assessment Units have been improved to have administrations that are both high in quality and also efficient.

First of all, I would like to give you the status of Thai Education at present.

Problems in the Thai Education provision are stemming from 3 main roots:

1. Lack of continuity in policy. Thailand has changed Education Ministers quite frequently. When there is a new Minister, there is also a new policy.

2. Lack of Qualitative Control. Higher education is expanding without bounds: full-time, part-time, on-campus, off-campus, including international programs.

3. Lack of Quality Control. Because at present the decentralization of authority in education is become more distributed than before, but the systems to control and regulate the quality of education from the parent organizations are somewhat lacking.

From these 3 problems in education provision, we would like to propose "Quality Rules."

The Rules have two aspects:

The first aspect of the rules is TRUTHs

The second aspect of the rules is Practices

Perhaps, we can combine the above two aspects by simply saying that the Rules are the TRUTHs that we must Practice.

Quality is the level of satisfaction that the needs or expectations of an individual are met. The quality of education can be assessed from desirable characteristics of learners that are results of Goals and Missions of educational institutions. Therefore, Quality Rules are practices to be used for the intake of ideal students, teachers, and supporting staff.

So for today's Quality Rules, we would like to present 3 rules:

- **Rule 1: Your Quality = Your Image**

An image of an individual is the sum of all deeds that one did. A good image must be grounded in truth. If an action is just to incite a fleeting impression, it is no different from a TV commercial-a fake image.

Therefore, the quality of people in academic institutions-learners, teachers, and personnel-must be regulated, assessed, and improved starting from: 1. Input which means intake of high quality learners coming into a system; 2. Process or a good education administration process, so we can be confident that Output or the graduates are also of high quality.

With regard to the quality of courses. Courses should be matched with needs from the society or what we call "Demand-Driven," not what is a fad at the moment, or "Supply-Driven" with no connection whatsoever to the society or the market's needs and demands and also domestic/international competitions.

With regard to academic service provision, instructors and personnel are considered

the key to achieve quality in education both in the ration of instructors: students, and also quality of instructors.

Administrators should be ethical and managing educational institutions in accordance with good governance and not focusing solely on profits-the quality of graduates should also be considered. Is there any institution that guarantees that after paying fees and spending time in school until graduation, that its graduates become well-qualified and possess all desirable characteristics and attributes that the society expects and are fully employable?

At present, universities are expanding limitlessly-full-time, part-time, on-campus, off-campus, as well as international programs, distance-learning, and E-learning. These are the things that the administrators should step up and take more responsibility for their outputs.

From the past assessments, ONESQA can categorize the quality of educational institutions into 4 levels:

1. World Class: The group of schools that is accomplished and excellent in every way. The group can pass the minimum criteria with ease.

2. Always Ready: The type of schools is ready for assessments at any time-scheduled or not.

3. Ready if Scheduled: This category represents the majority of Thai schools. They need time to prepare for assessments.

4. Never Ready: In this category, schools always complain to ONESQA on the ground that assessments are burdensome and snatching instructor's time from students.

However, if we carefully think about it, we can see that ONESQA will perform assessments once in every 5 years. Typically, an assessment will take only 3 days for a school. The question is, what did you do with the remaining 4 years and 362 days? This clearly shows that quality is not a behavior and certainly not a way of life.

Nevertheless, we have news that is rather good. This year, we have not found any school in group 4, so it can be expected that the overall picture of group 4's schools would be significantly diminishing and they are adding to numbers of schools in group 1 and 2.

In sum, Your Quality = Your Image. Quality is the level of satisfaction that the needs or expectations of an individual are being met. Quality can be maintained, improved, and raised higher with no limit to how high it can be. For your image is an image; your image is a result not an output. Thus, to create an image by means of advertisements can work only for some people, or some situation/occasion or some moment.

However, the image created from the quality of achievements that become evident and acknowledged is the genuine image that is worthy of praise. Whatever the quality level is, that is the level of your image. How the quality is, that is how your image is projected.

- **The 2nd Quality Rule: Student-Focused Assessment**

If we roll back to the previous year, we had talked about how the quality of a student could be set as an Assessment's goal and that when an assessment is performed, the student must be competent, good, and valuable to the society. It was not sufficient that only an institution/school passed the assessment and was accredited.

Use the industrial sector as an example. The sector puts much emphasis on the production process that starts from selecting raw materials, putting a production system in place, to performing QC at every step. Anything that is not up to standard is rejected. Any component that causes problems is either repaired or replaced.

When taking the example of the industrial sector and comparing it with the Thai Education System, this is not the case, especially the failing measurement and evaluation system that mandates that every student must pass-no repeating a year or a course-all across the nation. This is one of the reasons that can explain why the quality of Thai children has been deteriorating.

The continuing problem of illiteracy is still on the Ministry of Education's list of "Things to solve". Certainly, if students can neither read nor write, it would reflect badly on academic achievement. These students should be the cause of grave concern since they would become second-rate input into vocational education and higher education systems at the next level.

Every school of every type and level, as well as every instructor must be aware and be responsible for the quality of the students. They must assure the quality, competency, and good characteristics of their students. The goal of Educational Quality Assessment should be the desire to see that our students are competent and well qualified.

To summarize, an assessment is performed in order to obtain results that improvements can be made upon. An assessment should measure the quality of students and must be in the right direction. For teachers, it goes without saying that assessments are burdensome, but it is incumbent on a teacher's sprit and is an obligation of a teacher that must be fulfilled since it is directly affecting lives of the students. The burden is heavy, thus a teacher who accepts such a burden is praised by all. The burden, if compared to exercising, can be over-whelming if done once in a while; however, if done every day, it will become a routine, then a behavior, and finally a habit. At this point, the burden is no longer a burden.

Thus, even though you passed the assessment, if the students are still incompetent, the schools must strive to improve. If the students are already competent, the schools must also strive to make the students even better. If the students are still incompetent, the original affiliations must strive to be supportive. If students are already competent, the parent organizations must also strive to be more supportive so that the students are better.

Assessment results that are made just for the sake of getting a pass-an activity done once every 5 years, must be eliminated. Thus, even though you passed the assessment, if the students are still incompetent, it would mean quality is not a teacher's way of life.

A yearly IQA is just a documentation burden, is that it? A quinquennial EQA is more of a burden since back-dated documentation needs to be processed, is that it? If this is so, it is certain that there are problems in your organizations' culture. Urgent fixes are required.

- **Rule 3: Quality of a student reflects the Quality of a teacher**

Speaking as a life-long teacher, every time I see my students succeed, I feel proud. At least, I think of myself as a part that contributes to their successes. As for the Quality of an individual, I think that you would agree if I were to propose that the quality of an individual depends on values, on time, and on era. To understand this concept, I'd like to give an example.

In the time of our great-grandmothers, the quality of a woman depended on her being a lady-to be able to cook and clean. Every great-grandmother could grow vegetables, raise fish, cook decent meals, but they could not read or write.

Next, in the time of our grandmothers, every grandmother could weave, sew and cook. Not only they could weave, they could also make yarn from silk worms that they had raised. Some of them went to school and were able to read and write.

Next, in the time of our mothers, all of them could read, but some couldn't sew or give a haircut, or cook.

Next, in our time, our wives are very good at reading and writing. They are working women, but cannot sew, or give haircut. They can, however, warm foods.

In present day, the quality of our youth is deemed second-rate, but is it true? Time changes. Technology changes. Yet, the system of measurement and evaluation is still based on paper and pencil. This, in itself is no longer any good.

Today, I would like to present Quality of an individual in the context of Thai society. The quality must be composed of Quality, Virtue and Good Characteristics.

1. Quality means Knowledge and Skill
    a. Knowledge is what one obtains from what one reads, speaks, writes, touches, and encounters through thinking, analyzing and synthesizing processes. Knowledge can be measured using tests.
    b. Skill is the capability that one derives from practicing the knowledge repeatedly until a skill is obtained. Skill can be measured by putting it into practice.

2. Virtue is an action of merit depending on what the organization, society, and community have determined to be a virtue. For ONESQA, we would like to offer 9 virtues that can help everyone to be good:

Discipline, Consciousness, Gratitude, Kindness, Tolerance, Honesty, Frugality, Diligence, Selflessness

These 9 virtues are things to be embedded, nurtured and made into habits.

3. Good characteristics. For me, good characteristics are characters that are merits. These characteristics indicate the good in one's nature and differentiate one person from another and give values to that person. Examples of good characteristics are cheerfulness, kindness, civility, respectfulness, timeliness, and humility. These are results of education, drills, and nurture that are continuous and observable.

If I were to compare them with an iceberg, what we always see and believe as important are the knowledge and skills at the top, but the portion that remained submersed is considered a fundamental or the heart of the iceberg. This portion is generally received minimal attention or none at all. The submersed part of the iceberg represents Virtues and Good Characteristics. They are the main drivers of behaviors and creating the added values for every individual.

To summarize, a person of quality is a competent person. In the world of competition, competent persons or knowledgeable persons are everywhere as long as every textbook is referencing the same thinkers. Every teacher is referencing the same textbook or even harnessing the same set of tests.

How would our students be different or be given different values from others? A person of virtues is a good person. In the 21st century, virtues and ethics are important and desirable attributes. They differentiate one person from another. Many people are competent, but are immoral. Many are not competent in some subjects, but are good natured. People who are both competent and good natured can only succeed in the Western society.

In the context of Thai society, in order to become successful, one must also have "good characteristics" on top of being competent and good natured. One of the good characteristics is hospitality which is considered a Thai identity that is praised by all.

In sum, a person of quality is a competent person. A person with good characteristics is a wonderful person or a nice person. Therefore, a quality student in the context of the Thai society must be competent, good-natured and pleasant and must live a life that creates values to the society.

Everyone may be familiar with the word ASEAN. In the imminent future, the society will be opened and the labor market will be integrated. For this reason, ASEAN has made a statement: One Vision, One Identity and One Community.

- One Vision is easy to create. Once created, every nation follows suit.
- One Community is also easy. Once we reach January 1st, 2015. Everyone will belong to the same community in this region.
- However, what is truly difficult is "One Identity." We must strive without fail to create the ASEAN Identity.

To create quality students, it is insufficient to only give them knowledge and skills. It is necessary to also create an identity of competency, goodness, and decency. The identity such as this can only be obtained from improvements of our education provisions.

Education comes in many forms: formal, non-formal, and informal. A human's learning sources since birth:

1. Home/family is the first learning source and is the primary place of education. Home/family is an important root where parents, grandparents are acting as mentors who give both an ethical and a good characteristic education.
2. School/institution is the second learning source that fulfills the competency of the learner in the aspects of knowledge and skill to create a quality child.
3. Society is a big classroom where learning can take place at any time. Society offers a life-long leaning with no limitations on formats and methods. However, in this classroom, the right and the wrong, the good and the bad are mingling, so it depends on the potential of each person to analyze and extract what is needed.

I can sympathize with teachers. At present, teachers are always labeled as the accused by society. I also sympathize with the Ministry of Education as everyone is expecting to see the effective outputs.

Whether Thai youths can be perfect human beings, they are jointly shared by the family institution, the educational institution, and the social institution, so it can be said that:

Teachers must long for knowledge, and must be in the same pace with the world and can quickly adapt to changes.

Teachers are at the heart of student development.

There must be a balance in the aspect of quantity such as the ratio of teachers and students; also there must be an aspect of quality which means a teacher's potential is of utmost importance.

Besides problems with teachers, the educational system problems are also very important. Many have seen this slide before, but I would like to present this to emphasize the points again.

Westerners use SWOT Analysis, but I, as a Thai person, would like to propose a new theory:

CP-SWOT+ CP is Channarong Pornrungroj

SWOT+ is plus the sin, merit, virtue and wickedness

- **S**trength if every student is of high quality, competent, good natured, and live meaningful lives. The students will live on and create the benefits and contribute to the society, and the country. Certainly, they will eventually make their institution well-known.

- **W**eakness is sin. It is sinful if any institution offers a course that has not been accredited. This will stigmatize the students for life.
    1. Is it sinful if the school has no teachers or does not have enough teachers, or existing teachers are incompetent?
    2. Is it sinful if there exists an education system where students that are measured and assessed are sure to pass? There is no failing student in this nation. These students will then become poor input into institutions that are hoping to obtain a World-Class status.
    3. Is it sinful that sub-standard institutions that are not accredited by ONESQA, but still hold regular classes whilst their parent organizations have done nothing to regulate the quality?
    4. Is it sinful that the ratio of teachers and students is not appropriate where teachers do not teach classes that match with their expertise and where one teacher oversees tens of theses at the same time.
- **O**pportunities are merits. It is a virtue that teachers devote all they have to teaching.
- **T**hreat if the institutions wish for nothing except passing the assessment. They are not looking for excellence or create a quality organization culture in order to create a way of life. Any institution behaves like this will surely bring forth long term damages.

"Quality" is not up to an individual or an organization, it must begin with everyone. From a quality way of life, from an individual, a quality community is created and contributed by all factions in the society that jointly share, think, solve, and develop until a community becomes a quality community. Ultimately, all factions must also jointly take responsibility and must not try to place the burden on to someone else.

"Quality" is the heart of sustainable development
"Quality" begins with an individual….quality individual creates a quality community
"Quality" is borne of understanding….approachability…improvement
"Quality" has a life of its own, so devotion and commitment is required.

In sum, today's Quality Rules are:

1. Your quality Your Image
2. Student Focus Assessment
3. Quality-Student Quality-Teacher

Whenever someone bottom-ranks Thai children, I believe that every teacher would feel the pain since Thai children are our students.

I believe that the administrators are badly hurt since they are directly responsible.

And I believe that Directors of Educational Service Areas/ parent organizations are also hurting quite badly since this is your outputs.

Schools/institutions should make a swift correction.

Family, parents must put more effort into educating and instilling desirable and decent attributes so the children are complete with quality, virtues, and good characteristics.

At the same time, the society must also jointly accept the responsibility.

Therefore, if our youth are failing, not only does it reflect that education is inferior, it also indicates that there are issues to be improved for families and the society as well.

ONESQA's Educational Policy

Philosophy

Breaking Barriers Towards a Millennium of Quality

Goal

Assessing for Continual Improvement

Vision

Maintaining ONESQA's Competency, Increasing Credibility, and Enhancing Public Confidence

Mission

Assessing and Accrediting the Quality of Educational Institutions

Values

O = Overcome Limitations
N = Nurture Creativity
E = Enhance Ethics
S = Social Responsibility
Q = Quality Awareness
A = Amicable Agency

Keynote speech

Quality Assurance Culture: Cooperation or Competition?

delivered by
Dr. Guy Haug

Dr. Guy Haug is an international expert in university management and quality assurance/accreditation.

He has served with many major international organizations (OECD, Council of Europe, UNESCO, European Commission, etc.). He has a degree in law (Strasbourg), a PhD in Political Sciences (Tübingen), an honorary degree from HETAC (Dublin), and an MBA (Ottawa).

Abstract

The current state of development of Quality Assurance in higher education in the world is the result of a movement of rapid growth and geographical extension since the turn of the new Millennium. This expansion is evidently reflected in the number of QA agencies and universities with an internal QA system, which may be seen as clear signals regarding the spread of a culture of quality all over the world. A closer observation reveals, however, that in many cases it was not developed by the higher education community itself, but rather imposed from above in a wave of "me too" initiatives at a national level rather than in-depth analyses of local needs and capacities. These characteristics in the spreading of Quality Assurance systems (rather than cultures) throughout the world also contain the germs of the major facing issues in the coming years and decades relating to culture, competition and cooperation. The presentation will examine these issues in a critical way, with a view to identify major challenges and areas for improvement in the coming years.

The most basic challenge is that in many cases, the spreading of Quality Assurance structures and mechanisms appeared to have been more rapid than the dissemination of a genuine and shared "culture of quality". The result is that, overall, the legitimacy of QA remains fragile and its acceptance still limited in the academic community and society in general. The presentation will sketch possible answers to these issues, such as stronger internal QA systems within universities, leaner procedures for accreditation, the provision for users of more accessible and relevant information, and the shift from conformity control to a more open approach emphasizing the search for improvement, innovation, differentiation and pockets of high quality or excellence.

The second major issue is that the development of Quality Assurance systems has followed the lines and patterns of national higher education systems and therefore does

not seem to be well prepared for the formidable challenges presented by facets of the internationalization of higher education in an era of globalization and worldwide competition. The fragmentation of Quality Assurance alongside national boundaries places it at a disadvantage with respect to the immense need for comparability in degrees, programmes and institutions across borders. This entails obvious limitations concerning the recognition of QA decisions and the credibility of QA agencies abroad. Overall, this situation is likely to fuel the development of competition in many respects. Since Quality Assurance is placed at a disadvantage with respect to international university rankings, national agencies must establish their credibility beyond their borders amongst peers. The search for international recognition is likely to favour the development of truly international, specialised agencies providing a much higher level of comparability across borders in a particular disciplinary/professional area.

Thirdly, the future of Quality Assurance is likely to be shaped by the need for closer cooperation aimed at finding adequate answers to common challenges, particularly those stemming from the rapid expansion in digital education and lifelong learning. The implications of distance learning on quality challenge established prejudices and reach far beyond technical changes. They must take into account the differing spirits (or culture) and expectations in new types of learners as well as the customization of learning paths. The recognition of prior or alternative learning (formal, work-based or informal) will also become a major aspect of Quality Assurance and Quality culture.

In this way, the interplay of the three "Cs", being Culture, Cooperation and Competition is likely to significantly transform the future of Quality Assurance all over the world in the years ahead. It is therefore expected that the presentation will help Quality Assurance agencies and the entire higher education community to consider about these upcoming challenges and define their own answers in a profoundly different global environment.

Keynote speech

Balancing the Competing Needs of Diverse Stakeholders Setting New Directions for EQA in Higher Education

delivered by
Dr. Carol L. Bobby

Dr. Bobby is the President of INQAAHE, and the Executive Director Council for Accreditation of Counseling & Related Educational Programs (CACREP)

She earned her doctorate degree in Counselor Education and Supervision from the University of Florida in 1986.

Abstract

The role and purpose of external quality assurance in higher education varies dramatically depending upon who is asked and what needs they may have.

The needs of five distinctly different stakeholder groups-institutions, students, employers, professions, and nations will be examined through the questions that each group wants answered with regard to what constitutes quality assurance in higher education.

Meeting the competing needs of such diverse stakeholder groups is not easily accomplished by most QA agencies as currently structured and operating. As a result, criticisms of QA are abound and no stakeholder groups' needs are fully satisfied. Rethinking EQA to balance the competing needs of diverse stakeholder groups requires consideration of new approaches to defining, measuring, and reporting quality, as well as cooperation from all stakeholder groups. Suggestions for creatively addressing the barriers to change will be explored.

Keynote speech

Impacts of External Quality Assessment

delivered by
Dr. Jingjai Harnchanlash

Former Chair of the Executive Committee of the Office for National Education Standards and Quality Assessment (Public Organization). With his vast experiences in management and development, he had served many major organizations, both national and international.

He was also the Director of Asia Region of the International Development Research Center, the body that supports research in developing countries.

Abstract

The presentation is focused on out-dated educational problems in Thailand. This is mainly because there is a lack of a comprehensive follow-up system since the first educational reform which relied heavily on matrix management. However, over the years it turned out to be more of “Silo” management.

Another major problem is the never changing of Thai mentality as “paper chase society” resulting in the mismatch of workforce supply and industrial demand.

Additional organizations were set up to solve the on-going problems. The Organization for National Education Standard and Quality Assessment (ONESQA) is one of those organizations to fill the gap. Its main purpose is to improve educational standards through external quality assessment.

For the last 13 years, ONESQA has tried different approaches to undertake EQA. It has not been easy due to the lack of understanding of many educational institutions which consider EQ as another bureaucratic hurdle in addition to internal assessment, instead of a tool to improve its educational standards.

A positive approach of EQA has recently been introduced by ONESQA placing emphasis on constructive EQA. EQA related KPI was reviewed to reduce the burden of assessed educational institutions. Changing attitude of “external evaluators” is another important step. An innovation system based on Area Based EQA is being experienced to achieve a more integrated assessment of the entire educational level.

It is hoped that the Thai educational standards could be raised through the intertwined EQA.

Keynote speech

QA Innovations in Thailand

delivered by
Prof. Dr. Channarong Pornrungroj

Prof. Channarong is the Director of ONESQA (The Office for National Education Standards and Quality Assessment, Public Organization). Thailand

He has a strong academic background related to assessment and human development as demonstrated through his career at Chulalongkorn University, and as the Secretary-General of the Council of University Presidents of Thailand.

Abstract

After the promulgation of the National Education Act of 1999, the implementation of Quality Assurance policy in Thailand was officially mandated. Chapter 6 of the 1999 Act is entitled "Educational Standards and Quality Assurance" (NEA, 1999). Within this legal framework, Section 47 states the need for internal quality assurance and external quality assessment. Section 49 stipulates the establishment of the Office for National Education Standards and Quality Assessment or ONESQA (Public Organization) to conduct and develop criteria and methodology for external quality assessment every five years.

ONESQA, established as a public organization for flexibility and management, is responsible for the process of External Quality Assessment (EQA). This includes developing the systems, method, and indicators to assess the External Quality Assessment as well as providing training to certify external assessors. Since its inception in 2000, ONESQA has performed three rounds of quality assessment at the national level. The First Round from 2000 to 2005 aimed to assure the current management meets the need of the QA system; the Second Round from 2006-2010 aimed to verify the standard of institution; and the Third Round from 2011-2015 aimed to verify the standard of institution and its relevant areas to enhance the quality of education based on outputs, outcomes and impacts together with the variation of the institution.

The Third Round of External Quality Assessment began in 2011 and will be completed by 2015. After a decade of quality assessment, the Third Round attempts to differentiate the role of ONESQA from that of OHEC, which is responsible for internal quality assessment (IQA). While OHEC is mandated to focus on the input and process of QA, ONESQA is responsible for the output and outcome. Additionally, the Third Round launched a new paradigm of quality called "ONESQA's Innovations

in EQA". First, is the 1-4-9 Model, a zero-budget project that invites an Institution with a quality level "Very Good" to help another 9 Institutions with a lower quality level to improve educational quality. Second, is the 3-D KPIs that are classified by 3 indicators: the Basic indicators are compulsory and fundamentally linked to the IQA system; True Identity indicators focus on the uniqueness of the institution; and Social Responsibility indicators involve making suggestions and solving problems of society or community. Third, is the QC100 that will bring feedback from all institutions to ONESQA for continuous improvement for the assessors. Fourth, is the Area-Based Assessment (ABA) that will focus on all institutions (Basic Education, Vocational Education and Higher Education) in all provinces by analyzing data and directly reporting results to the Provincial Governor and other stakeholders (Government sector of The Province, Industries sector, Graduate hires, parents, etc.). For Fiscal Year 2012, 8 provinces have accomplished this goal, and another 20 provinces are expected to achieve success this fiscal year.

Moreover, the BTS slogan is the principle of ONESQA's operations: B is better world citizen, T is together-we will do it better, and S is to simplify the QA system. For the upcoming Fourth Round of EQA, ONESQA will continue to utilize that slogan to strengthen the quality of institutions.

Keynote speech

The Emergence of EQA: Frameworks for New Discovery

delivered by
Dr. Jagannath Patil

Dr. Patil is the President of Asia Pacific Quality Network (APQN: the network of quality assurance agencies in higher education for Asia-Pacific.)

He is also the Deputy Adviser at the National Assessment and Accreditation Council of India.

He has worked on assignments of many international organizations, such as, the World Bank, UNESCO, etc., and leads many international projects in the field of quality assurance in higher education.

Abstract

Asian civilizations boast of some of the oldest and strongest traditions of higher education in the world. In the last few centuries, these advantages eroded due to several economic and political reasons. The Asian Value debate in the 1990s which sparked worldwide discussions on Asian values and the financial crisis in the region prompted some to announce its premature end. However, if we observe what is happening in first decade of the 21st Century on education, as well as the economic front in Asia, Europe and America, we need to infer that the debate on Asian values is far from over. The need of the hour is to redefine and rediscover Asian values in the changing scenario of the world.

This paper is an attempt to rediscover Asian values as they are reflected in the transformation of Asian higher education systems and the emerging external quality assurance systems.

Quality is a relative concept and so is quality assurance. When Quality Assurance culture is discussed, it means different things for different people. Quality as a means of standardization is a concept adopted by Industry. This has been generally disliked by experts in educational quality assurance. This is particularly true for many Asian Quality Assurance organizations. Asia has quite distinct values when it comes to education. In our culture, imparting education is a sacred duty with a noble cause. However, for profit education providers have not been strict in many Asian countries.

These and all such traditions are being challenged and put to test with increased globalization of higher education. Education hubs are emerging across Asia to market higher educational offerings of global education players. External quality assurance in higher education is a relatively new concept in Asia borrowed from the industrialized world.

These emerging EQA bodies thus have faced a huge challenge of doing a balancing act between old traditions of education with certain value systems as against new forces of higher education internationalization.

- Is there anything called Asian when it comes to quality?
- Do we have an Asian Value system of education?
- Is it possible to rediscover an Asian Value framework which will foster cooperation rather than competition?

This paper reflects on these questions and attempts to articulate a new vision for Asian Quality based on a blend of uniquely Asian values and the universal quest for excellence in pursuit of humanity. It main purpose is to improve educational standards through external quality assessment.

Keynote speech

QA as A Means to Educational Improvement

delivered by
Mr. Tony McAleavy

Mr. McAleavy is the Development and Research Director, CfBT Education Trust, UK

He is CfBT's Education Director, with corporate oversight of the educational impact of all our activities. He is also has responsible for corporate business development and advises the Trustees on CfBT's public domain research programme.

Mr. McAleavy has played a major part in the development of our international consultancy practice, and he has worked extensively on our growing portfolio of education reform projects in the Middle East.

Abstract

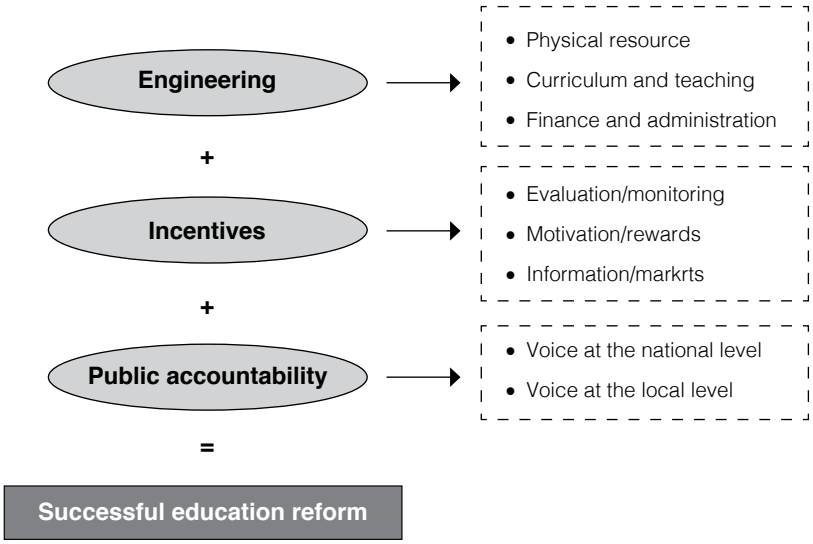
Quality Assurance (QA) is placed within a theoretical framework relating to the improvement of public services. Inspection has the potential to provide 'short route' accountability in line with the theory of service improvement through accountability developed by the World Bank. Under the terms of the 'short route' theory service providers are more likely to perform well if they are held to account by well-informed local communities. In the second half of this paper the characteristics of four QA regimes are considered: India, England, the Netherlands and New Zealand. Each model corresponds to 'the short route' concept because inspection findings are shared with local communities. The methods of the three western systems are similar in other important ways including the use of risk-based inspection and the existence of robust post-inspection arrangements for weak schools.

Full Paper

This paper proposes that international approaches to school inspection should be evaluated within a secure theoretical framework. Modern economics can help us to create such a theoretical framework for understanding the logic of service improvement through external review. While classical economics conceptualised output as a function of the quality of inputs, modern economics places greater emphasis on questions of incentives and motivation. In other words, it is not enough to recruit well-qualified teachers and to have well-resourced schools, there must also be a good system of incentives and accountability that encourages teachers and school leaders to perform at a high professional level. This emphasis on incentives and accountability was skilfully articulated by Galal (2008) in the World Bank study of education reform in the

Middle East and North Africa. This report created an Analytical Framework for Successful Education Reform in which public accountability was identified as one of the three essential building blocks for the improvement of a school system.

The Three Building Blocks of the Analytical Framework



(Galal 2008 p 123)

In Galal's view the 'traditional' paradigm focussed exclusively on what he calls the 'engineering' building block. Here the physical and human resources of the education system are made as good as possible. Of course it is good to have talented teachers and quality learning resources. Galal says that this is not enough. There is also a need for incentives and accountability to make the most of the resources available. Through incentivisation and the power of public accountability the government can get the best possible return on its educational investment inspection is, of course, a form of accountability and, if inspection reports are published, then inspection has the potential to be a powerful form of public accountability..

The long and short route of accountability

Galal (2008) was influenced by the earlier theorising about public service improvement methods to school accountability developed by the World Bank as part of the World Development Report (2004). This identified two forms of accountability through which citizens can influence public service delivery in areas such as education and health. The first, the long route, occurs when the government acts on behalf of citizens to hold service providers to account. The second form of accountability,

the short route, occurs at community level when citizens engage directly with service providers and their management to apply pressure for improvement.

The World Development Report argued that the long route alone was a weak mechanism for service improvement. The short route is potentially more powerful. Advocates suggest that the effectiveness of the short route is underpinned by three principles:

1. The increased availability and transparency of information on service performance will generate pressure for change, addressing issues of 'information asymmetry' between service providers (such as teachers) and service users (such as students and their parents) (World Bank 2008) and stimulating citizen involvement and demand for better performance.

2. Accountability information enables service user 'voice' to apply challenge and pressure through the exposure of shortcomings and inequalities (Keefer and Khemani, 2005; Majumdar, Mani and Mukand, 2004) or through exercising their choice for better service providers and 'voting with their feet'.

3. There is an assumption that increased citizen pressure will be answered by improved provider responsiveness in meeting needs. Thus demand side 'client power' will drive up the quality of supply side provision.

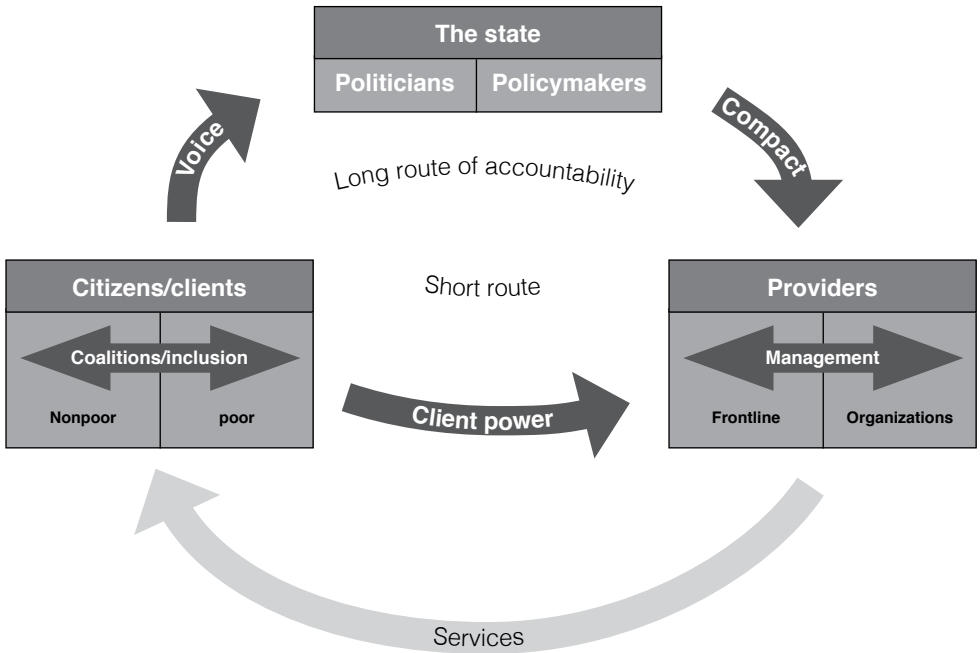


Figure 1 *The Short Route of Accountability (World Bank 2004)*

The short route theory sits within two main areas of policy discourse. Firstly, it is a 'market based' model underpinned by basic economic principles such as supply, demand and 'client power'. Secondly, it is linked to the concept of decentralisation of decision-making and responsibility, including 'information for accountability' policies which argue for local access to information about school quality as a lever for change (e.g. Bruns et al., 2011). Advocates argue that decentralisation has the power to bring the ability to influence services within the reach of ordinary people (Bruns et al., 2011; Gertler et al., 2011) and facilitate the relationship between government policy and people preference (Besley and Coate, 2003; Besley and Ghatak, 2003; Hanushek and Woessmann, 2007; Lockwood, 2002).

In the education sector specifically, Bruns et al. (2011) have developed detailed explanations of the links between community empowerment and provider responsiveness. For example, school scorecard approaches typically combine increasing the collection and availability of information about school quality with the opportunity for direct community involvement in school governance. Bruns et al. describe how and why this combination of participation and oversight is a powerful lever of change:

> [It] enables closer monitoring of resource allocation – ensuring alignment between what parents want (which may include higher test scores) and the way resources are deployed. Participation also enables close monitoring of effort on the part of teachers and other educators. Both of these results – better deployed resources and greater effort – are, in turn, inputs into higher learning outcomes (Bruns et al. 2011)

They also describe how the promotion of dialogue and consultation amongst all actors can alleviate information asymmetries and so promote more conducive learning environments.

Bruns et al. provide a comprehensive view of the ways in which information about school quality – of the sort generated by inspection reports – can increase accountability and ultimately the quality of learning outcomes. They identify categories of 'informed' action, where the action is more likely to be effective if accountability information is available. The categories identified by Bruns et al. can be applied to systems where school inspection leads to a published report.

1. **Inspection findings can inform school choice and apply pressure for improvement:** In many systems parents choose schools. They may choose between different public schools or choose between public and private schools. If funding follows students then popular schools will be rewarded and unpopular schools will be penalised. "Schools may work to improve quality to draw in more students and thereby boost income. This improved quality would then be reflected in measures of learning outcomes" (Bruns et al. p 34).

2. **Inspection findings can create pressure for improvement through empowered citizen voice.** Information from inspection sources can be used by parents and others to lobby for change and improvement at community level. Pressure can be applied both directly through school staff and through local political systems. Most elected politicians will wish to associate themselves with the improvement of public services and may, therefore, be responsive to informed parental 'voice'.
3. **Inspection findings can provide 'improvement information' for school management.** Accountability through inspection can generate a benchmarked view of the developmental priorities for a school. The performance, for example, of particular groups of students may be identified as a cause for concern. School management is then better able to take action to address these problems.

In summary, the short route is deemed to function through better citizen choice, participation, oversight (and so pressure and challenge) of resource allocation and teacher effort, immediate service feedback and improved dialogue.

The short route in action: Examples from India, England, the Netherlands and New Zealand.

An interesting example of the short route in action is provided by a recent CfBT study from India (Galab et al. 2013). It describes how poor local women in rural Anantapur, Andhra Pradesh, were empowered to engage directly with their local primary schools and to apply pressure for school quality improvement. It supported collective action by engaging a large network of women's Self Help Groups to collect data about school quality in a simple scorecard and to publish it within their own group meetings and at data-driven School Management Committees. The most radical feature of the project was to empower the most marginalised women in the community, the illiterate and semi-literate, to undertake these scorecard assessments.

Not all educationally high performing countries use external school review as a central mechanism for school improvement. Famously, high-performing Finland does not have a national school inspection system. The highly decentralised American public school system places an emphasis on public accountability but this is typically based on publication of test scores rather than through inspection. There are, however, several educationally high performing countries that use whole school inspection – with public accountability – as an important part of the process of school improvement. This study focuses particularly on three of these countries: England, the Netherlands and New Zealand. In England, school inspection is the responsibility of 'Ofsted': the Office for Standards in Education. In New Zealand, accountability for school performance is overseen by ERO: the Education Review Office. In the Netherlands, school inspections are conducted by the Dutch Inspectorate. In each of these

countries there is a functioning and long-established inspection system that is close in practice to the theory of the 'short route' of accountability. Each of these countries has a high accountability school review system which generates public findings about school quality. In terms of other 'western' jurisdictions these countries have highly accountable systems within which advocacy for students are explicitly placed above partnership with teachers as a guiding principle. In these jurisdictions the inspection regimes share certain key characteristics:

- Inspection findings are made public;
- Inspection is based on clear transparent criteria;
- The inspection methodology is proportionate to risk;
- There is a strong link between external inspection and internal organisational self-review;
- The inspection event is part of a longer process, particularly for schools with weaknesses.

The following detailed analysis is based on the inspection method statements published by the three jurisdictions on their websites:

- Ofsted, England: http://www.ofsted.gov.uk/
- ERO, New Zealand: http://www.ero.govt.nz/
- Dutch Education Inspectorate, Netherlands: http://www.onderwijsinspectie.nl/english

Inspection findings are made public

All school level reports are published in each of the three countries. The internet is the main medium for sharing information with parents. The website of each inspection agency is designed with parents in mind and provides both a straightforward mechanism for finding local reports but also guidance to parents as to how they should use inspection findings. The New Zealand ERO places a particular emphasis on the importance of school choice and gives detailed advice as to how parents should systematically choose the best school for a child, using ERO reports and other data to make an informed choice. In New Zealand the reports on each individual school are placed on the ERO website within two weeks of the submission of the report to the school.

There is a strong sense of the short route in action on the Ofsted website which has a feature called Parent View. This is a public on-line mechanism for parents to share their views on the quality of education at school level. For every school in England it is possible to see how parents rate each school using 12 criteria and a 4 point scale from Strongly Agree to Strongly Disagree. Ofsted inspectors use the Parent View data as part of the review process.

Ofsted: Parent View Statements

1. My child is happy at this school
2. My child feels safe at this school
3. My child makes good progress at this school
4. My child is well looked after at this school
5. My child is taught well at this school
6. My child receives appropriate homework for their age
7. This school makes sure its pupils are well behaved
8. This school deals effectively with bullying
9. This school is well led and managed
10. This school responds well to any concerns I raise
11. I receive valuable information from the school about my child's progress
12. Would you recommend this school to another parent?

(Ofsted 2012)

Inspection is based on clear transparent criteria

The basis for inspection judgements in each jurisdiction is a relatively simple set of quality indicators. These focus on educational outcomes and the key determinants of learning. In New Zealand every school review is organised around a constant overarching 'major evaluation question':

How effectively does this school's curriculum promote student learning – engagement, progress and achievement?

The New Zealand ERO review methodology focuses on The Six Dimensions of a Successful School. This is a research – based theory which identifies the key characteristics of school effectiveness as:

- Student engagement, progress and achievement
- Effective governance,
- Professional leadership,
- High quality teaching,
- School culture,
- Engagement with parents and communities.

In the Netherlands, similarly, judgements about primary school quality are organised around judgements about the suitability of outcomes and a further 8 criteria or 'quality aspects'.

'Quality Aspects' for Primary School Inspection:
Dutch Inspectorate

1. The outcomes are at the level that may be expected on the basis of the charac teristics of the pupil population;
2. The curriculum offered prepares pupils for further education and society;
3. The teachers allow the pupils sufficient time to master the curriculum.;
4. The school climate is characterised by safety and respectful interaction;
5. The teachers provide clear explanations, organise their educational activities efficiently and keep the pupils involved in their tasks;
6. The teachers adapt the curriculum, instruction, time allowed for learning the subject matter and teaching time to accommodate the developmental differences between pupils;
7. The teachers systematically monitor the progress made by the pupils; the school guides the pupils in order to allow them to develop according to their capabilities;
8. Extra care is provided to pupils who are found to need it;
9. The school has a quality assurance system.

(Dutch Inspectorate 2012)

The inspection methodology is proportionate to risk

All three case study systems adopt a differentiated approach to school review. Rather than provide an equal amount of accountability resource to all schools, regardless of educational performance, each country targets accountability resource on those schools where the need or educational risk is greatest. Each system is relatively mature and decisions about risk can, in part, be based on prior inspections.

In England a school that was judged to be outstanding at its last inspection is now 'exempt' from routine inspection. Ofsted will review the performance data for such schools, two years after the last inspection, to determine whether an inspection might be necessary. A school judged to be 'good', a lower grade than 'outstanding', is normally inspected every 5 years. A school judged as 'requires improvement' will receive regular monitoring visits from inspectors to check its progress and is inspected within two years. If at that inspection it is still judged as 'requires improvement', there will be further monitoring, and another inspection will take place within a further two years. If at this inspection it is still not 'good', it is highly likely that it will be judged 'inadequate' and deemed to require special measures.

The Dutch Inspectorate of Education has carried out risk-based inspections of schools since 2007, assessing potential problems that could affect the quality of education. This system reduces the burden for high performing schools and is intended to make inspection more cost effective. The Dutch Inspectorate conducts an annual risk analysis to check for indications

that a school is performing below standard. On the basis of this risk analysis, the inspectors determine the degree of inspection a school requires. This means that each school receives a 'tailored' inspection. Schools delivering a good education (no risks detected) and good results do not require inspection, allowing the Inspectorate to focus on the rapid improvement of schools that supply a poorer education (risks detected) and get unsatisfactory results.

In New Zealand, ERO has also adopted a differentiated approach. The key determining factor is the performance of the school in the previous school review. There are now three different options for the timing of the next ERO Education Review based on risk:

- 1-2 years for schools causing concern
- 3 years for most schools
- 4-5 years for best practice schools.

There is a strong link between external inspection and internal organisational self-review

Each jurisdiction emphasises the close relationship between internal quality review and the external validation provided by inspection. One consistent message is that good schools are characterised by their commitment to organisational self knowledge. The New Zealand ERO system, for example, is predicated on the idea that the school's own self review is 'the starting point for ERO's review'. Contributing to the strengthening schools' self review is explicitly seen as a central aim of ERO external reviews. The external review team not only look directly at the school in action they also consider how the school has used self review data to plan for improvement. When assessing the quality of self review the key questions are:

- What do you think your data means for your school and your students?
- How is the information you collect helping teaching and learning in your school?
- How has this affected the achievement of your students?

In the Netherlands, schools are strongly encouraged to perform organisational self-evaluation. Schools are legally required to have a school policy on maintaining and improving quality. They also must have a school plan and in their school plan, they must describe their quality policy. This policy should contain information on how the school board fulfils its responsibility for safeguarding the achievement of quality goals and for assessing the necessary measures for quality improvement. The school prospectus contains information on a school's objectives, its educational activities and the results achieved. In a way that is markedly similar to New Zealand, the 2002 law on inspection states that the Inspectorate should take the school's data from self-evaluation as a starting point for supervision.

Self evaluation has been a central part of the Ofsted methodology for many years. As part of a commitment to reduce burdens the requirement in England to maintain a Self Evaluation Form has recently been dropped. However, Ofsted continues to recognise the importance of self-evaluation as a crucial part of schools' ongoing cycle of review and improvement planning. Although it is not mandatory Ofsted provides guidance on how a school can manage the evaluative process. Ofsted encourages schools to develop a 'self evaluation summary' which draws together an evaluation of different aspects of their work leading to an evaluation of the quality of education provided by the school overall.

The inspection event is part of a longer process, particularly for schools with weaknesses.

One of the clear traits shared by these three countries is a seriousness of intent after weaknesses have been detected through school review. In each case there is a clear mechanism for managing and monitoring the school's improvement.

In the Netherlands, for example, if a school is categorised as 'unsatisfactory' it is subject to close monitoring as it puts in place an improvement plan. If the school's improvement progress does not satisfy the inspectors, this can lead to an official warning and ultimately a report to the Minister of Education.

The ERO in New Zealand reserves the right to recommend a Ministry of Education 'intervention' in school's that make unsatisfactory progress after a review. The Ministry of Education may send an interim manager to assume temporary control of the school. This person is known as the Limited Statutory Manager and then can be in post for over a year as the school is improved. Formally the Limited Statutory Manager has control over the School Board.

The post-inspection process in England is very robust. If inspectors judge a school to be inadequate it will be placed in one of the following two categories.

Special measures

This means 'the school is failing to provide its pupils with an acceptable standard of education', and appears to lack the capacity to improve. Often the principal of such a school will be replaced. The governing body may be suspended and replaced by an Interim Executive Board. Inspectors visit the school regularly to monitor progress, until it can be removed from the category. We will inspect it again after about two years.

Serious weaknesses

In this category, key areas of the school's performance require significant improvement, but the leaders and managers have demonstrated 'the capacity to improve'. Inspectors will visit the school regularly to check its progress, until it can be removed from the category. It will be inspected again within 18 months of its last inspection.

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Research Presentation

The Two-Layer Appeal Mechanism of Program Accreditation in Taiwan and Its Implications for Reviewer Training

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Abstract

Peer review has been an important method of quality assurance of higher education. It has been noticed that reviewers' decisions might be influenced by different contexts. In order to protest the university rights, two layers of appeal mechanism has been developed since Higher Education Evaluation & Accreditation Council of Taiwan (HEEACT) started its first cycle evaluation in 2006. This study analyzed 672 objection and 85 appeal reports during the first cycle of program accreditation from 2006 to 2009 in Taiwan. This study explored the major reasons for the objections and appeals individually, examined the validity of the review system, and proposed the implications for reviewer's training. Results showed that the average rate of filing objections in the first-layer appeal is 37%, and the rate of revision of on-site visit drafts is 8% (with 4% revised and 4% partially revised. Comparing the views of university staff and reviewers, it was found that the differences existed for five reasons: lacking context analysis of the programs, non-impartial reporting, not focusing on the same issue, lacking valid and reliable information, and unjustified conclusion. While in the second layer of appeal, the average rate of proposing appeals is 3% and the acceptance of appeals is 0.35% (0.07% revise the accreditation status, and 0.28% re-conducted on-site visit). Content analysis showed three major reasons for proposing appeals: lacking context analysis of the programs (especially the newly established program), unsolved and inconsistent opinions of institutions and reviewers, and a flawed peer review process. It reveals that the reviewer training can be focused on situational analysis, systematic inquiry,and the ethics of the review process. This study will provide a foundation for the design of trainings of the reviewers and the institutional staff for better evaluation process.

Keywords:

Program Accreditation, Appeals, Reviewer Training, Peer Review

1. Introduction

Peer review has been a major method of quality assurance of higher education (Harvey, 2002). As there is a deeper understanding in the field that is being evaluated, peer reviewers were able to make comments for the external evaluation. However, it has recently drawn attention that reviewers' decisions might be influenced by different

contexts (Huisman & Currie, 2004; Kristoffersen, 2012). In order to protest the university rights in the programs accreditation, two layers of appeal mechanism has been developed since Higher Education Evaluation & Accreditation Council of Taiwan (HEEACT) started its first cycle evaluation in 2006. According to HEEACT, a program could file an objection if the evaluation result is inconsistent with fact or violating procedures after the draft of the site visit report is completed. This study analyzed 672 objection reports and 85 appeal reports during the first cycle of program accreditation from 2006 to 2009 in Taiwan. The aim of this study explored the major reasons for the objections and appeals individually through the reports, examined the validity of the peer review system, and proposed the implications for reviewer's training.

It will provide a foundation for the design of trainings of both the peer reviewers and the institutional staff for better evaluation process.

2. Theoretical Background

2.1. Peer Review and Appeals in Program Accreditation

Peer review has been a widely applied method in the quality assurance of higher education. Reviewers gave comments and wrote evaluation reports according to their observation and judgments. The whole process relies on an assumption that the reviewers can objectively find out the real situations of programs by data collecting, interpretation, and making judgments without bias but with their academic professionals (Denzin, 1978).

However, this assumption of neutrality and objectivity has been challenged by Greene (2011) and other researchers. It was suggested that the evaluations were conducted in a situated context and the reviewers inevitably brought their beliefs and values into the process (Greene, 2011; Lather, 1993; Kane 2006).

In order to protect the right of institutions and adjust the incongruence between different perspectives of institutions and peer reviewers, many countries are set up appeal procedures or universities. Institutions could file appeals if they disagree with the evaluation results which have been reported to the public. The QA agencies will invite reviewers to form a panel to review the appeals and make final decisions. In particular, the regional networks of QA (ENQA, INQAAHE, and APQN) have made appeal procedures as one of the requirements of QA methods to protect the institutional rights (ENQA, 2009; INQAAHE, 2007; APQN, 2013).

2.2. HEEACT Program Accreditation and the Two-Layer Appeal Mechanisms in Taiwan

As a national accredit or, HEEACT has conducted program accreditation according to the revised University Law. In 2006, HEEACT began a 5-year, program-based, and nation-wide accreditation. The second cycle of program accreditation is being undertaken from 2012 (HEEACT 2013a). The standards developed by HEEACT in the first cycle of program accreditation are as follows: (1) goals, features, and self-enhancement mechanisms; (2) curriculum design and

teaching; (3) learning and student affairs; (4) research and professional performance; (5) performance of graduates. There are three types of accreditation outcomes, including accredited, accredited conditionally, and denial.

HEEACT has set up a two-layer appeal mechanism to reconcile the incongruence views between the institution and reviewers. After the site visit and the draft of report is finished, HEEACT will send a copy to the institution. If the institutions disagree with the draft, they can file an objection (the first-layer appeal) to ensure a fair evaluation. In response to the objections, HEEACT will invite the on-site visit team to review the objections. The objection will result in revising the report, upholding parts of the reports, or upholding the original report. Regard on resolution to objection will be sent to the university and available to the public on-line. The site visit report will be revised according to the resolution report and then sent to the committee for further review which will lead to the final decision of accreditation.

In addition, the institutions can file an appeal (the second-layer appeal) if the evaluation result is "inconsistent with fact" or "violating procedural due process" after the accreditation results is made and announced to the public. An appeal review meeting is held within one month after receiving the appeal. The determinations could be: keep the original accreditation status; conduct on-site visit again; or revise the accreditation status directly, which will be sent to the "Accreditation Review Committee." The Committee will take a final decision then the outcome of the appeal will be sent to the institution within four months (HEEACT, 2013b). A two-layer appeal mechanism can reconcile the different perspectives of the institution and peer reviewers in the beginning of writing the evaluation report.

2.3. Research Questions

The aim of this study is to explore the major reasons for the two layer appeal mechanism made by institutions through the appeal reports. The three research questions are:

1. What are the major reasons for the first layer of appeals made by institutions? What are the differences between the perspectives and peer reviewers?

2. What are the major reasons for the second layer of appeals made by institutions?

What are the differences between the perspectives and peer reviewers? Are the reasons different from those of the first-layer appeals?

3. What are the implications from analysis of the appeal reports?

3. Method

This empirical study analyzed 672 objection reports and 85 appeal reports from 2006 to 2009 in Taiwan. The first cycle of program accreditation of higher education was conducted by HEEACT from 2006 to 2010 in Taiwan. Due to the program evaluated in 2010 were police and military programs, the evaluation results were not opened to the public. All reports could be downloaded from the website of HEEACT.

Content analysis of the objection and appeal reports were conducted to investigate the differences of institution staff and reviewers' perspectives respectively, and also the implications for reviewer trainings.

4. Results and Discussion

In 2006 to 2009, a total of 1819 programs have been evaluated in Taiwan. Among these, 1147 programs (63%) accepted the draft of the on-site visit report and 672 programs (37%) proposed appeal report. As for the accreditation pass rates, 82% of the programs got accredited, 16% received conditional accreditation, and 2% were denied accreditation.

4.1. Analysis of the Reports of the First-layer Appeal Mechanism

The analysis results of the objection reports of first layer of appeal mechanism showed that the average rate of filing objections of the first cycle of program accreditation is 37% and the rate of revising on-site visit drafts is 8% (with 4% revised and 4% partially revised the objection reports). We compared the views of university staff and reviewers and found differences existed in the five areas: lacking context analysis of the programs, non-impartial reporting, not focusing on the same issue, lacking valid and reliable information, and unjustified conclusion.

Lacking Context Analysis of the Programs: The evaluation should describe the program's background and setting (Stufflebeam, 2000). The context in which the program exists should be examined in enough detail, so that its likely influences on the program can be identified. From the content analysis of the appeal report, the university staff proposed that the special context of their programs should be considered, with 38 items (0.8%) related to this issue. The university staff proposed that the reviewers should consider the special contexts of their programs, including special or broader definitions of program goals, newly established programs, program goals changed, and inter-discipline programs.

Non-Impartial Reporting: The reporting procedures should guard against distortion caused by personal feelings and biases of any party to the evaluation, so that evaluation reports fairly reflect the evaluation findings. Results showed that only 10 items (0.2%)in this category. From the university staff sides, they considered bias reviews coming from: reviewers' prejudices of the programs, and reviewers' violation of the principle of confidentiality. On the other hand, some of the reviewers replied with emotional wording and those were classified into this category.

Focus on the Same Issue: The focused issue of the university staff and reviewers during the back-and-forth appeal process should be the same in order to keep the arguments properly. We found that 106 items (2%) were classified into this category and identified four actions of universities might cause this happened: giving irrelevant answers, providing data of improvements after on-site visit, giving insufficient or not specific answers, misinterpreting the on-site visit reports, and self-contradictory arguments proposed by universities.

Valid and Reliable Information: The reviewers were expected to use several methods to gather information during the on-site visit, including interviews, large group meetings, reading documents, and classroom observation. Through the triangulation process, the reviewers could get a whole picture of the program. Results showed that 363 items (7%) were classified into this category and four reasons were identified for causing this: over emphasis on interview results, fail to clarify the uncertainty during on-site visit, inadequate data citation, and university providing improvement data conducted after on-site visit.

Unjustified Conclusion: It showed that 31 items (0.6%) related to the issue that the university staff perceived the reviewers' suggestions as unjustified for two main reasons: the suggestions were difficult to achieve, and the suggestions were vague and not specific. For example, the reviewers asked a newly established department to be internationalized, which needs lots of funding and it is difficult to achieve for a new department. And the reviewers suggested that another department build up a flexible salary system to include world class experts as faculty. The universities complained that it is very difficult for a department to make such a big change to the entire system without university support.

4.2. The Second-Layer Appeal Mechanism

The analysis of the appeal reports of the second-layer appeal mechanism showed that the average rate of proposing appeals is 3% and the acceptance rate of appeals is 0.35% (with 0.07% revise the accreditation status, and 0.28% re-conduct on-site visit). There are 2 (0.07%) programs directly revise the accreditation status from denial to conditionally accredited. Both are for the same reason: the programs are newly established and it should not be evaluated by the same standards as other well established programs. There are 15 (0.28%) programs re-conduct on-site visit. Content analysis showed three major reasons for proposing appeals: lacking context analysis of the programs, unsolved inconsistence opinions of institutions and reviewers, and a flawed peer review process (reviewers violated curtained procedures during on-site visit). For example, one institution insisted that the space for students is enough according to the laws, which is different from the reviewers' opinions. The appeal committee decided to re-conduct an on-site visit to confirm it.

From the above analysis, we found that the reasons for proposing objections and appeals are the same. And the reasons for filing appeals are more focused on the issues that are apparent or can be objectively judged but unsolved issues, such as newly established program within one year, or reviewers violate the rules. However, other reasons that are more unneutral or not easy to make judgments are often rejected by appeal process, such as reviewers that gave comments in emotional tones, or reviewers are making their judgments only from student interviews. However, the above incongruence can provide a foundation for the design of reviewer training.

4.3. Implication of Reviewer Training

In the program accreditation, reviewers are the most important elements of the process.

It is expected that reviewers can objectively conduct systematic exploration to depict the whole picture of the program for accreditation. However, there still some incongruence perspectives between institutions and reviewers. As we examine the above reasons for the disagreements in the objection and appeal, we can find that the reviewers need to enhance their evaluation capabilities.

It has been suggested by Stevahn, King, Ghere, and Minnema (2005) that evaluator competencies include six categories: professional practice, systematic inquiry, situational analysis, project management, reflective practice, and interpersonal competence. According to the above analysis of the objection and appeal reports, the incongruence happened majorly for the reasons: lacking context analysis of the programs, unsolved inconsistence opinions of institutions and reviewers, and a flawed peer review process. Therefore, the reviewer training can focus on situational analysis, systematic inquiry, and the ethics of the review process. For situational analysis, a reviewer can learn the way of respect and analysis of the unique program context, the issue of organizational change, and modify the evaluation inquiry, as needed. In the training of systematic inquiry, reviewers can enhance the capability of knowledge of qualitative methods, identify data sources, data collection, assess validity and reliability of data. This study will provide a foundation for the design of trainings of both the peer reviewers and the institutional staff for better evaluation processes.

5. Conclusion

Peer review is the cornerstone to constitute sound quality assurance procedures. The validity and reliability of peer reviews is being challenged. The skills and knowledge of reviewers, and the variety of reviewers involved needs to be seriously reviewed. The application of peer review is influenced by the context of the educational system. The complexity of peer review is increasing as the higher education system is smaller.

Institution's self-evaluation and on-site visit are complementary and integrate with each other. The gap between them still exists, with regard of the judgments of reviewers and also the different perspectives of reviewers and institutional staff. Through the analysis of the reports of the two-layer appeal mechanism, this study provides an understanding of the discrepancy between university's view of evaluation and reviewer's view of evaluation. This study will provide a foundation for improving the evaluation process and reviewer training.

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Organizational Effectiveness Evaluation System for Higher Education Institutions Under the Ministry of Tourism and Sport

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Abstract

The objectives of the present study were 1) to develop the components and indicators of organizational effectiveness, and 2) to develop an organizational effectiveness evaluation system for public higher educational institutions under the Ministry of Tourism and Sports. The sample included a total of 41 participants comprising administrators, faculty members, and supporting staff. Data collection was conducted through a documentary study, interviews, observations, and an inquiry using an assessment form. The data were then analyzed by means of descriptive statistics and a content analysis.

The findings reveal that there are 6 components and 21 indicators that are deemed appropriate for organizational effectiveness in public higher educational institutions under the Ministry of Tourism and Sports. They are component 1: instructional management with 6 indicators; component 2: research with 3 indicators; component 3: academic service for society with 1 indicator; component 4: preservation of art and culture with 1 indicator; component 5: organizational administration and development with 8 indicators; and component 6: development toward excellent athletics with 2 indicators. Organizational effectiveness evaluation system involves 4 interrelated components: 1) input, 2) process, 3) output, and 4) feedback and utilization of evaluation results. The system is valid, comprehensive, and useful for evaluating organizational performance based on its main missions, propriety, and feasibility.

Keywords:

Organizational, Effectiveness, Component and indicators of Organizational effectiveness, Organizational effectiveness evaluation system

Introduction

There is a need for Thai society to transform in response to the rapid and constant changes. “Organizational effectiveness” as a determinant of successful organization is a common goal for all organizations particularly in this current age of dramatic change and high competition. As in other organizations, measurement of effectiveness in public organizations can be carried out using the effectiveness models despite with ambiguous, diverse, and sometimes contradictory goals in the latter. Organizational

effectiveness focuses on successful performances to achieve organizational goals and objectives. Harmon and Mayer (1986) provided consistent notion with Eddy's (1981) that effectiveness is the extent of achievement or success in implementing what are decided. Evaluation is an activity of particular importance in the planning cycle and quality administration. It begins with planning, implementing, directing, monitoring, and evaluating project outcomes, leading to systematic and constant improvement and development of plans/projects. Standardized evaluation provides credibility and equity to all sectors. Effective evaluation requires transparency and accountability. The nature of evaluation demands evaluative conclusion about the value of what are evaluated along with recommendations for better improvement and development of implementation.

Higher education is crucial for its direct function to provide intellectual growth through advanced manpower production process, research development, promotion of advanced technologies, for instances. So far, the nation's higher education has been supported and promoted to bring about substantive and constant development despite its failure to rapidly progress (Office for National Education Standards and Quality Assessment, 2007). The National Education Act B.E. 2542 (1999), and Amendments (Second National Education Act B.E.2545 (2002)) defined the goals and principles of educational management to focus on the quality and standards detailed in Chapter 6 Educational Standards and Quality Assurance, Section 47 that there shall be a system of educational quality assurance comprising both internal and external quality assurance, as the mechanism to maintain the quality and standard of higher education institutions. Internal assurance provides the system and mechanism to control, audit, and assess the implementation of educational facilities in line with the policies, goals, and the extent of quality conforming to the standards defined by educational institutions and/or their parent organizations by establishing a quality assurance system within the institution. Internal quality assurance shall be regarded as part of educational administration which must be a continuous process. This requires preparation of annual reports to be submitted to parent organizations, agencies concerned, and made available to the public for purposes of improving the educational quality and standards and providing the basis for external quality assurance. Evaluation using the logic model allows evaluators to display connections in the diagram representing organizational functions to provide understanding about the relationship of resources employed in conducting activities. Its purpose is to provide people concerned with an insight on the connection of activities and intended outcomes, and what activities and goals are attained by the use of inputs and resources. Sirichai Kanjanawasee (2009) suggested that the logic model presents the causal relationship between input and process that leads to output and results which are combined

as expected achievement. Development of organizational effectiveness evaluation system for higher education institutions under the Ministry of Tourism and Sports offers a good practice for proper evaluation of organizational effectiveness. This developed system can be used in the organizations with the goals to make available an evaluation process as part of their continuous and routine work. It is a key mechanism that will bring about quality development of higher educational management and implementation of core mission of higher education institution. As a result, educational standards are well improved and recognized at both the national and international levels, hence further enhancing educational standards in higher educational institutes under the Ministry of Tourism and Sport.

Objectives

1. To develop the components and indicators of organizational effectiveness for higher educational institutions under the Ministry of Tourism and Sports.

2. To develop an organizational effectiveness evaluation system for higher educational institutions under the Ministry of Tourism and Sports.

Research Scope

1. Development of components and indicators of organizational effectiveness for higher educational institutions under the Ministry of Tourism and Sports includes logic model, MBNQA model, organizational effectiveness evaluation model by Cameron (1978, 1986), Coltt (1995), Kwan and Walker (2003), Steers (1977), the components and indicators of quality insurance for higher education in academic years 2009 and 2010, and indicators for External Quality Evaluation of Higher Education Round 2 (2006-2010) and Round 3 (2011-2015).

2. Evaluation of the system quality considers the 4 aspects of evaluation standards which include accuracy, utility, feasibility, and propriety.

Conceptual Framework

To develop the components and indicators of organizational effectiveness, various approaches were investigated. They are the logic model, MBNQA model (The Malcolm Baldrige National Quality Award Model), organizational effectiveness evaluation model by Cameron (1978, 1986), Coltt (1995), Kwan and Walker (2003), Steers (1977), the components and indicators of quality insurance for higher education in academic years 2009 and 2010, and indicators for External Quality Evaluation of Higher Education Round 2 (2006-2010) and Round 3 (2011-2015). The synthesis of these approaches provided 6 components and 21 indicators of organizational effectiveness suitable for higher educational institutions, as illustrated in figure 1.1

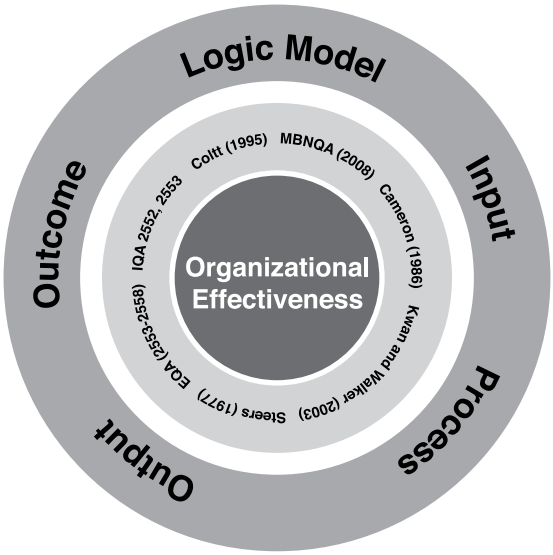

Figure 1.1 *Conceptual framework for developing the components and indicators of organizational effectiveness*

Methodology

Step 1 Investigation of components and indicators

Investigation is conducted on documents, concepts, theories, and relevant literature regarding evaluation, effectiveness, and organizational effectiveness evaluation. Several models studied are the logic model, MBNQA model, organizational effectiveness evaluation model by Cameron (1978, 1986), Coltt (1995), Kwan and Walker (2003),Steers (1977). Others include the Physical Education Act B.E.2548 (1995), the National Education Act B.E. 2542 (1999), and Amendments (Second National Education Act B.E.2545 (2002)), organization effectiveness evaluation, the components and indicators of quality insurance for higher education in academic years 2009 and 2010, and indicators for external quality evaluation of higher education round 2 (2006-2010) and round 3 (2011-2015). The conceptual framework for the components and indicators was formulated, then reviewed for appropriateness by experts, administrators, faculty members, and supportive staffs of higher education institutions under the Ministry of Tourism and Sports, using the checklists of suitable components and indicators of organizational effectiveness for higher education institutions under the Ministry of Tourism and Sports in the questionnaire form of five-point Likert scale, criteria consideration $M > 3.51$, $SD < 1$ from which 6 components with 21 indicators were finally obtained.

Step 2 Development and trial of organizational effectiveness evaluation system

Relevant documents and literature are studied concerning organizational effectiveness evaluation, development of evaluation system, organizational effectiveness evaluation approaches and methods, evaluation concepts, by developing the logic model of causal relationship between organizational effectiveness relevant input and process and output. Evaluation system was then developed along with the handbook, performance report form, organizational effectiveness evaluation form, evaluation result form, assessment form on satisfaction toward the system, and system quality assessment, based on the 4 aspects of evaluation standards, i.e. accuracy, utility, feasibility, and propriety. Then, the system was tried out in 2 higher educational institutions under the Ministry of Tourism and Sports. The total of 41 participants comprised of 12 administrators, 25 faculty members, and 4 supporting staff. The trial was arranged into 4 phrases as shown in Figure 1.2 and Table 1.

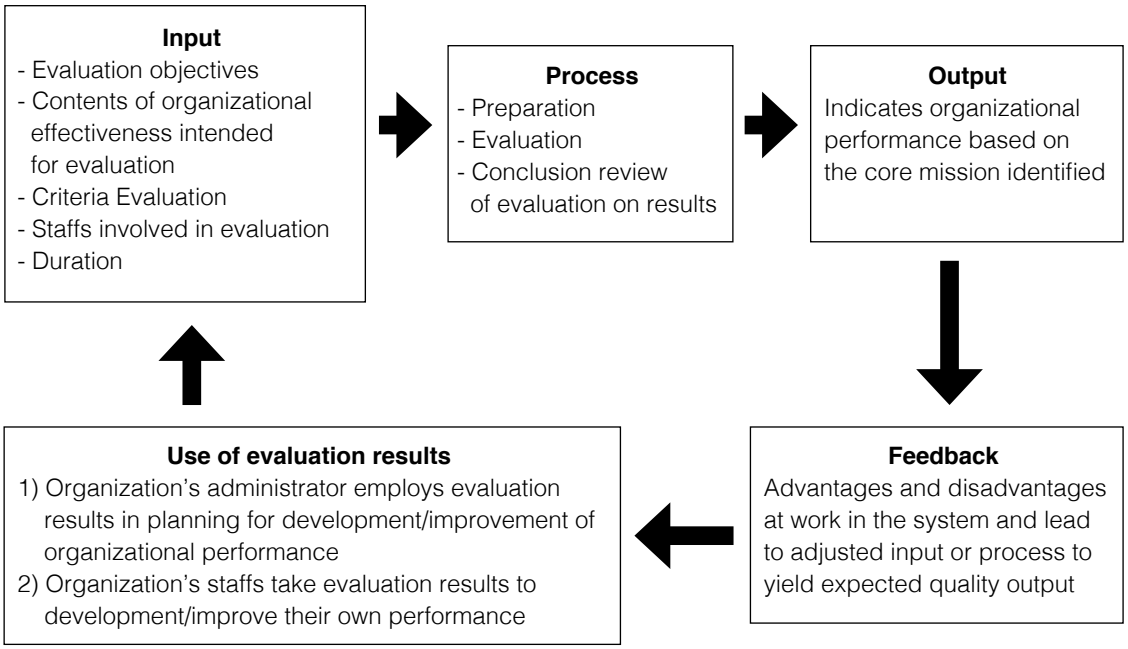

Figure 1.2 *Organization effectiveness evaluation system for higher educational institutions under the Ministry of Tourism and Sports*

Table 1 *Implementation procedure for the use of organizational effectiveness evaluation System*

Phrases	Activities	Time frame
Phrases 1 Preparation	Institution board examines together the details of organizational effectiveness evaluation system.	May (before the start of a new academic year)
	Appointment of organizational effectiveness evaluation committees comprising a committee for evaluating organizational effectiveness, a committee for data collection, and a committee for coordination.	
	Appointed individuals study the handbook for the use of organizational effectiveness evaluation system	
	The appointed organizational effectiveness evaluation committee conducts a meeting to inform all staffs in the organization the details of organizational effectiveness evaluation, evaluation tools, duration, roles and functions of individuals involved, under the coordination of coordinating committee upon the appointment order.	June (the start of a new academic year)
Phrase 2 Implementation	The committees compile information on organizational performance by collecting and monitoring the implementation of organization using the performance report form.	1 June-31 May (in each academic year)
	Report of organizational performance to the committee for evaluating organizational effectiveness at the end of every 1st semester as a formative evaluation, under the coordination of the coordinating committee.	October (within the academic year)
Phrase 3 Conclusion of results	The committee for evaluating organizational effectiveness performs an audit check for organizational effectiveness based on the audit checklist from the performance report form for the last academic year, under the coordination of coordinating committee.	May (within the academic year)
Phrase 4 Feedback and report to parent organization	The committee for evaluating organizational effectiveness prepares a summary report of organizational effectiveness evaluation results and recommendations for improvement, to inform all staffs in the organization and report to the parent organization.	June (the start of a new academic year)

Step 3 Assessment on the quality of organizational effectiveness evaluation system

Assessment on the quality of organizational effectiveness evaluation system is based on the 4 aspects of evaluation standards in (Stufflebeam, 1981, cited in Sirichai Kanjanawasee, 2009) including utility, feasibility, propriety and accuracy. The quality assessment form for rating the organizational effectiveness evaluation for higher education institutions with five-point Likert scale were administered by all those involved in organizational effectiveness evaluation at post-tryout of the system with their additional recommendations.

Result

1. There are 6 components and 21 indicators deemed appropriate for organizational effectiveness for higher education institutions under the Ministry of Tourism and Sports. Component 1 is instructional management with 6 indicators: 1). curriculum development and administration; 2). learner-centered instructional management; 3). development of learning supportive materials; 4). Student-development; 5). Involvement of internal and external individuals in instructional development; and 6). quality of the graduates. Component 2 is research with 3 indicators: 1) research development; 2) research knowledge management; 3) research for instructional development. Component 3 is academic service for society with 1 indicator, i.e. development of academic service for social benefits. Component 4 is preservation of art and culture with 1 indicator, i.e. promotion and support for preservation of art and culture. Component 5 is organizational administration and development with 8 indicators: 1) development of organization strategic plan; 2) organizational development toward learning organization; 3) development of faculty members and supporting staff; 4) role performance of organization's administrator 5) Use of information technology for administration; 6) financial and budget administration; 7) organizational risk management; 8) internal system and mechanism development for quality assurance. Component 6 is development toward excellent athletics with 2 indicators: 1) athlete development; and 2) coach development.

2. Organizational effectiveness evaluation system for higher educational institutions under the Ministry of Tourism and Sports involves the following 4 interrelated aspects. 1) Input includes evaluation objectives, contents of organizational effectiveness intended for evaluation, evaluation components, indicators, and criteria, staff involved in evaluation, and duration. 2) Process comprises 3 steps of preparation, evaluation, conclusion and review of evaluation results. 3) Output indicates organizational performance based on the core mission identified. 4) Feedback functions for controlling the process so that the system is operated to achieve the intended goals. Feedback indicates the advantages and disadvantages at work in the system and lead to adjusted input or process to yield expected quality output. The use of evaluation

results suggests that the result of organizational effectiveness evaluation obtained from reported feedback is utilized in the organization at 2 levels. The organization's administrator employs evaluation results in planning for development/improvement of organizational performance. The organization's staff review and utilize the evaluation results to develop/improve their own performance.

3. The organizational effectiveness evaluation system for higher education institutions under the Ministry of Tourism and Sports displays a good level of quality for all of the 4 aspects of evaluation standards. Regarding its utility, information derived from the evaluation satisfies the need of those involved within the organization. It provided credibility and definite recommendations for utilizing evaluation results. Evaluation results were accurately and clearly interpreted and determined. Report of evaluation results is clear and in time for further use. All staffs were granted with opportunities to participate in evaluation. In terms of feasibility for further use, the system provides practical evaluation methods and procedure. The evaluation process, procedure, and results are credible and worthy. The system is practical for conducting organizational effectiveness evaluation. With respect to propriety, the system clearly identified the assumption for evaluation. Evaluation results were honestly and explicitly reported, and with validity and accuracy. Evaluators conducted evaluation with responsibility and ethics. This evaluation system accords with organizational mission. In the aspect of accuracy, the evaluation objectives and procedure were clearly identified. The system is in place for data collection, analysis, and report of result. Report of evaluation result was written clearly and apprehensible.

Conclusion

The organizational effectiveness evaluation system for higher education institutions under the Ministry of Tourism and Sports adopted the system concept, consisting of input, process, output, and feedback. Evaluating organizational effectiveness follows the goal-attainment approach which includes the components and indicators of organizational effectiveness encompassing the core mission of institutions. These 6 components and 21 indicators are 1) instructional management with 6 indicators, 2) research with 3 indicators, 3) academic service for society with 1 indicator, 4) preservation of art and culture with 1 indicator, 5) organizational administration and development with 8 indicators, and 6) development toward excellent athletics with 2 indicators. The process and performance in each indicator based on the concept of logic model reflects the causal relationship between input and process involved in organizational effectiveness and output. Evaluating organizational effectiveness was conducted by staff in the organization as self-evaluation. Evaluation system demonstrates its quality based on the 4 aspects of evaluation standards including utility, feasibility, propriety, and accuracy.

Discussion

1. There are 6 components and 21 indicators of organizational effectiveness for higher education institutions under the Ministry of Tourism and Sports that are aligned with those components and indicators in the higher education effectiveness evaluation model and quality concept model offered by Cameron (1978, 1986), Coltt (1995), Kwan and Walker (2003), and Pitsanu Fongsri (1999, 2009); the concept of Steers (1977); the Malcolm Baldrige National Quality Award : MBNQA); the quality components of the external quality assurance for higher education round 2 (2006-2010); the quality components and indicators, and criteria for internal quality assurance for higher education institutions in Thailand, academic year 2010; and the indicators for External Quality Assurance Round 3 (2011-2015), all are indicators encompassing implementation activities to achieve the goals of major missions of higher educational institutions under the Ministry of Tourism and Sports.

Component 1: Instructional management reflects the achievement level of implementing the goals of instructional management on physical education, health education, sport, recreation, sport science, health science, and other related fields. It is the main task of the organization to undertake the organizational goals as quality instructional management effects the quality of the graduates.

Component 2: Research suggests the level of success in implementing the goals to develop research results and innovations as well as to develop instruction and research capacity of organizational staff. The current development of instruction, community, and organization requires the body of knowledge obtained from the research process.

Component 3: Academic service for society demonstrates the achievement level of the goals to provide academic service to the society and community, and to create the learning society in locality. The higher education institutions under the Ministry of Tourism and Sports were established to serve as the community education institutions all over the country in order to constantly provide various academic services to the society.

Component 4: Preservation of art and culture suggests the level of achievement for the goals to preserve Thai art and culture, folk plays and sports.

Component 5: Organizational administration and development involves the achievement level of implementing the goals in administration to maximize the work and staff effectiveness. It is also the key component that promotes and supports other components in their implementation to achieve the defined goals.

Component 6: Development toward excellent athletics provides the achievement level of the goal to develop the athletes toward their excellence at both the national and international levels. Other than those other major tasks, the higher education institutions under the Ministry of tourism and Sports take on additional main task to promote and develop for excellent athletics. Accordingly, the goal was set

for implementation and development toward excellent athletics so that both the athletes and coaches are equipped with knowledge, capacity and skills at the national and international levels.

2. The organizational effectiveness evaluation system for higher educational institutions under the Ministry of Tourism and Sports consists of 4 interrelated components, 1) input, 2) process, 3) output, and 4) feedback and use of evaluation result, adopting the system concept conforming to Pikul Eekwarangkul (2007). Evaluation by the logic model was added as it demonstrates the result of each component and indicator in terms of causality. Particular organizational staff were assigned with clearly defined responsibilities and roles to evaluate the organizational effectiveness. Evaluation manual and tools were also developed, allowing the organization to examine the result of each task whether and to what extent it achieved the goal in each circle of academic year, including its strength and what and how to be improved. The results can be utilized by the organization to plan for those unattained results if there were any defects and what factors or processes needed to be improved and corrected. Moreover, the organizational effectiveness evaluation should be carried out based on the PDCA, with the implementation report of each indicator be supported by the clear evidence of trace of implementation. The judgment of results involves both the component and indicator levels of each implementation section, including factors, processes, outputs and outcomes. Since the organizational effectiveness evaluation using this developed process is based on staff self-assessment, and for the use of this system to fulfill the objectives and obtain accurate and applicable results, the evaluation capacity development should be extendedly introduced to every organization staff.

3. The organizational effectiveness evaluation system displays its quality on the 4 aspects of evaluation standard. It is suitable, practical, and beneficial to both the organization and its staff. The process is not complicated and offers accurate results, allowing for the discussion in each of the evaluation standard. Executives, faculties, and supporting staff displayed overall high level of satisfaction on this organizational effectiveness evaluation system since the system is applicable to the organization, with clearly defined manual to enable every staff to evaluate organizational performance. However, the researcher did not perform test of validity of this system due to the fact that in the system try-out, the users were assigned separate jobs to evaluate the intended components and indicators but one of them was failed to evaluate every component and indicator and hence make it not possible to test of validity from the coefficient of internal consistency and accordingly unable to present the quality of this system in term of its validity. It is noted that a system trial procedure should be developed by allocating at least 2 evaluators for every component and indicator in order to obtain the Rater Agreement Index (RAI) for identifying the validity of the developed evaluation system.

Recommendations

1. Policy and process should be present to promote and support the use of evaluation process in supervision, monitoring, and investigating the implementation of organizational mission on a systemic and continuous basis.

2. Organizations should have their administrators, faculty members, and supporting staff trained in conducting organizational effectiveness evaluation system prior to actual use.

3. Administrators should grant, promote, and create opportunities for all faculty members and supporting staff to involve in organization's implementation, as well as in evaluation and decision-making to adequately and comprehensively utilize evaluation results. Staff at all levels are subject to evaluation capacity building constantly and extensively.

4. There should be research to develop an evaluation capacity building model for administrators, faculty members, and supporting staff in higher education institutions.

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The Effectiveness of Online Self Assessment Report in Faculty of Management Sciences Songkhla Rajabhat University Using MGT e-SAR System

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Abstract

The aims of this study were to define a suitable online Self-Assessment Report (SAR) for Faculty of Management Sciences at Songkhla Rajabhat University, to develop an online database and collaboration system for the report, and to evaluate the effectiveness of the system. The system was developed under the Office of Higher Education Commission's criteria using a system development life cycle with seven phases, namely, defining problems, analysing the problems, designing an online database system, developing an system called MGT e-SAR, testing the system, system deployment, and evaluating its effectiveness. It was found that any users using the mentioned system could edit and check their input and output via the Internet. After the system had been used in Faculty of Management Sciences, it could increase SAR scores of the faculty and subject programs. It could make the persons who were responsible for SAR in the faculty report and check SAR results easily. Additionally, it was user-friendly and reliable and could support an online collaboration to edit SAR results anytime and anywhere. Finally, it was suggested that the system be implemented in other faculties and departments at the university and that it could also be used to support activities at Office of Higher Education Commission (HEC) and the Office for National Education Standards and Quality Assessment (ONESQA).

Keywords:

Self-Assessment Report (SAR), MGT e-SAR system, online self-assessment

Introduction

Quality Assurance in Higher Education in Thailand was first introduced by the Ministry of University Affairs (MUA) in 1996. The MUA announced this policy to encourage all public and private universities to establish quality assurance systems of education in 1999 (addition edited in 2002). The introduction of the National Education

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Act in 1999 has given a new connotation to the terms "Internal Quality Assurance (IQA)" which refers to standard of the Office of the Higher Education Commission (OHEC) and "External Quality Assurance (EQA)" which refers to standard of the Office for National Education Standards and Quality Assessment (ONESQA) (Public Organization). For IQA, it is the responsibility of each academic institution and its governing organization to oversee that such internal mechanisms are put in place and remain a part of the continuing improvement management system. As for EQA, the Office of the National Education Standards and Quality Assessment is responsible for the external assessment of institutions at all levels especially outcome of education quality (Kanjanapanyakom, 2005). To provide the quality audit of both OHEC and ONESQA standards, all institutions need to report through the Self-Assessment Report or "SAR" and prepare the result and its evidences of operation for IQA and EQA.

Faculty of Management Sciences, Songkhla Rajabhat University, has realized the importance of quality assurance system, especially on self-assessment report and document support of operations. The Faculty consists of eight academic programs. Each academic program needs to be audited the quality assurance same as the faculty and university indicators. The external quality assurance also needs to be reviewed and audited every five years, so the faculty and academic programs need to be kept operational and supported document in each quality indicator of last EQA period. The main problems occurred on paper or manual SAR report system as follows:

1) Huge number of documents and papers are wasted so one document may be copied to eight copies.

2) Faculty administrators did not know the current quality data until SAR was reported.

3) SAR auditors were unable to check online report and unable to trace supporting documents.

From the above cases, the quality assessment management system and supporting documents traceability is important to support IQA and EQA. In this study, the researchers aimed to solve the problems toward SAR and enhance the effectiveness of quality assurance management. Therefore, the researchers designed and developed the prototype of online SAR and SAR management processes. The objectives of this research are:

1. To define the suitability of online SAR in the faculty and academic programs.
2. To develop database and online collaboration system for SAR management.
3. To evaluate the effectiveness of online SAR in Faculty of Management Sciences and design the appropriate business process management to support with MGT E-SAR.

This article presents an overview of the research on the effectiveness of online SAR called MGT E-SAR, including SAR overview, problem statement, literature review, research methodology, research findings, discussion and conclusion.

Literature Review

Over the last decade there have been worldwide movements in education towards quality assurance especially in higher education. The underlying concept of the quality assurance framework proposed by the MUA was based on three basic cornerstones of quality, namely; Quality Control, Quality Audit, and Quality Assessment (Kanjanapanyakom, 2005). Quality Assurance in Higher Education framework based on background and nature of development of Thai universities, taking into consideration university autonomy and academic freedom, serves as a broad outline for each institution to adapt and modify to fit their traditions. The framework consists of 9 aspects of quality factors (ONESQA, 2001): 1) Philosophies, Commitment and Objectives 2) Teaching and Learning 3) Student Development Activities 4) Research 5) Academic Services 6) Preservation of Art and Culture 7) Administration and Management 8) Finance and Budgeting 9) Internal Quality Assurance System and Mechanisms. All the nine quality factors are helpful for quality management if they support the online self-assessment or database system. According to Jiao et al. (2007) an Online Quality Information System (OQIS) that had been developed for quality control in an e-manufacturing environment found that an OQIS database had centralized quality data storage, provided data integrity, long term cost savings, real time data accessibility and collaboration with other manufacturing databases.

Methodology

To achieve the research objectives, we firstly analyzed the problem and designed requirement of current SAR management system and report. Then, we developed the system prototype from faculty administrator and SAR officers' requirements to support online checking, document traceability, quality monitoring and online collaboration. Information System Development Methodology (ISDM) was used to develop system prototype, we finally designed business process management in faculty and academic programs to support MGT E-SAR. In our system development, we used personal computer, notebook computer and scanner as hardware. The researchers also used MySQL for database management system (DBMS) which were able to support online transaction through web browser. Moreover, we evaluated the effectiveness of system from faculty's administrators, officers and SAR's auditors. Figure 1 shows the research framework on Effectiveness of online SAR in the Faculty of Management Sciences.

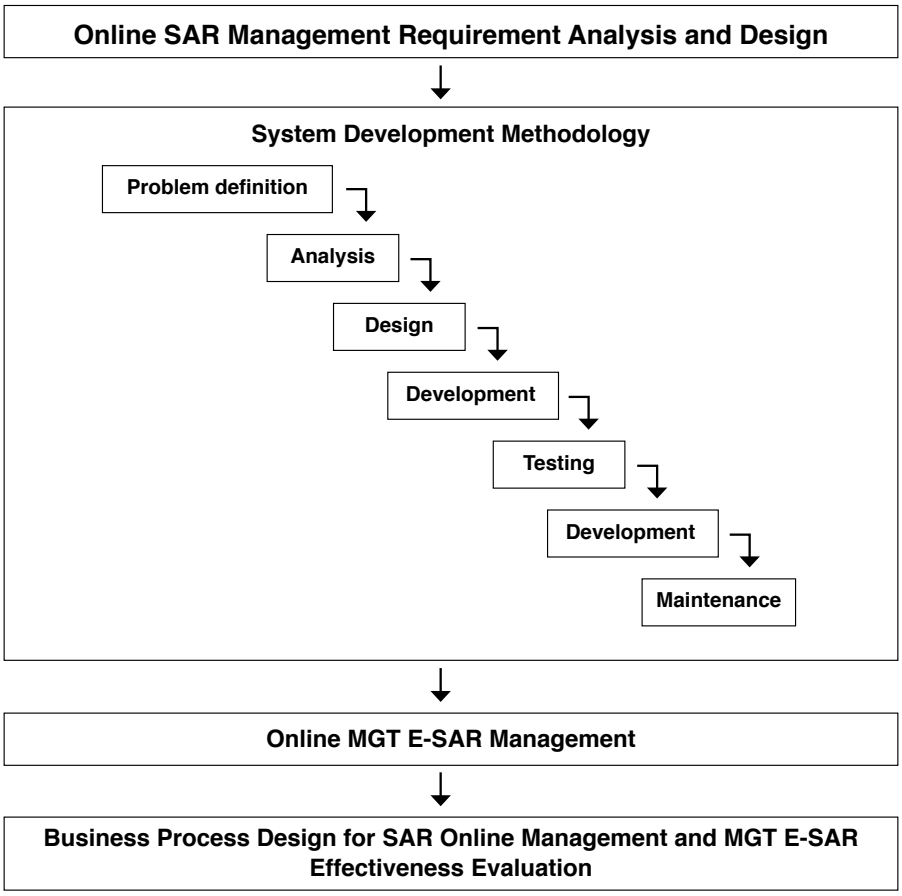

Figure 1 *Research Framework on Effectiveness of Online Self-Assessment Report in the Faculty of Management Sciences using MGT E-SAR System.*

The Information System Development Methodology for implementing MGT E-SAR was done in seven phases based on Information System Development Methodology (ISDM) (Hoffer et.al, 2005) as follows:

(1) Problem definition: defining the current system of SAR report and SAR management. The current report was based on paper documents which encountered with many problems.

(2) Analysis of problems solution: defining the solution of encountering problems from the first phase. We found the solution for the problem that the new system needs database to share and store operational document. Consequently, this made SAR administrator unable to add and edit SAR report online. The result of SAR in each indicator enabled the users to monitor quality result as real time whenever faculty officers entered the activity report. SAR auditors were also able to check SAR report and document tractability online via Internet.

(3) Design the system: designing database of the system including process design, logical database design, physical database design, user interface design, design form and report to support university format. As Figure 2, Context diagram shows the MGT E-SAR users and its related functions of each user.

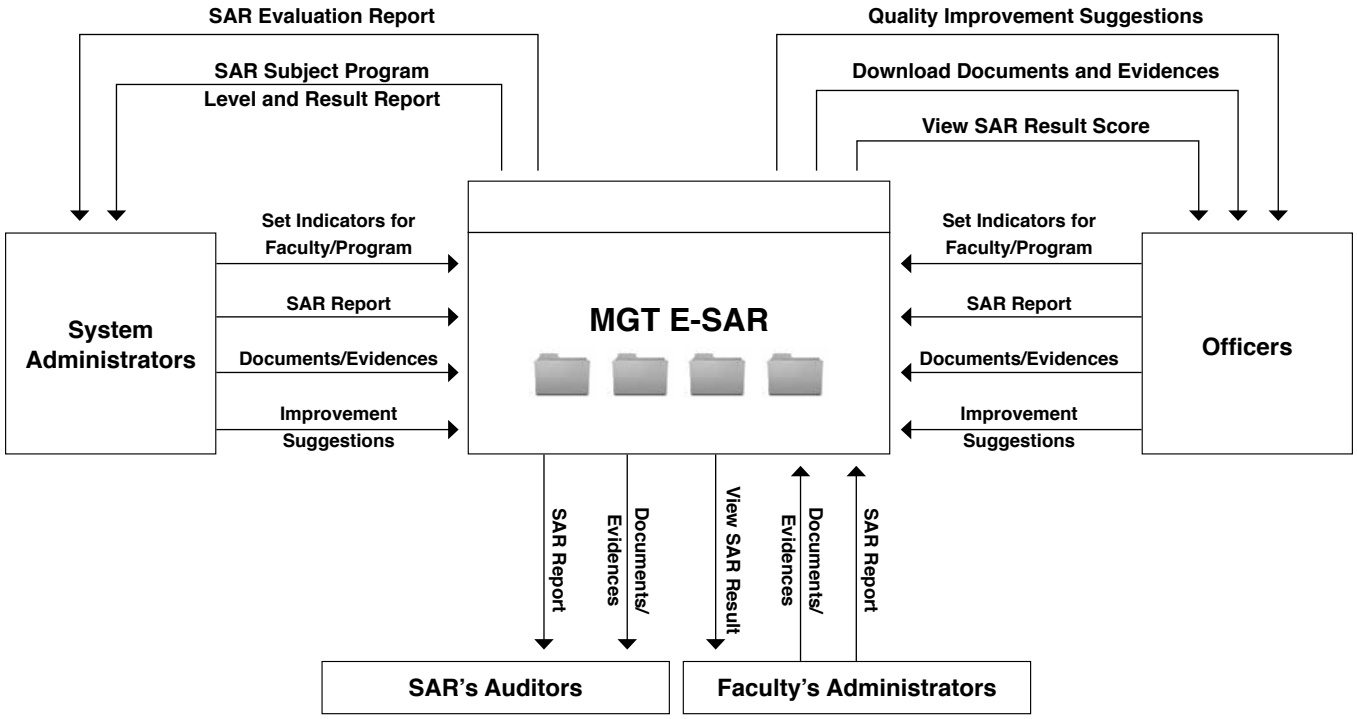

Figure 2 *Context Diagram of MGT E-SAR*

(4) Development: developing system to support online transaction via Internet using MySQL and PHP language as tools for system development.

(5) Testing: testing the system on functionality, reliability, efficiency, and usability of the system.

(6) Deployment: installing and deploying the MGT E-SAR system used in the faculty and all academic programs.

(7) Maintenance: encouraging the system maintenance, edit and add more additional requirements.

Results

The results of research on effectiveness of online SAR in the Faculty of Management Sciences using MGT E-SAR system are as follows:

1. The suitability of online SAR report needed to support administrators and officers who are responsible for indicators. The system can monitor the data and quality performance right away. The SAR staff and officers are able to manage the SAR report and added supporting documents online. The Faculty's Dean and program leaders also could view the SAR report and see the current status. At the SAR auditor site, the system allows SAR auditors to view the result of SAR with report and its related documents online by just clicking it. As Figure 3, shows MGT E-SAR supports with various tools such as notebook, desktop computer, tablet and smart phone. The system allows users to monitors SAR results, online discussion, online collaboration, document and file sharing.

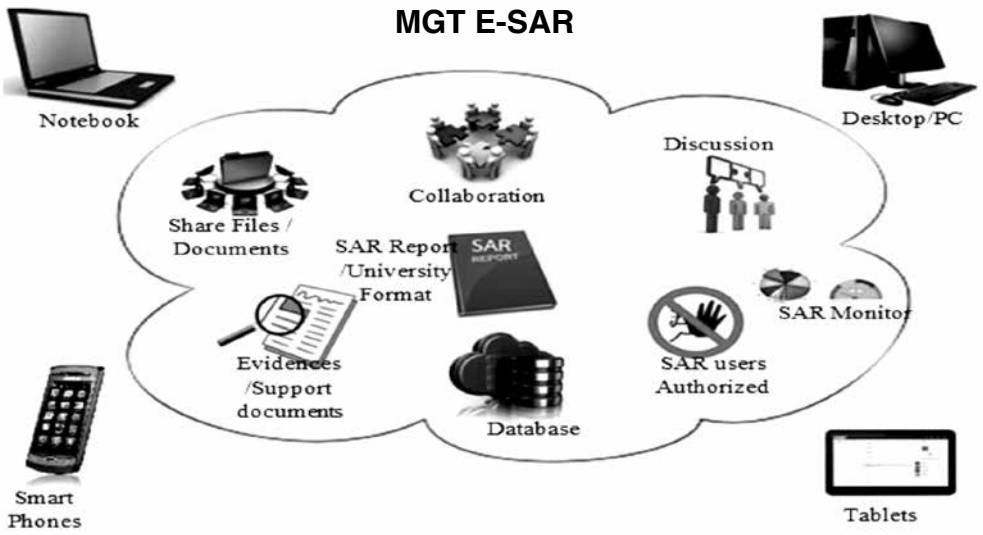

Figure 3 *Functions of MGT E-SAR*

2. For the effectiveness of MGT E-SAR system, the instrument used for finding the system effectiveness is called system effectiveness evaluation form, which is divided into four parts as follows:

- Functional Requirement Test – to evaluate if the system capabilities serve the needs
- Functional Test – to evaluate if the working system is accurate
- Usability Test – to evaluate if the usage methods
- Performance – to evaluate if the system is effective

We submitted the evaluation forms of 60 different examples to lecturers, staff, and auditors. There were 52 respondents including 10 faculty and program administrators, 23 lecturers, 9 officers, 4 program secretaries and 6 SAR auditors. The scores of survey are interpreted as follows:

- 4.01 – 5.00 indicates the respondents' very good level of opinion
- 3.01 – 4.00 indicates the respondents' good level of opinion
- 2.01 – 3.00 indicates the respondents' moderate level of opinion
- 1.01 – 2.00 indicates the respondents' fair level of opinion
- 0.01 – 1.00 indicates the respondents' poor level of opinion

The result of system evaluation is shown in table 1, result of surveyed for MGT E-SAR system.

Statements	Evaluation Level	
	Mean	Quality
1. Functionality		
1.1 Collecting operational quality assurance information/documents/evidences	3.80	Good
1.2 Searching for operational quality insurance information/documents/evidences	3.78	Good
1.3 Using all menus of MGT e-SAR effectively	3.83	Good
1.4 The system supported educational quality assurance operation of program and faculty	3.93	Good
2. Reliability		
2.1 Referring operational evidences conformed to standardized indicator in each element	3.80	Good
2.2 Evaluating the accurate operation	3.85	Good
2.3 Accurate operational report based on standards	3.89	Good
2.4 Reliable security and access	3.96	Good
2.5 Continuity of usage	3.85	Good
3. Efficiency		
3.1 Program and information downloading speed	3.89	Good
3.2 Speed of searching information/operational evidences based on standard indicators	3.83	Good
3.3 Speed of bringing evidences/documents to the system	3.72	Good
3.4 Speed of operational result check	3.85	Good
4. Usability		
4.1 Easy steps and usage	3.87	Good
4.2 Appropriate screen and menu design	3.87	Good
4.3 System application in educational quality assurance in both faculty and program subject support with IQA and EQA	3.85	Good
Total average score	**3.85**	**Good**

Table 1: *Satisfied Level for MGT E-SAR System Usage Evaluation Results*

The conclusion of satisfaction towards Quality Assurance Information Technology in the Faculty of Management and Sciences, Songkhla Rajaphat University, is presented in four dimensions including functionality, reliability, efficiency, and usability. The results showed the mean of each dimension as 3.84 (functionality), 3.87 (reliability), 3.82 (efficiency), 3.86 (usability), and total average score as 3.84.

As mentioned, MGT E-SAR system helps the faculty and academic program administrators to monitor and share documents, it also assists to reduce gap of score result between academic programs. As shown in Table 2, the result of Internal Quality Assurance report academic year 2010-2012 faculty level and academic program level, showed that the score of IQA totally increased and the score's gap between programs decreased in academic year 2011 and 2012.

Subject Program/ Academic Year	Faculty Level	Economics	Tourism Industry	Business Computer	Management	Marketing	Accounting	HRM	Communi-cation Art
2010	4.49	4.11	3.04	3.21	3.25	3.29	3.23	3.19	3.45
2011	4.54	4.10	3.65	4.00	3.33	3.84	3.48	3.42	4.01
2012	4.49	4.50	4.26	4.08	4.05	3.96	3.92	3.92	3.91

Table 2 *Result of Internal Quality Assurance Report Academic Year 2010-2012 in Faculty Level and Academic Program Level*

Discussion and Conclusion

The suitability of online Self-Assessment Report system for faculty and academic programs is that, the system enables the user to insert, update, delete, and edit an SAR report via Internet. The online system enables faculty administrators and SAR officers to collaborate on working, online monitoring, online discussion and online document sharing. The system also enables auditor to check and trace supporting documents online. The MGT E-SAR system enables users to support internal and external quality assurance very well, especially for reporting and tracing the document of operations. It assists the administrators to monitor and support management decisions. The system has been used in the Faculty of Management Sciences, Songkhla Rajabhat University for an academic year. The effectiveness of the system was tested on functionality, reliability, efficiency, and usability. It resulted that the average score was 3.85 which is a "good" level. The system makes users to access easily via Internet. Online database assists to save number of documents. However, to use MGT E-SAR system, the faculty administrators need to design process to support the system and others related processes involved such as electronic mails,

electronics document system, and electronic file report. We suggest that this system be used in every academic programs and faculty to support internal and external assurance audits, SAR online collaboration and monitor the quality improvement.

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TQM Application in KMUTT: The Beginning

delivered by
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Abstract

Global changes in economic, social, and technology development and the coming ASEAN Economic Community in 2015 have brought graduate quality to meet higher expectations of both domestic and international interests. In addition, King Mongkut's University of Technology Thonburi (KMUTT) as Thailand's first autonomous public university in 1998 has increased its capacity and has been capable of improving its educational system, service, and research to meet those expectations and societal requirements. Such fast change and demand have caused undesirable misalignment among personnel resulting in ineffective and inefficient work. With regard to organizational context and culture, KMUTT's TQM Model was therefore developed for the purpose of quality assurance by adapting Total Quality Management (TQM) philosophy with Education Criteria for Performance Excellence (EdPEx) framework into its management system. The Model has been implemented excessively with the compulsory OHEC and ONESQA criteria (according to Thailand's Education Act 1999). Currently, the Model is carried out under the university's existing operations with the objectives of enabling the personnel to understand the university's holistic conception, aligning their works with all units, and promoting close cooperation among operations, support, and administrative units.

The key factor of implementing the Model is gaining personal knowledge of the customer, management, role and responsibility, tasks, and problem solving. Approved by the university's executives, the training program named Train the Trainers was then initiated and provided to representatives of academic members and support staff from all faculties and offices. With their context, the representatives will apply their knowledge and later teach their colleagues in their own units. Prior to training, deans and directors from all units come to comprehend and request supports of their representatives. Training activities included lectures, case studies, group discussion, and a teaching demonstration. After being evaluated and assessed by written and oral examinations, the representatives have changed their quality paradigm from a system of documentation to the essence of quality. To date, 20 out of 23 representatives have demonstrated their potential. Hereafter to become qualified trainers, potential representatives must be certified by KMUTT's experts.

Keywords:

Quality assurance, Total Quality Management (TQM), Education Criteria for Performance Excellence (EdPEx)

Introduction:

Global warming and global changes in economic, social, and technology development and the coming ASEAN Economic Community in 2015 will affect the mobility of professionals and skilled labor in Thailand. Together with the Framework of the Second 15-Year Long Range Plan on Higher Education of Thailand (2008-2022), the direction of Thailand's higher education is to produce and develop graduates of quality, capable of lifelong work and adjustment. [1] Established in 1960 as a technical institute to educate and train technologists, Thonburi Technical Institute (TTI) with 33 staff members offered four higher diploma programs to 304 students. [2] In 1971, TTI was combined with other two technical institutes under Thailand's Department of Vocational Education to form one degree-granting institution under the name of King Mongkut's Institute of Technology (KMIT). TTI became KMIT Thonburi Campus. Later in 1986, three campuses of KMIT gained their autonomous university status. [3] KMIT Thonburi Campus became King Mongkut's Institute of Technology Thonburi (KMITT). Comparable to international government-owned university, KMITT was, then, the Thailand's first university to be transformed to a fully autonomous public university in 1998 and named King Mongkut's University of Technology Thonburi (KMUTT). [4] The university has long been a science and technology intensive institution that focuses on teaching and conducting research in science, engineering, and technology and providing quality academic services to industries and societies. In 2012, the university employed 2145 people in four educational service areas in Bangkok and Ratchaburi Province. The university offered 47-degree programs and 147 fields of study to 18176 students of eleven faculties, schools, and institute. [5]

To move forward, a few new academic service and supporting units had been set up, and many reorganized. Some university's routine functions became more customized to carry out some specific tasks. Consequently, management became difficult and more complicated. Undesirable misalignment among operation units resulted in ineffective and inefficient work. Unlike in manufacturing, management in education is more complex due to humanistic nature, reluctance to change, high level of professionalism [6], and bureaucratic background. To maintain customer confidence (Quality Assurance as KMUTT's ultimate goal) through its transformations, the university must continue delivering values of its offerings while adjusting university-wide alignment. Like many world-class universities [6-7], KMUTT learned to apply Total Quality Management (TQM) Principles on a university-wide basis. The Principles are to engage personnel in all faculties, schools, institutes, and offices at all levels; to focus on systematic management of data in all practices to pursue

continuous improvement; and to take full advantage of diversities provided by each individual to operate as one. In Thailand, the Principles of TQM have been implemented successfully in some degrees to both private companies and autonomous government agency. However, applying TQM in Thailand's university has never been reported. For such global changes, KMUTT believes TQM is crucial to its growth regarding customer satisfaction and employee engagement through modern management.

With regard to organizational context and culture, KMUTT's TQM Model (Figure 1) was developed for the purpose of quality assurance by adapting TQM philosophy with Education Criteria for Performance Excellence (EdPEx) framework. The Model would be implemented additionally to the compulsory criteria from the Office of the Higher Education Commission (OHEC) and the Office for National Education Standards and Quality Assessment (ONESQA), according to Thailand's Education Act 1999. Currently, the Model has been conducting under the university's existing operations with the objectives of enabling the staff members to understand their roles and responsibilities, align their works with the organizational direction, and promote close cooperation among operation, supporting, and administrative units.

This preliminary study was then aimed at the beginning of implementing KMUTT's TQM Model by training and educating quality concepts to the university's staff members. Commitments from their top and middle management levels and university-wide understanding of quality were taken into consideration, as key success factors.

Methodology:

The key factors of implementing the KMUTT's TQM Model were leadership and university-wide understanding of quality. Leadership aspect was focused on commitment and communication at different management levels. Several meetings had been set between top and middle management levels by the university's quality assurance team. Knowledge of TQM essences for business sustainability was provided to top and middle management levels and their commitments to TQM were made. University-wide understanding of quality approach had focused on initiating the lifelong learning process by integrating workforce's understanding of roles and responsibilities with quality concepts. Therefore, comprehensive courses focusing on quality concepts and gap analysis would be provided to all university staff members. However, there were many people with various functions. A means of "Train the Trainer" program was chosen to provide training in quality concepts, and in turn the colleagues can learn from the qualified trainers. Approved by the university's executives, the training program was then called Train the Trainer and offered to those involving the university's core processes and supporting the processes. Each dean selected two or three representatives as trainees to the program.

The “Train the Trainer” program consisted of lectures, case studies, and practice teaching. Those who passed both written and oral examinations would be qualified as trainers.Results and Discussion:

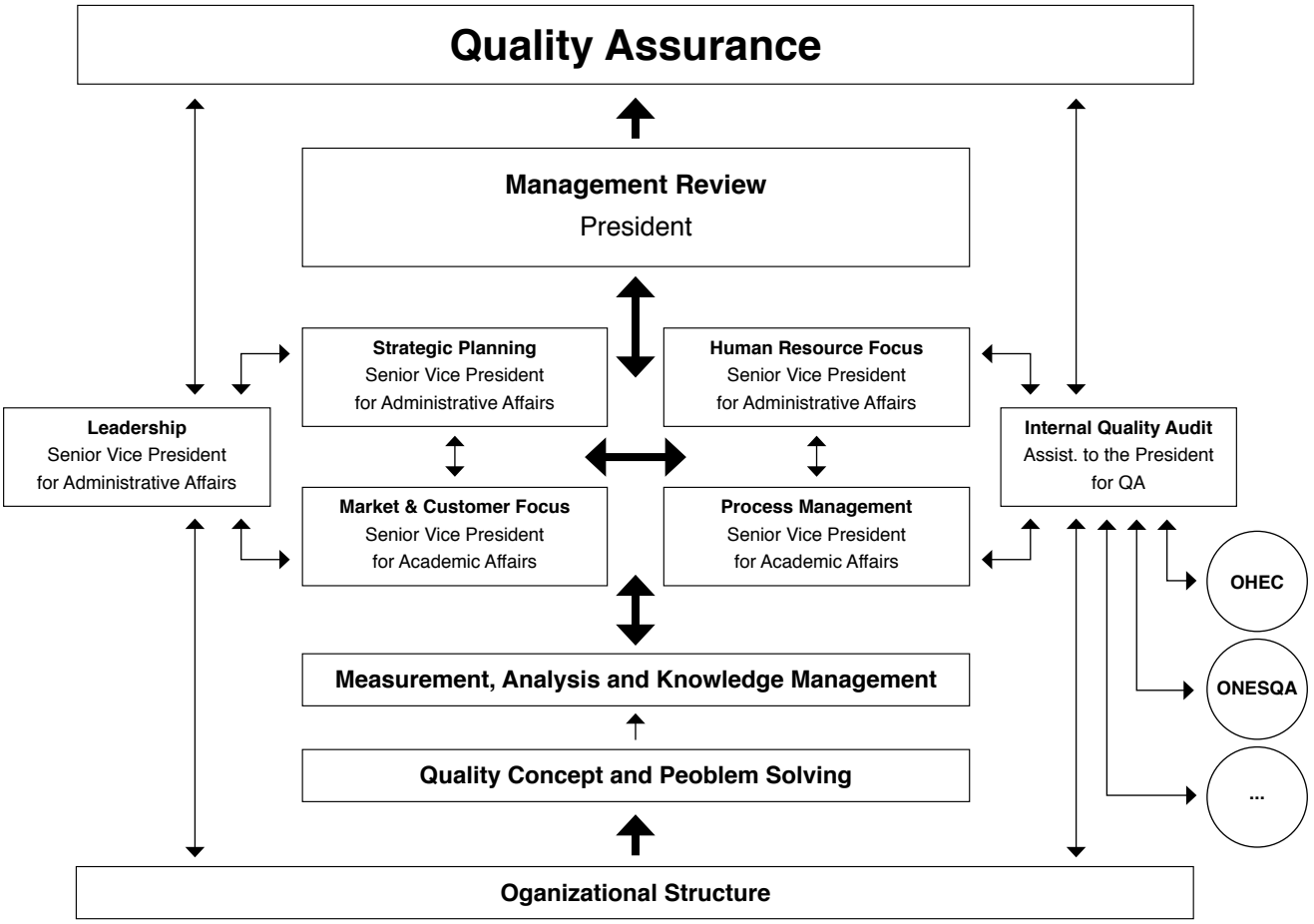

Figure 1: *KMUTT’s TQM Model adapting Total Quality Management philosophy with Education Criteria for Performance Excellence framework.*

The training program was offered to those involving the university's core process and supporting the processes. Records of their attendance and performance are shown in Table 1.

From a university viewpoint, commitments of management would help trainees succeed and subsequently benefit their units once the qualified trainers returned, set up training courses, and shared their lessons to colleagues. However, the leading indicator of management commitment was not directly related to the success of trainees. Deans' personal interests in modern management and their challenging situations including what the faculties were facing might influence their levels of commitment. In addition, some trainees might consider that becoming future trainers would put burden of time on their routine work and might not in return contribute much to their existing career path. Their distress was gradually lessened by an increased understanding and awareness of quality through in-house education about quality concepts at KMUTT. KMUTT's quality assurance team had also pointed out their roles as key drivers to communicate KMUTT's quality at all levels in their units, as trainers would consequently support implementation of the EdPEx framework as embedded in the KMUTT's TQM Model.

Determined throughout the learning process, all trainees had changed their attitudes about quality from burden documentation to the essence of quality. Out of twenty-three trainees, twenty remained active throughout the training course. Prior to training, quality-related complaints and issues were understood to be the solely responsibility of the Office of Quality Assurance. The trainees reconsidered and gained a better perception of quality as everyone's responsibility. During training, trainees often led their discussion based on their work, assessed what they had performed, and referred their activities to quality concepts. With knowledge and teaching skill, the twenty trainees had demonstrated their potential to become future trainers. Hereafter to become qualified trainers, potential trainees must be certified by KMUTT's quality expert.

As all trainees came from different backgrounds and disciplines, the training process was prolonged. In the meantime, the process was evaluated and adjusted accordingly to trainees' understanding and perception. Moreover, culture of learning and discussion in term of quality awareness has arisen at KMUTT.

Conclusion:

Due to undesirable misalignment, KMUTT decided to implement TQM via KMUTT's TQM model to its existing operations. The "Train the Trainer" program was applied to change quality perspective of the university staff members from supporting documentation to the essence of quality. The leading indicator of management commitments was not directly related to the success of the trainees. However, there was a good sign of a paradigm shift in all trainees.

Acknowledgement:

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Table 1: *Records of attending and performance of trainees.*

Dean/ Trainee	Trainee Category	Level of Commitment†	Attentive Lecture††	Case Study††	Exam. Result†††	Practice Teaching††	Potential Trainers
Executives		High					
Dean A		Medium					
T1	Academic	High	2/2	2/2	Q3	3/3	Y
T2	Supporting	High	2/2	2/2	Q1	3/3	Y
T3	Academic	High	1/2	2/2	Q4	2/3	Y
Dean B		High					
T4	Academic	High	2/2	2/2	Q4	2/3	Y
T5	Academic	Medium	1/2	2/2	Q3	1/3	Y
Dean C		High					
T6	Academic	Low	2/2	1/2	Q1	0/3	N
T7	Academic	Low	0/2	2/2	Q1	0/3	N
Dean D		Low					
T8	Academic	Medium	2/2	2/2	Q4	3/3	Y
T9	Academic	Low	2/2	2/2	Q1	0/3	N
Dean E		Medium					
T10	Academic	Medium	1/2	0/2	Q1	1/3	Y
T11	Supporting	High	2/2	2/2	Q2	3/3	Y
Dean F		High					
T12	Academic	High	0/2	2/2	Q2	1/3	Y
T13	Academic	High	2/2	2/2	Q3	1/3	Y
Dean G		Low					
T14	Academic	High	2/2	2/2	Q2	1/3	Y
T15	Supporting	High	2/2	2/2	Q1	2/3	Y
Dean H		Low					
T16	Academic	Medium	2/2	(1)	Q3	1/3	Y
T17	Supporting	Medium	1/2	(1)	Q1	0/3	Y
Dean I		Low					
T18	Academic	Medium	1/2	2/2	Q4	1/3	Y
T19	Academic	Low	1/2	1/2	Q1	0/3	Y
Dean J		High					
T20	Academic	Medium	2/2	2/2	Q4	2/3	Y
T21	Supporting	Low	2/2	2/2	Q1	3/3	Y
Dean K		Low					
T22	Academic	Low	0/2	1/2	Q3	0/3	Y
T23	Supporting	High	2/2	1/2	Q2	1/3	Y

†Considered a number of activities: attendance, frequent follow-up communication, for examples; ††Ratio of attendance; †††Results in quartile – Q1 means lower quartile; (1) Permitted for absence.

Competency-based Teaching and Learning as a Key to the Asean Economic Community Success

delivered by
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Abstract

Competency-based teaching and learning is very important for any educational organization at any level. Therefore, these modules can be keys to the ASEAN Economic Community's Success.

This paper presents a discussion of teaching and learning strategies that promote competency-based learning and teaching in education for a single economic entity by 2015. It begins with an overview of various teaching and learning theories and how they might be used to facilitate both the acquisition and demonstration of competencies needed by learners. It includes an overview of competency-based education and the specific attributes of teachers and learners needed to make this type of education successful. A brief discussion of teaching methods and learning activities that contribute to competency development is also presented. Examples of some of learning activities (domain of learning) such as psychomotor domain, affective domain, and cognitive domain are described. Finally, the last part of this paper provides some key qualifications and responsibilities of teachers and learners in a competency-based program.

Keywords

Competency-Based Teaching, Competency-Based Learning, ASEAN Economic Community (AEC), domain of learning

1. Introduction

Competency-based teaching and learning for the ASEAN Economic Community or a single economic entity should be an institutional process that moves education from focusing on what academics believe graduates need to know (teacher-focused) to what students need to know and be able to do in varying and complex situations (student or workplace focused). Competencies within different contexts may require different bundles of skills, knowledge and attitudes. The challenge is to determine which competencies can be bundled together to provide the optimal grouping for performing

tasks. Another challenge is designing learning experiences that support students as they practice using and applying these competencies in different contexts. Continual refinement of defined competencies is necessary so that enhanced performance in a variety of contexts can be assessed. Competency-based education has become a hot topic in higher education circles these days. It is becoming increasingly popular as the ASEAN nations searches for ways to improve college affordability and more accurately measure student learning. There are almost as many institutions claiming to have competency-based education as there are definitions, so it seems worthwhile to define what competency-based learning is and how it can benefit higher education.

What is competency-based education and what makes it different? The most important characteristic of competency-based education is that it measures learning rather than time. The student's progress by demonstrating their competence, which means they prove that they have mastered the knowledge and skills (called competencies) required for a particular course, regardless of how long it takes. While more traditional models can and often do measure competency, they are time-based -- courses last about four months, and students may advance only after they have put in the seat time. This is true even if they could have completed the coursework and passed the final exam in half the time. So, while most colleges and universities hold time requirements constant and let learning vary, competency-based learning allows us to hold learning constant and let time vary.

This paper presents a discussion of teaching and learning strategies that promote competency-based learning and teaching in education for a single economic entity by 2015. It begins with an overview of various teaching and learning theories and how they might be used to facilitate both the acquisition and demonstration of competencies needed by learners. It includes an overview of competency-based education and the specific attributes of teachers and learners needed to make this type of education successful. A brief discussion of teaching methods and learning activities that contribute to competency development is also presented. Examples of some of learning activities (domain of learning) such as psychomotor domain, affective domain, and cognitive domain are described. It also provides some of the key qualifications and responsibilities of teachers and learners in a competency-based programme. Finally, the last part of this paper discusses the implementation of competency-based teaching and learning in Education for the ASEAN Economic Community.

2. Overview of Competency-Based Education

Competency-Based Education (CBE) is an institutional process that moves education from focusing on what academics believe graduates need to know (teacher-focused) to what students need to know and be able to do in varying and complex situations (student and/or workplace focused). CBE is focused on outcomes (competencies) that are linked to workforce needs, as defined by employers and the

profession. CBE's outcomes are increasingly complex in nature, rather than deriving from the addition of multiple low-level objectives. CBE often necessitates more complex assessment, involving portfolios, experiential learning assessment in field experience, demonstration in varying contexts, role play, use of standardized patients or clients, etc. Competencies within different contexts may require different bundles of skills, knowledge and attitudes. The challenge is to determine which competencies can be bundled together to provide the optimal grouping for performing tasks. Another challenge is designing learning experiences that support students as they practice using and applying these competencies in different contexts. Continual refinement of defined competencies is necessary so that enhanced performance in a variety of contexts can be assessed. In essence, CBE is a process, not a product. CBE is more than an effort to describe or list educational and behavioral objectives. The early emphasis on behavioral learning objectives was on reliable observation and judgment. To this end, writers of behavioral objectives were encouraged to state outcomes in operational terms, which can be observed using consistent observational processes allowing for no interpretation (Bloom, 1974). In an attempt to achieve this reliability, a behavioral verb from a list of behavioral verbs (for example: state, list, name, recognize, describe, calculate, describe, explain, synthesize, analyze) was required to begin the objective. It is this narrowness that led to the criticism of these approaches then and now; attainment of the multiple behavioral objectives did not equal students' workforce functionality.

Competency-Based Education with its teaching and learning approaches has received a good deal of attention and support within the health professions in recent years (Albanese et al., 2008). However, as with any newly emerging concept, there is no common definition being used but there are some common elements. The most important of these elements is that the learner must be engaged and active in all aspects of acquiring the knowledge, skills and professional behaviors needed to demonstrate practice in a specific discipline. In other words, competency-based education uses teaching and learning strategies that facilitate the development and demonstration of competency (Fullerton et al., 2011). Other common elements include the need for a clear, evidence-based definition of the learning outcomes to be demonstrated for performance of the professional role (i.e., the specific competencies). This clarity is vital to both teachers and students as it defines the expected outcomes of learning without any 'hidden' agendas. Writing learning outcomes takes lots of practice but is well worth the effort to learners and teachers.

Competency-based education requires competency-based teaching. Defining attributes of competency-based teaching are included in the following text box and come from a variety of sources (Knowle et al., 2005). These teacher characteristics and expectations contribute to learner success. They also demonstrate the shared responsibility of teachers and learners to reach the goal of a competent, fully qualified midwife.

Attributes of Competency-based Teaching

- Understand how adults learn
- Match principles of learning and teaching
- Facilitate, rather than control learning
- Model humility, critical thinking, respect, competency & caring at all times
- Support acquisition of knowledge, skills & professional behaviors in all learning domains (cognitive, psychomotor, and affective)
- Promote & expect learner accountability for learning
- Provide timely, specific feedback on learner progress beginning with learner self-assessment
- Individualize learning experiences according to needs
- Expect increasing complexity of performance as the learner progresses throughout the programme

3. Effective Teaching Strategies in Facilitating Competency Development for the ASEAN Economic Community

For the ASEAN Economic Community, teaching strategies need to be matched to the domain of learning, as with any type of curriculum. Some of the effective teaching strategies within a competency-based curriculum, based on the attributes of competency-based teaching, must include the following.

Psychomotor domain: Demonstrate the expected way to perform a given skill. Allow the learner to practice for a while, and then ask for a return demonstration of that skill. Set up models or create a simulation exercise in the practical laboratory where learners can have repeated practice of skills with peers and/or teacher supervision. Arrange for sufficient practical experiences requiring skill performance under direct supervision. Create a valid and reliable assessment tool for use in determining competency in skill demonstration.

Affective domain: Create values clarification exercises for personal values. Structure opportunities for role play requiring recognition of differing values and beliefs, with time for discussion of how these differences may affect one's ability. Create a valid and reliable assessment tool for use in determining integrity, respect for all, maintaining confidentiality.

Cognitive domain: Develop case studies from actual practice requiring discovery or problem-based learning to determine the most appropriate, evidenced based approach. Support learner-led seminars, structure debates to address complex practical situations. Always require that the learner provide their reasons (rationale) for their responses to knowledge questions plans.

Other strategies include self-study modules with suggested learning activities that the learners can complete on their own prior to interaction with fellow learners and teachers. It is important that teachers provide ample time for discussion/dialogue and clarification of concepts to be learned. They also need to encourage/help the learner use their own knowledge and ideas to find possible solutions to clinical situations.

One of the most effective teacher strategies for guiding the learner to discover how to proceed or act is called Socratic questioning (Merriam and Caffarella, 1991). Each of these teaching strategies are aimed at helping the learner develop new ways of thinking about what they are learning, encouraging them in their discovery of new knowledge and skills using critical thinking, and supporting their efforts to integrate this new learning into their practice. The teacher becomes a coach or facilitator of learning, rather than an all-knowing sage telling the learner what to learn, how to learn it, and what to do with the new learning.

4. The Key Qualifications and Responsibilities of Teachers and Learners in a Competency-Based Programme

For teachers, the core responsibilities of teachers include:

- Teaching and practicing in accord with professional ethics and standards
- Understanding ones' own values and beliefs related to teaching and learning
- Providing a safe, supportive environment for learning based on mutual trust and respect and maintaining confidentiality of student concerns and records
- Using a variety of teaching methods that promote critical thinking and active participation of the students in their learning and self-assessment of progress in learning
- Directly supervising students in practical settings in order to continue their teaching and assessment responsibilities.
- Being open to conflicting ideas and opinions
- Assisting learner to connect current information to broader concepts
- Collaborating with other professionals and members of the health care team
- Regularly engage in academic activities related to professional development
- Conduct various activities, taking into account the outcomes on their students
- Commit to developing their students to reach their full potential
- Develop teaching plans for practical implementation
- Regularly develop effective instructional media and materials
- Organize instructional activities that focus on generating positive and long lasting outcomes from their students
- Systematically report the results of students' quality development
- Act as good role models for their students
- Constructively cooperate with others in the community
- Seek out and use information for their own development
- Create opportunities for students to learn from all kinds of situations

For learners, there are several learning activities common to professional education that is competency-based. Examples of some of these activities follow by domain of learning.

Psychomotor domain:

- Review written description of a particular skill (text, handouts)
- Take time for repeated practice of skills in the safety of a practical laboratory setting
- Seek out practical experiences that allow one to increase confidence as well as competence in the skills required for practice.

Affective domain:

- Review text for content on definition of values
- Participate in selected values clarification exercises for personal values provided by teachers (self-study or group work)
- Write up an analysis of a code of ethics (local or international) and share with peers and teachers

Cognitive domain:

- Helping learners become active participants in and take responsibility for their own learning, encouraging the development of critical thinking by supporting learners' efforts to retrieve and retain knowledge and apply it in practice
- Teamwork is an essential component of this type of learning as many learning activities are structured for groups of learners working together to discover the best solution to a given need or problem in both theoretical and practical work.

5. Implementation of Competency-Based Teaching and Learning in Education for the ASEAN Economic Community

Based on implementation of competency-based teaching and learning in education, the education ministry of each country should work out the following measures:

- Use teaching standards at the department level under the supervision of the Ministry of Education
- Instituted the teachers service scheme which mandated regulations for teacher progression in terms of promotion to a higher position and salary increments
- Give certificates of appreciation and award medals to performing teachers in recognition of exemplary performance
- Develop and implement an attractive career plan for teachers
- Give training programs as incentives to performing teachers.

5.1 An establishment of a unified standardization of teaching profession

The unified standardization of teaching profession should provide the following major components:

- Higher standards of teaching/learning for all teachers/students
- Deeper learning, which shifts the focus of teaching away from a presentation-recitation mode of instruction towards teaching for conceptual understanding, problem solving, and shared intelligence

- Centralized curricula
- Literacy and numeracy as prime targets of reform and which also determine the success or failure of pupils, teachers, schools, and entire education systems
- Consequential accountability where the school performance and especially raising the quality of education, are closely tied to the processes of accreditation, promotion, inspection and ultimately funding and rewards (or punishments).

5.2 If there is an establishment of a unified standardization, what actions will need to be taken to ensure full compliance with the standards?
- There must be some extent of involvement from the teachers themselves in the development of the standards.
- Centralized curricula
- The use of standardized tests for teaching profession should be provided.

5.3 Measurement of the ASEAN Economic community success
- The first measure is to increase the capabilities of ASEAN students, especially their English or skills in the languages of neighboring countries.
- The second measure concerns education-standard improvement and efforts to set one same standard to facilitate student mobility and credit transfer across the region and also teacher mobility.
- The third measure is to adjust education regulations to support the liberalisation of educational services.

6. Conclusion

Implemented effectively, competency-based education in ASEAN nations can improve quality and consistency, reduce costs, shorten the time required to graduate, and provide us with true measures of student learning. We must:

- Measure student learning rather than time.
- Harness the power of technology for teaching and learning. Computer-mediated instruction gives us the ability to individualize learning for each student. Because each student learns at a different pace and comes to college knowing different things, this is a fundamental requirement of competency-based education.
- Fundamentally change the faculty role. When faculty serve as lecturers, holding scheduled classes for a prescribed number of weeks, the instruction takes place at the lecturers' pace. For most students, this will be the wrong pace. Some will need to go more slowly; others will be able to move much faster. Competency-based learning shifts the role of the faculty from that of "a sage on the stage" to a "guide on the side." Faculty members work with students, guide learning,

answer questions, lead discussions, and help students synthesize and apply knowledge.

- Define competencies and develop valid, reliable assessments. The fundamental premise of competency-based education is that we define what students should know and be able to do, and they graduate when they have demonstrated their competency. This means that we have to define the competencies very clearly. Getting industry input is essential to make sure that we've identified relevant competencies. Once the competencies are established, we need experts in assessment to ensure that we're measuring the right things.

This paper presents a discussion of teaching and learning strategies that promote competency-based learning and teaching in education for a single economic entity by 2015. Effective teaching strategies in facilitating competency development for the ASEAN economic community are described. The core qualifications and responsibilities of teachers and learners are proposed. Finally, this paper discusses the implementation of competency-based teaching and learning in Education for the ASEAN economic community.

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Accreditation, Quality Assessment and the Ranking for the Top Universities in Thailand

delivered by
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Abstract

Nowadays, the ranking of global universities has become so popular all over the world that it starts influencing national policy in education. While quality assurance can play a very important role in pointing out the strengths and weaknesses of any institution, rankings indeed give us some idea about the performance of the universities around the world.

The purpose of this paper is to point out that the current higher education evaluation, accreditation, and quality assessment in Thailand have helped universities in the country achieve quality assurance and move up in rankings. The proposed framework of accreditation, quality assessment and the ranking for top universities in Thailand is introduced. Three characteristics of high-ranking universities, namely, concentration of talent, abundant resources and favorable governance are presented and discussed in detail to show that they are important for such purposes. Besides, many key factors supporting the quest for becoming a high-ranking university are also presented and discussed. To understand and visualize the mentioned concepts, a graphic framework will accompany the presentation.

Keywords:

Accreditation, Quality Assessment, quality control

1. Introduction

1.1. Quality in Higher Education

Extensive debate has occurred over many years about the nature of quality in higher education and the different ways in which it can be conceptualized. For example, Harvey (2006) distinguishes five conceptions of quality as:

- Something exceptional or excellent in the sense of exceeding high outcome standards;
- Perfection, consistency or absence of defects as measured against process standards;

- 'Fitness for purpose', typically as stated by an institution or a program within it;
- 'Value for money' or return on investment; and
- 'Transformation' or qualitative change from one state to another as applied to the development of students through the learning process or the creation of new knowledge.

Of these, 'fitness for purpose' and 'excellence and standards' has been most influential around the world in the development of higher education quality assurance. Fitness for purpose approaches explicitly acknowledge diverse institutional missions and the differences in what they achieve. Standards-based approaches emphasize what institutions should have in common, especially in terms of the nature and level of learning outcomes that students are expected to demonstrate in their university studies (James, McInnis & Devlin 2002).

Though various models for a new approach to quality assurance and accreditation have been reviewed; the main aim of the paper was to develop a Modern Model as an alternative to the other models in Thailand.

1.2 Quality Assurance and Accreditation

"Quality assurance" in higher education is defined as systematic management and assessment procedures adopted by a higher education institution or system to monitor performance and to ensure achievement of quality outputs or improved quality. Quality assurance aims to give stakeholders confidence about the management of quality and the outcomes achieved.

"Accreditation" refers to a process of assessment and review which enables a higher education course or institution to be recognized or certified as meeting appropriate standards. In Australia, the term accreditation has developed three specialist meanings: a process of review or assessment conducted by a government agency to enable a Minister or approved authority to recognize and approve a higher education institution or course; a process of review carried out by a government registration body to enable graduates of particular courses to practice in the particular State or Territory; and a process of assessment and recognition carried out professional associations. In this paper, we are primarily concerned with the first usage.

1.3 Thai Experience with Quality Assurance and Accreditation

Global movement in educational reform has brought Quality Assurance into focus especially in higher educational institutions. The introduction of Quality Assurance in Higher Education in Thailand began in 1996 when MUA announced the policy and guidelines for Quality Assurance in Higher Education. The announcement of National Education Act in 1999 had further promoted the quality movement among

Thai institutions. According to the Act, quality assurance in educational system comprises of internal and external systems. Internal Quality Assurance (IQA) is the responsibility of the institution and its governing agency to establish a system and ensure the continuing operation of such system. External Quality Assurance (EQA) is the responsibility of a newly established public organization, Office of the National Education Standards and Quality Assessment (ONESQA). This paper presents the skeleton outlines of both frameworks. Stages of development of IQA in Thai higher educational institutions can be defined into four phases as; introductory phase, total implementation phase, internal integration phase and learning and sharing phase. The paper also presents some of the experiences and learning gained from the process and challenges facing Thai institutions and finally recommendations for continuing sustainability of quality assurance system in higher education.

2. Conceptual Framework and Processes

2.1. Framework.

The proposed framework of accreditation, quality assessment and the ranking for the top universities in Thailand is introduced. The three characteristics of high-ranking University are as follows: (1) Concentration of talent-a high concentration or critical mass of talent, including faculty, staff and students; (2) Abundant resources-sufficient resources to provide an extensive, comprehensive learning environment and a rich environment for advanced research; (3) Favorable governance-favorable governance allowing and encouraging autonomy, strategic vision, innovation, efficient resource management and flexibility. The following issues such as research excellence, commitment to high-quality education, sustainable funding, and outstanding people are very important to improve the quality of higher education and support the characteristics of high-ranking University. In addition, the key accelerating factors supporting the quest for becoming a high-ranking university are as follows: (1) focusing more on niche areas, (2) increasing the numbers of international scholars, (3) bringing overseas scholars back to their country of origin, (4) introducing curriculum and pedagogical innovations, and (5) using benchmarking to orient an institution's upgrading efforts.

In general, a quality university should fulfil the following three major outcomes in excellence: (1) research, development and dissemination of knowledge, (2) education of its students, and (3) activities contributing to its community and society. To maintain and raise quality of high-ranking universities, university quality assurance must be considered. The following approaches are often used in university quality assurance: quality assessment, quality audit, accreditation, and quality control. Quality assessment is generally conducted in the following four steps -define what quality is, set assessment standards, compare the latter with the real outcome and decide to what extent the

standards are met. Quality audit investigates whether the process of activity is efficient. Accreditation is often delegated by the government or external party to specially formed assessment agencies as it is common in accreditation of institutions and programs. Quality control is a system that checks whether the produced product or offered service meets the set standards. These approaches are important to keep checking against the outcomes. The proposed framework of accreditation, quality assessment and the ranking for the top universities in Thailand is shown in Figure 1.

2.2. Internal Quality Assurance

The baseline for Thailand's quality assurance framework lies in the establishment of standard criteria and requirement set forth by the Ministry of University Affairs for all levels of degree programs offered in the country. All degree programs offered in public and private higher education institutions, including transnational ones, will have to meet these standard criteria before approval and commencement. Over the years, the MUA had transferred such approval authority to public universities. Academic boards and governing councils have the responsibilities for the quality of educational provision including control of academic standards. Some universities may invite external experts for reviewing aspects of internal activity and curriculum development. The accreditation system is concerned mainly with professional courses such as medicine, accounting, nursing, engineering and architecture. As for private higher education institutions, programs approval and accreditation are very much under the supervision of the MUA (now the Commission on Higher Education under the Ministry of Education) as a quality control and consumer protection systems. Over the last decade there have been worldwide movements in education towards quality assurance especially in higher education. The underlying concept of the quality assurance framework proposed by the MUA was based on three basic cornerstones of quality, namely:

- Quality Control
- Quality Audit, and
- Quality Assessment

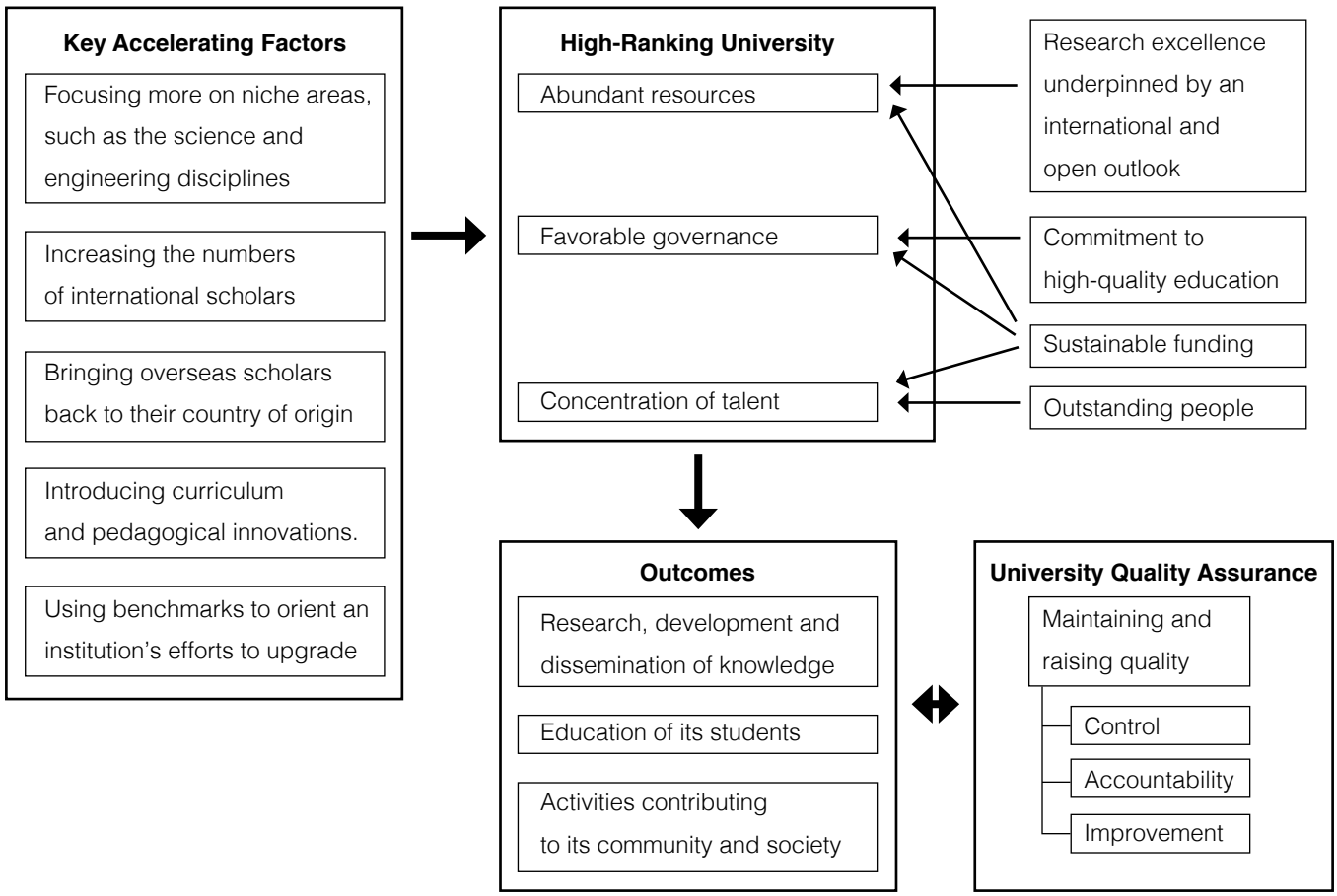

Figure 1: *The proposed framework of accreditation, quality assessment and ranking universities in Thailand*

The framework based on background and nature of development of Thai universities, taking into consideration university autonomy and academic freedom, serves as a broad outline for each institution to adapt and modify to fit their traditions. The framework consists of 9 aspects of quality factors:

1. Philosophies, Commitment and Objectives
2. Teaching and Learning
3. Student Development Activities
4. Research
5. Academic Services
6. Preservation of Art and Culture
7. Administration and Management
8. Finance and Budgeting
9. Internal Quality Assurance System and Mechanisms

Although the framework specifies some key items considered to be essential factors in the quality management system, there is no specific directive instruction as how to

establish such a system within the context of each institution. The idea is for each and every institution to develop their own system which is most suitable to institutional environment and uniqueness. Implementation process, audit procedures and review cycles are also depending upon the policy makers in each institution. This was not easy a task for any academic institution since the quality audit process and self-reflection concept were both new to Thai culture.

2.3. External Quality Assurance

The Office of the National Education Standards and Quality Assessment (ONESQA) was established in 2000 as a public independent body responsible for external assessment of all educational institutions. At the higher education level, ONESQA requires each institute to present results against 28 indicators and to review the institutional performance in 8 categories as follows:

1. Quality of Graduates (4 indicators)
2. Learning Process (4 indicators)
3. Learning Support Resources (5 indicators)
4. Research and Innovation (4 indicators)
5. Academic Services (2 indicators)
6. Preservation of Art and Culture (2 indicators)
7. Administration and Management (5 indicators)
8. Internal Quality Assurance System (2 indicators)

Majority of the indicators are statistical with only 5 descriptive indicators. Because there are such differences between institutions, the use of these statistical indicators to assess the performance of each institution requires first benchmarks that represent the diversity and factors that contribute to differences between them. Not only are there no such benchmarks established, information pertaining to these indicators is not usually reported through the normal channels in the institutional operations. ONESQA then decided that the first review cycle is to encourage all institutions to present their actual performance and statistical data together with their institutional review report that reflect their IQA system. The review cycle is set to be 5 years with focus on institutional assessment. Some of the guiding principles set forth by ONESQA on external assessment are:

1. Ensure that higher education is developed to the standards of international levels.
2. Uphold the quality of academic standards in higher education institutes
3. Operate under the objectives, principles and directions set forth in the National Education Act.
4. Review and confirm existing system of the institute, assessing quality of each and every main function while keeping in mind their academic freedom, uniqueness, values, principles, missions and goals.

5. Assure and support the implementation of internal quality assurance system within the institution.
6. Employ amicable assessment procedures without lessening the integrity of transparency and accountability.

The assessment process looks into three dimensions of development within the institutions, namely:

- Awareness,
- Attempt, and
- Achievement

Each institute is to submit data and a self-review report to the ONESQA before being subject to external assessment visit. Additional document and reports on internal quality assurance system might be requested to supplement overall understanding of the nature of institution prior to on-site visit. A team of external reviewers consisted of experts and academicians in the related areas and disciplines then make the visit on campuses according to a predetermined schedule. After the visit an evaluation report together with findings and recommendations will be sent back to the institution. The first round of the exercise will be completed by August 2005. Before then we expect to see some feedback reports from all stakeholders on the assessment process and criteria being employed.

3. Implementation and Development

Quality Assurance system was established as per the National Education Act, Section 47. The quality system is based on an input-process-output concept. The PDCA cycle in Figure 3 for every quality aspect aims for continuous and sustainable quality improvement.

Despite the somewhat successful introduction of Quality Assurance in higher education system in Thailand, this does not diminish the problems and challenges facing most institutions. These threats and challenges both from internal and external forces can be summarized broadly as follows:

1. While Thai public institutions are moving towards autonomy, there is an atmosphere of fear and uncertainty among staffs and academic members especially in terms of budgeting, sources of funding and continuing academic freedom.

2. Most institutions adopted the model recommended by MUA as their internal quality assurance framework. The framework focuses mainly at the academic faculty while the external assessment of ONESQA is at the institutional level. Many institutions need to find the balance between their internal assessment and monitoring of quality and external requirements regulated by ONESQA.

3. There is a need to communicate clearly how the quality assurance mechanisms have resulted in the improvement and changes in the quality of programs, courses and other related activities and eventually the quality output and outcome.

4. There is an international trend towards transnational education. Issues like cross-border delivery of programs and courses, mobility of higher education students and staff, online degrees and offshore degrees from overseas institutions will be inevitable. Thai institutions will have to be more internationalized not just merely the curriculum and programs.

5. Global competition and business expansion demands new breed of workers and leaders. Some knowledge and skill which were once considered to be among the exceptional few will become more common and a basic requirement among all university graduates, such as computer literacy and foreign language proficiency.

6. The rapid changes of technology and information are apparent through the usage of ICT in teaching and learning. Technology-mediated learning is a challenge to Thai academics who still believe in the conventional method of direct in-class contact. Thai academics have yet to strike a balance between the existing form and the 'new form' of delivery mechanisms to produce the best learning output.

7. Finally, Thai institutions will have to face the challenges of cost effectiveness versus quality and efficiency.

Although learning and sharing occurs in every phase, it is worth mentioning learning and sharing as a separate phase. Every learning and sharing phase that occurs brings the organization and the people into the next level of implementation, integration and hence new awareness and learning (see Figure 2). Internal quality auditing process have brought staff members in the same institution together to share and learn from each other, seek out and publicize better practices and appreciate the achievement and contribution of one another. Moreover the audit process has taught Thai people to give and take comments in a more constructive manner. Learning and sharing among universities are also increasing through exchanges of auditors, cross-audit processes, and invited experts for curriculum review. Benchmarking and networking are being introduced in some discipline areas to help improve nationwide quality.

Note that there is an overlapping period of each phase due to different stages of development at universities in Thailand. These stages of development are not a one-time cyclical event but rather a helical process. Many universities will see themselves revisiting these stages many times in the future and every time there will be new issues that surface, that new learning and understanding will bring them to the next higher level. Accordingly, a committee of assessors follows a framework for Quality Assurance for Higher Education with 9 Aspects and 23 indicators of Internal Academics as follows:

1. Philosophy, Mission, Objectives and Action Plan (1 indicator)
2. Produce Graduates (8 indicators)
3. The Activities for Developing Students (2 indicators)
4. Research (3 indicators)

5. Academic Services to Society (2 indicators)
6. Preserve Art and Culture (1 Indicator)
7. Administration and Management (4 Indicators)
8. Finances and Budgeting (1 Indicator)
9. Quality Assurance System and Mechanism (1 Indicator)

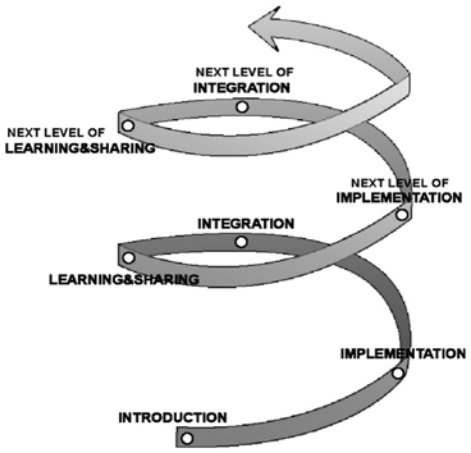

Figure 2: *Stages of Development*

Continuous Quality Improvement (CQI)

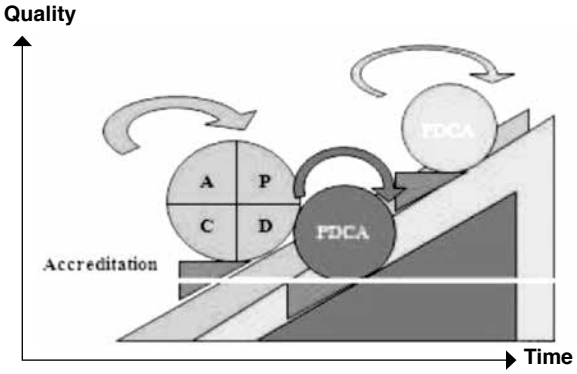

Figure 3: *Continuous Quality Improvement (CQI)*

Moreover, the assessment practices of academics are clearly much broader than the written materials they use for assessing student achievement and progress. The more restricted definition of assessment used in this guide provides a specific pathway into improving assessment practice in general. The Quality Assessment Framework has three dimensions that represent assessment practices that have been linked to improved student outcomes. These three dimensions are: intellectual rigor, significance, and student support (see Figure 4).

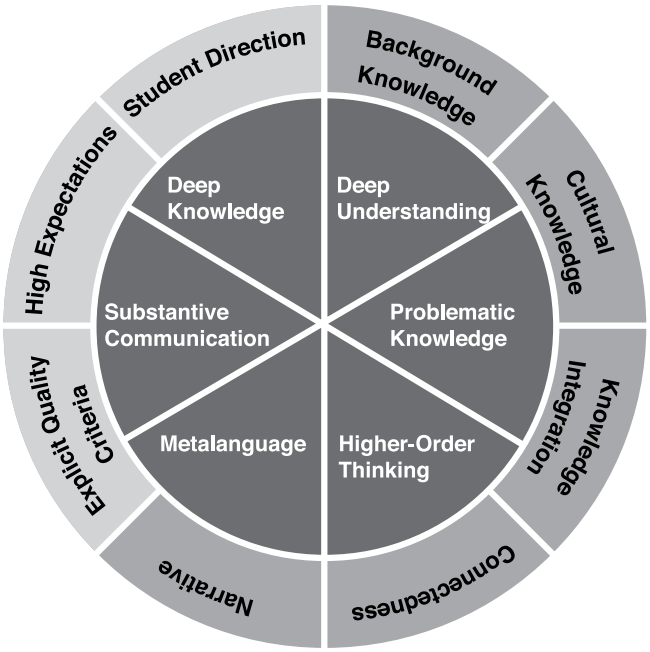

Figure 4: *The Quality Assessment Framework*

4. Future Work

Although there are no direct answers to the challenges above, here are some of the recommendations for continuing sustainability of the quality assurance system in higher education:

1. The Commission on Higher Education - CHE (previously known as MUA) should continue to take the role of a catalyst in stimulating the on-going quality activities and engineer networking among Thai institutions towards quality excellence.

2. Public understanding and stakeholders' involvement in the internal and external quality assurance processes will be vital in providing feedback to the system. Universities need to take into consideration the essence of input and feedback from different groups and integrate them into their improvement plans.

3. Thai institutions should share and learn from each other's experience. More symposia and seminars should be organized at the local and national levels to facilitate informal and formal debate and discussions on lessons learned and initiatives in the related topic in quality assessment, audit and better practices. They should also benefit from the wealth of knowledge and experiences already available within and beyond the region through networking with relevant education institutions and agencies concerned.

4. Each institution should make full use of IQA mechanism to create quality culture and continuous improvement towards quality excellence.

5. University leaders should make efforts to induce the desire for quality an overarching principle in every operation in their institutions to create a quality culture. More importantly is linking the institutional strategies with internal key processes and alignment of resources to improve performance and support organizational direction and distinction.

6. Quality Assurance, like the process itself is dynamic and ever changing. Developments of both Internal and External Quality Assurance should be continuously monitored. Periodic review of development needs to be carried out by those involved in the process.

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Evaluation Ethics

delivered by
Frank Ying

Preface

"The stones of those hills may be used to polish gems." A series of principles about evaluation ethics should be established on the way to professionalism. All the related evaluation personnel can base these principles to make their own judgment while processing the evaluation and proper adjustments that are necessary to go with the change of the social needs to meet diverse education evaluation standards. Furthermore, turning to the guidelines for a different evaluation are followed when drawing up their own professional ethics. Fairness and justice are not the only two ingredients that need to be confirmed by evaluation ethics. Credibility needs to be built up at the same time. Without the unanimity, the utopian situation of evaluation could be difficult to reach.

Standards & Principles

Higher Education's educational accountabilities have become a cross-border trend. Therefore, several countries are working hard to make it better to ensure the progress of education development and evaluation procedures. As several aspects and people might be included while processing the evaluation, the appropriate courses and standardized implementation have become the crucial points when making the patterns or models.

A. Identification
B. Confidentiality
C. Objectivity
D. Justice
E. Conflicts of Interest

Guidelines

A. Preparation of an Evaluation
    a. Rights Confirmation
    b. Contracts Completion
    c. Knowledge & Ability Competence
    d. Evaluator Recruitment Standards
B. Conduction of an Evaluation
    a. Procedure Appropriateness
    b. Information Collection
    c. Result Confidentiality Legitimacy
    d. Secondary Injury Avoidance

C. Conclusion of an Evaluation
   a. Report Completeness
   b. Opinion Declaration Objectivity
   c. Information Announcement Credibility

Postscript

The most important principle to complete education ethics is “professionalism”; therefore, the worst case of violating the education ethnics is the lack of education ethics while implementing evaluation.

THAI Pre-Service Science Tearcher's Pedagogical Content Knowledge: An Exploratory Study

delivered by
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Abstract

Pedagogical Content Knowledge (PCK) development is considered as a goal of teacher education. The purpose of this study was to explore the understanding of Thai pre-service science teachers' PCK in a pre-service science teacher program. The participants of this study were five fifth-year pre-service science teachers (PSTs) from a university located in Bangkok who enrolled in the field experience course in 2013. Two PSTs field experience took place at a school that was run by the Office of Basic Education Commission, while the others took place at a school that was run by Bangkok District Offices. This study was an interpretive qualitative-based research with multiple case studies. In the exploratory phase, a study was conducted to explore pre-service science teachers' pedagogical content knowledge in the first semester. Multiple data sources consisted of classroom observation, semi-structure interview of PSTs' lesson plans and teaching practices with PSTs and their cooperating teachers, university supervisor's reflective journals of PSTs' lesson plans and teaching practices including document review. Inductive analysis with constant comparative method was used in this study. The results revealed that PSTs' PCK may not be sufficient. They have had limited knowledge in all the components of PCK namely: orientations toward teaching science, knowledge of science curriculum, knowledge of students understanding of science, knowledge of instructional strategies and knowledge of assessment in science including content knowledge. Also the study target of PSTs cannot integrate all kinds of PCK components appropriately and effectively in their teaching.

Keywords:

Pedagogical content knowledge, pre-service science teachers, student teaching practices

Introduction:

In the past three decades, many studies have focused on the increased attention to teacher knowledge and how it is developed (Borko and Putnam, 1996). Much of this interest was stimulated by Shulman's (1986) model that introduced the concept of pedagogical content knowledge (PCK) as a distinctive body of knowledge for teaching. PCK is an acknowledgement to the importance of the transformation of subject matter knowledge per se into subject matter knowledge for teaching. His model of teacher knowledge incorporating the formation of PCK has had an important impact on teacher education (Shulman, 1986, 1987). He defined PCK as "the amalgam of content and pedagogy that is uniquely the province of teachers, their own special form of professional understanding" (p. 8).

More recently, Loughran, Berry, and Mulhal (2012) reconceptualize PCK as the knowledge that teachers develop over time, and through experience, about how to teach particular content in particular ways in order to lead to enhanced student understanding. It stands to reason that in order to recognize and value the development of their own PCK, teachers need to have a rich conceptual understanding of the particular subject content that they teach. This rich conceptual understanding, combined with expertise in developing, using and adapting teaching procedures, strategies and approaches for use in particular classes, is purposefully linked to create the amalgam of knowledge of content and pedagogy that Shulman (1986, 1987) described as PCK. Therefore, PCK is the unique combination of content and pedagogical knowledge that helps teachers transform science content into learning experiences for students. This special knowledge ultimately differentiates the expertise of science teachers from that of scientists (National Research Council, 1996; Shulman, 1986, 1987).

The purpose of this study was to explore the understanding of Thai fifth-year pre-service science teachers' PCK during teaching practices in the first semester, 2013.

Theoretical Framework

Shulman (1987) proposed seven domains of teacher knowledge emphasizing that teaching is a complex process requiring teachers to apply knowledge from multiple domains. The domains are content knowledge, general pedagogical knowledge, curriculum knowledge, pedagogical content knowledge, knowledge of learners and their characteristics, knowledge of educational contexts and knowledge of educational ends, purposes, and values. Of these domains, he highlighted PCK as follows:

> It represents the blending of content and pedagogy into an understanding of how particular topics, problems, or issues are organized, represented, and adapted to the diverse interests and abilities of learners and presented for instruction. (p. 8)

Grossman (1990) builds on Shulman's ideas to highlight the relationship among three knowledge domains that influence a teacher's PCK. These knowledge domains include subject matter knowledge and beliefs, pedagogical knowledge and beliefs, and knowledge and beliefs about the context. According to Grossman, PCK is a type of knowledge that is transformed from these three knowledge domains and is more powerful than its constituent parts. Her study of beginning teachers, reported that PCK is developed from the following sources: observation of classes as a student and teacher, specific courses during teacher education, and classroom teaching experience.

Magnusson, Krajcik and Borko's PCK model (1999) elaborates on Shulman's and Grossman's work and conceptualizes PCK as consisting of five components including orientations toward teaching science, knowledge of science curriculum, knowledge of students' understanding of science, knowledge of instructional strategies and knowledge of assessment in science.

Since then, many researchers have conceptualized on PCK by adding other components. The different components of PCK by different researchers are shown in Table 1.

PCK is the conceptual framework for this study. Specifically, the author draws upon Magnusson et al (1999) as the basis for the decision to focus attention on the components of PCK for teaching science (see Figure 1). Knowing how PSTs integrate those components during field experiences.

Table 1. Different components of PCK

Knowledge of	Researchers' conceptions of PCK components						
	Shulman (1986)	**Grossman (1990)**	**Magnusson *et al.* (1999)**	**Smith (2000)**	**Friedrichsen *et al.* (2007)**	**Henze *et al.* (2007)**	**Park and Olive (2008)**
1. purposes of teaching science			PCK		PCK	PCK	PCK
2. science curriculum			PCK	PCK	PCK	PCK	PCK
3. students	PCK		PCK	PCK	PCK	PCK	PCK
4. instructional strategies	PCK	PCK	PCK	PCK	PCK		PCK
5. subject matter		PCK					
6. context		PCK				PCK	
7. assessment in science			PCK		PCK		PCK

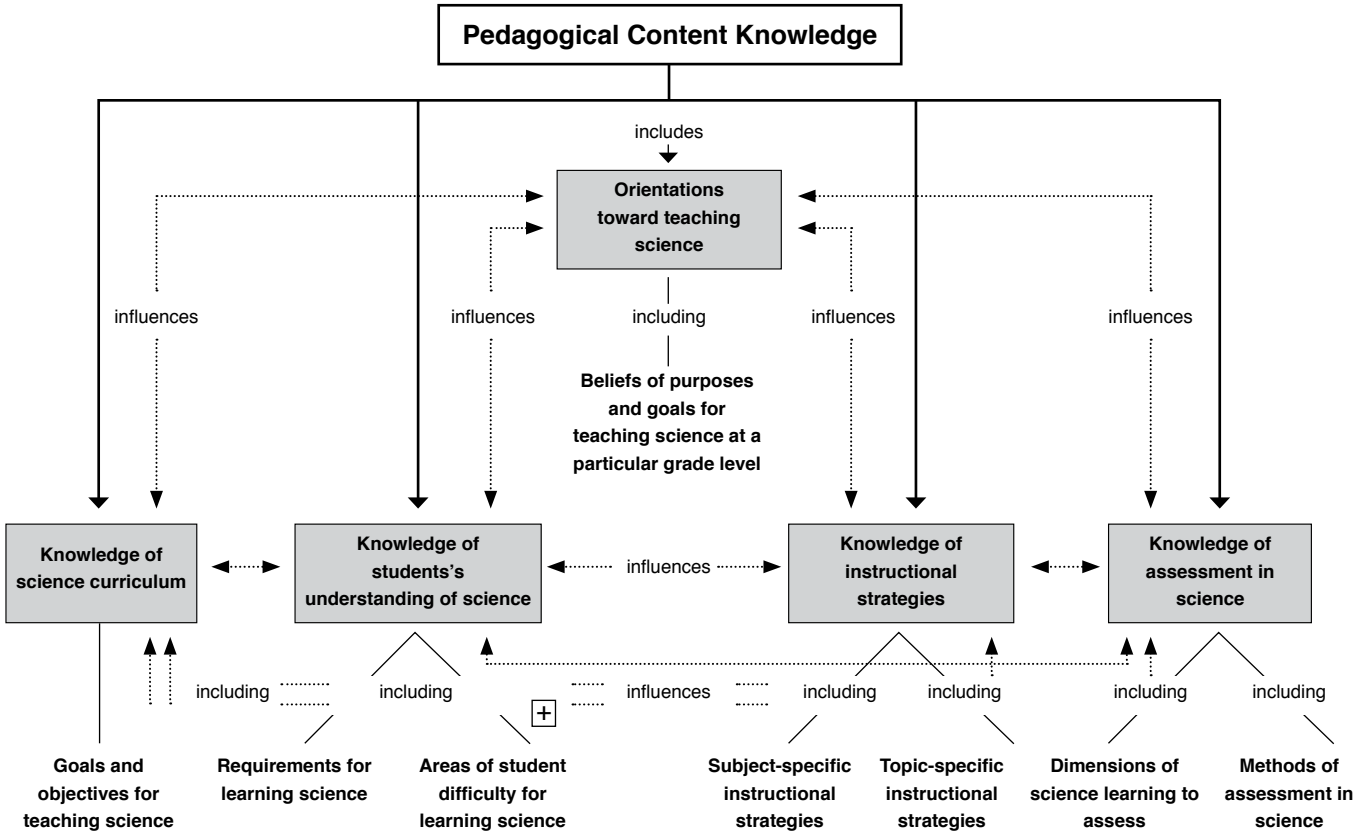

Figure 1: *Components of pedagogical content knowledge for teaching science*
Source: Adapted from Magnusson et al. (1999: 99)

Methodology:

This study was an interpretive qualitative-based research with multiple case studies. The main feature of case study research focused on a particular situation, event, program, or phenomenon (Merriam, 1998).

Participants

The participants in this study included five Thai fifth-year pre-service science teachers (PSTs) in the division of Science Teaching of Faculty of Education from one large university located in Bangkok who enrolled in the field experience course which was conducted in the first semester, 2013, consisting of two PSTs with Chemistry major, two PSTs with Physics major, and one PSTs with Biology major, respectively. Before their one-year of teaching practice during the final fifth year of the program, the PSTs were required to pass all courses taken in education and science subject areas during the previous four years. Pseudonyms were used to represent the PSTs' names. Weera, Mana, and Piti's field experiences took place at a school, run by Bangkok District Offices, while Jantorn and Chujai's field experiences took place at a school, run by the Office of Basic Education Commission.

Likewise, pseudonyms were used to represent their cooperating teachers' names: Mrs. Samorn was cooperating teacher of Weera; Mr. Somsak was cooperating teacher of Mana and Piti; Mrs. Siri was cooperating teacher of Jantorn; and Ms.Somsri was cooperating teacher of Chujai, respectively. Table 2 provided additional general information about the PSTs.

Table 2. General information about the PSTs

Participants	Sex	Major	Current science teaching Assignment	Topics of observed lessons
Weera	Male	Biology	5th Grade	- Animals' sexual reproduction - Vertebrates and non-vertebrates - Density - Resultant force
Mana	Male	Physics	7th Grade	-Plant responses to stimuli - Tyndall Effect - Acid-base properties of solution - The properties of acidic solution
Piti	Male	Physics	8th Grade	- Excretory - Nutrients that provide energy - The properties of elements - The properties of compounds
Jantorn	Male	Chemistry	7th Grade	- State of matter - Solution - Acid-base properties of solution - Acid-base in daily life
Chujai	Female	Chemistry	8th Grade	- Substance separation by chromatography - Structure and components of the Earth - Nutrients that provide energy - Nutrients that provide no energy

Data collection

To explore the understanding of Thai pre-service science teachers' PCK, multiple data sources were used in this study. The author's role as PSTs' university supervisor was a non-participant observer in the classroom. All PSTs' classroom lessons were video recorded. The topics of observed lessons consisted of four topics for each of PSTs. The PSTs were also interviewed individually by one of the author after the lessons. They were asked to show and explain their lesson plans, report and reflect on their teaching practices. All interviews were conducted in a semi-structured way that allowed the PSTs to tell their own expectations and reflections. The author also interviewed their cooperating teachers after the lessons about PSTs' lesson plans and teaching practices. All the interviews were also recorded and transcribed verbatim. In addition, the author wrote reflective journals of PSTs' lesson plans and teaching practices after completing each of classroom observations. The documents as lesson plans, worksheets, assignments, and reflective journals were reviewed as additional data.

Data Analysis

Methodological triangulation was achieved through multiple data sources such as PSTs' lesson plans, interview transcriptions, field notes, and document review. The validation of the interpretation was promoted by applying inductive analysis with constant comparative method, in which categories, properties, and hypothesizes were used to provide conceptual links between and among categories and properties. It was used to analyze data by assessing codes that reflect various categories and properties to unit of data through sorting them into groups of like substance or meaning (Merriam, 1998). This involved the comparison of the analysis of the interview transcriptions with other sources such as lesson plans, field notes and document review. The author coded the lesson plan, interview transcriptions, and document review using the five categories of PCK model (Magnusson et al., 1999): (a) orientations toward teaching science, (b) knowledge of science curriculum, (c) knowledge of students' understanding of science, (d) knowledge of instructional strategies and (e) knowledge of assessment in science. With multiple case studies, data were analyzed for insights both within each case and across the cases (Merriam, 1998). The author then analyzed the five PSTs' data for patterns and themes across the data set.

Credibility

The author achieved methodological triangulation (Guba and Lincoln, 1989) by collecting data from multiple sources: lesson plans, interview transcriptions, field notes, and document review. This process allowed the same data to be viewed from various perspectives, which clarified the meaning of the data in the larger context. In addition, the author conducted member check (Guba and Lincoln, 1989) to establish

credibility, to clarify meaning, and to check the accuracy of the data from the PSTs and their cooperating teachers' interview transcriptions by asking them to read the transcriptions of dialogues in which they had participated. Here the emphasis should be on whether they consider that their words match what they actually intended.

Results and Discussion

The PSTs hold didactic and guided inquiry orientations.

Orientations toward teaching science based upon Magnusson et al. (1999) were divided into nine orientations: process, academic rigor, didactic, conceptual change, activity-driven, discovery, project-based science, inquiry and guided inquiry orientations. According to the PSTs' orientations to teaching science which were considered from the characteristics of the instruction, the results revealed that the different orientation which almost PSTs, except Mana, maintained was didactic orientations that focused on transmitting basic information to their students by telling. Considering the PSTs' lesson plans and the author's field notes of observation, the characteristics of the instructions which were related to didactic orientation included the topics of animals' sexual reproduction (in the case of Weera), excretory and the properties of elements (in the case of Piti) state of matter and acid-base in daily life (in the case of Jantorn), and nutrients that provide no energy (in the case of Chujai), respectively. The teaching sequences of these topics were primarily questioning and answering session, followed by a lecture using power point presentation or asking students to read science textbooks and closing with students' completing the worksheet. According to the interview transcription, the PSTs explained their goals for teaching science as follows:

> "I wanted students to remember science content that I taught them...I used power point presentation in the topic of excretory..." (1st Interview of Piti, June 18, 2013).
>
> "I wanted students to gain the knowledge of nutrients that provide no energy... I thought that reading from the textbook was the best way to cover all of the contents..." (4st Interview of Chujai, September 4, 2013).

The results implied that in these topics, the PSTs focused their teaching on teacher-centered approach. They wanted their students to listen to the lecture and remember the science contents they told. They believed that the students would be more interested in their lectures, and could remember science contents they have taught. The findings are consistent with Friedrichsen, Lankford, Pareja, Volkmann, and Abell (2007), stated that the PSTs hold didactic teaching orientations. They tend to believe that science teaching is teacher-centered approach.

In contrast, the PSTs developed a more student-centered science teaching orientation, the results revealed that the same orientation which all PSTs hold was guided inquiry orientation. Considering the PSTs' lesson plans and the author's field

notes of observation, the characteristics of the instructions which were related to guided inquiry orientation included the topics of vertebrates and non-vertebrates, density, and resultant force (in the case of Weera), plant responses to stimuli, Tyndall effect, acid-base properties of solution, and the properties of acidic solution (in the case of Mana), nutrients that provide energy and the properties of compound (in the case of Piti), solution and acid-base properties of solution (in the case of Jantorn), and substance separation by chromatography, the structure and components of the Earth and nutrients that provide energy (in the case of Chujai), respectively. The teaching sequences of these topics were primarily introducing the lesson with various situations or examples followed by questioning to explore students' prior knowledge, asking students to do hands-on activities or experiments in small groups, concluding the lesson with students and giving related examples and exercises. According to the transcription of the interview, the PSTs explained their goals for teaching science as follows:

> "I wanted students to have fun in science class...I thought that my students should do activities by themselves so that they could understand the concept (plant responses to stimuli) they have learned..." (1st Interview of Mana, June 18, 2013).
>
> "I wanted students to find science interesting...I did not want students to be bored so I tried to achieve this goal by making science relevant to their daily lives..." (1st Interview of Weera, June 18, 2013).

The results implied that in these topics, the PSTs wanted students to understand the physical world, particularly with respect to using the tools of science, to construct scientific concept by their own. The characteristics of the instruction focused on student-centered approach. The findings are consistent with Friedrichsen et al. (2007), stated that the PSTs should be developed to provide orientations toward teaching science which focused on student-centered orientations because they influenced to several kinds of knowledge.

'The PSTs' understanding of science curriculum was limited to the scope and sequence of concepts, and nature of science.'

The PSTs' understanding of science curriculum was limited. They lacked the knowledge of the goals and objectives for students in the science subject that they were teaching. Concerning learning objective in their lesson plans, the PSTs heavily focused on cognitive and affective domains, but some PSTs did not focus on psychomotor domain. Regarding to the PSTs' lesson plans, some PSTs wrote learning objectives which were not relevant to the indicators in the 8th grade: nature of science, and the instructional strategies. For example, when Piti wrote his lesson

plan in the topic of excretory, his major teaching objectives was to help students to be able to explain about excretory through the large intestine, lung, kidney and skin. The others were to help students to be able to infer and make conclusion from the data, and to participate in expressing opinions. However, the evidence from the author's field note showed that he emphasized only students' memorization of excretory. He heavily focused on lecturing to cover all requirements of the content using a power point presentation rather than to enhance students' thinking and deep understanding by doing various activities.

In the case of Jantorn, when he wrote his lesson plan in the topic of acid-base in daily life, his major teaching objectives were to help students to be able to explain the importance of acid-base in daily life, classify the substances in daily life into groups, and intend to the class. However, the evidence from the author's field note showed that he asked his students to read the content of classifying acid-base in daily life in school's textbook, and he later used a power point presentation to present the properties of acid-base in daily life, and at the end of the class, he asked his students about classifying the acid-base in daily life into groups and the criteria of classifying. The results revealed that he heavily focused on students' memorization instead of fully understanding by doing hands-on activities.

Likewise, the PSTs also did not mention about learner quality, learning standard, as well as the indicators and core content of the Basic Education Core Curriculum B.E. 255 (2008) of science learning area and school curriculum. In addition, they lacked the knowledge of the articulation of guidelines across topics addressed during the school year. It also included the knowledge they had about the vertical curriculum in science subject area. According to transcription of the interview, the PSTs did not mention what students had learned in previous years and what they were expected to learn in the later years. The PSTs' opinion stated as follows:

> "I was uncertain about what the 8th grade students should learn about the properties of elements…I did not know what they had learned and what they should know…I followed the school's textbook…" (3rd Interview of Piti, August 30, 2013).
>
> "I was not sure what students had learned about force in the previous years…I did not view science curriculum…" (4th Interview of Weera, September 10, 2013).

The results implied that the PSTs did not recognize the need for sequencing of topics. They also relied heavily on textbooks. Moreover, they lacked the understanding of nature of science (NOS). They did not integrate NOS into their lesson plans and teaching practices. Although, some PSTs mentioned on NOS in the learning objectives, during teaching practices they taught the student by telling the concept without hands-on, minds-on activities. The findings are consistent with Abd-El-Khalick, Bell, and Lederman (1998), stated that the PSTs did not understand of conceptions of the NOS and could not teach them to their students.

'The PSTs lacked prerequisite knowledge required for students to learn specific concepts, knowledge of the abilities and skills that students might need for teaching, and knowledge of areas of student difficulties for teaching science topics which were different from their major.'

The PSTs did not know the prerequisite knowledge and knowledge of the abilities and skills required for students to learn science concepts. According to the transcription of the interview, the PSTs stated as follows:

> "I was not quite sure what concepts the students should know about the properties of compounds before they came to my class…because my major was physics, I did not know well about chemistry…" (4th Interview of Piti, September 10, 2013).
>
> "I did not know what students should know about resultant force before they came to my class…" (4th Interview of Weera, September 10, 2013).

The PSTs also were not aware of students' approaches to learning, and the students' different needs and abilities. According to the transcription of the interview, the PSTs stated as follows:

> "7th Grade students that I taught had different abilities…I taught 2 classes in the same way…" (3th Interview of Mana, September 2, 2013).
>
> "I taught 3 classes of my students on the topic of nutrients that provide no energy in the same way…I asked them to read about vitamins and minerals from the school's textbook and to present what they had learned from it…" (4th Interview of Chujai, September 4, 2013).

In addition, they did not know the students' learning difficulties in science. They cannot identify the students' misconceptions. According to the author's field notes of observation, the PSTs cannot correct students' misconceptions. For example, Mana's case, when he taught students the Tyndall effect, he asked students to present the results after shooting a light beam to the various samples in daily life such as milk, mud, potassium permanganate solution, syrup, vegetable oil, coconut milk, liquid soap, and soft drink. Students stated that some samples showed the Tyndall effect such as potassium permanganate solution and syrup while the others stated that coconut milk did not show the Tyndall effect. In relation to the students' alternative conceptions, Mana did not correct their answers or give them the correct explanation about the Tyndall Effect. Besides, in Piti's case, when he taught his students the element properties, he asked his students to classify the objects in daily life such as steel ruler, plastic toy, rubber, cork, and zinc sheet without the samples of metalloid. He only asked his students to observe these objects without doing hands-on activities. The results showed that the students classified the objects into 2 groups as metals and non-metals. Concerning the students' answers, Piti was not aware of their answers, and he did not

explain about the correct classifying of substances according to their properties. He only told his students that the objects could be classified into 2 groups of metals and non-metals using the conductivity as criteria of classifying.

The findings are consistent with Van Driel, De Jong, and Verloop (2002), stated that the PSTs not only lacked the knowledge of student difficulties, they also lacked scientific content knowledge.

'The PSTs used didactic and guided inquiry teaching strategies.'

The PSTs' knowledge of subject-specific instructional strategies is related to the orientations to teaching science. Weera, Piti, Jantorn, and Chujai applied teacher-centered, didactic instructional strategy to transmit knowledge by lecturing to the students; equating teaching with telling. They begin their lessons with a brief question and answer session, followed by a lecture or asking students to read science textbook and concluding with student's completion of the worksheet. The purpose of the questioning strategy was not to build upon students' prior knowledge, but for PSTs to focus on lecturing their students, to motivate them to listen to the lecture, and to determine the starting point of the lecture. According to the transcription of the interview, the PSTs stated as follows:

> "I did not know how to teach the biology topics…I gave lectures utilizing power point presentation…" (1st Interview of Piti, June 18, 2013).
>
> "On the topic of nutrients that provide no energy, I asked my students to read the benefit of vitamins and minerals from the textbook and to do the exercise by selecting some kinds of vitamins or minerals that will benefit them… " (4th Interview of Chujai, September 4, 2013).

The results were relevant to the PSTs' cooperating teachers' transcription of the interview as follows:

> "I thought that the major of Piti was physics, he might not fully understand other subject areas he taught…he played another role as tutor so that he might be able to tell the concepts to his students…" (1st Interview of Mr. Somsak, June 18, 2013)
>
> "In this topic (nutrients that provide no energy), he asked students to read the content from textbook...I thought that she was not confident in her teaching of this topic..." (4th Interview of Mr. Somsri, September 4, 2013)

The findings are consistent with Magnusson et al. (1999), reported that a lack of subject matter knowledge had both been linked to the ineffective use of subject-specific strategies, suggesting that the development of PCK relative to this component

requires drawing upon knowledge from each of the three base domains of teacher knowledge: subject matter, pedagogy, and context.

Besides, all PSTs implemented a student-centered, guided inquiry approach. For example, when Mana wrote his lesson plan on the topic of the properties of acidic solution, his major teaching objectives were to help students to be able to explain about the properties of acidic solution, the experiment and to make a conclusion of the properties of acidic solution, and work cooperatively. The evidence from the author's field note showed that he started the lesson by questioning students to explore their prior knowledge about the properties of acidic solution, the acidic substances in their daily lives, and the situation of eggshell dissolved in vinegar. This was followed by the experimentations of properties of acidic solution using hydrochloric acid and sulfuric acid with litmus paper, phenolphthalein, limestone, and zinc. He also asked the students to work cooperatively in groups. The students were interested because the learning materials were relevant to their daily lives. Next, he concluded the lesson with students and gave related examples and exercises.

On the case of Jantorn, when he wrote his lesson plan on the topic of the solution, his major teaching objectives were to help students explain the properties of solution, experiment of the dissolution of solute and solvent, its intent to the class. The evidence from the author's field note revealed that he began by showing the class with various samples of substance in daily life by questioning students' prior knowledge of the solution, followed by doing 3 experiments: the properties of solution, dissolution of solute in different kinds of solvent, and dissolution of solvent in different kinds of solute, respectively. In the first experiment, he asked the students to do hands-on activities by evaporating the samples of sodium chloride solution, soft drink, and syrup. In the second one, he asked the students to do an experiment on the dissolution of solute in different kinds of solvent. The solute was sugar, and the solvents were water and ethanol. The last experiment was the dissolution of solvent in different kinds of solute. The solvent was water, and the solutes were vegetable oil, sugar, and copper (II) sulfate. He also asked the students to work cooperatively in groups. At the end of the class, he concluded the lesson with students and gave related examples and exercises.

The results were relevant to the PSTs' cooperating teachers' transcription of the interview as follows:

> "He focused on the student-centered approach...he placed emphasis on doing experiments ...I think his students liked the way he taught them..." (4th Interview of Mr. Somsak, September 10, 2013).

> "I thought that he implemented the student-centered approach...He asked the students to do various activities..." (the 2nd Interview of Mrs. Siri, July 24, 2013).

The results implied that the PSTs implemented a student-centered approach using teaching sequences as introducing the lesson with various situations or examples

followed by questioning to explore the students' prior knowledge, asking students to do hands-on activities or experiments in small groups, concluding the lesson with students and giving related examples and conducting exercises. The findings are consistent with authors (Boz and Boz, 2008), reported that pedagogical knowledge and subject matter knowledge, and were found to be the main factors for choosing a teaching strategy. The PSTs who had these domains of knowledge could adapt new strategies for teaching science appropriately.

'The PSTs used examples as topic-specific representations, as well as investigations and experiments as topic-specific activities.'

All PSTs used the same topic-specific representations, as examples. The findings implied that the PSTs had limited knowledge of topic-specific representations. They only mentioned examples but they did not mention other representations such as models, analogies, explanation, and explanations with examples. This might influence the students' misconceptions. The factor that influenced using PSTs' topic-specific representation was content knowledge. The findings consistent with Sander, Borko, and Lockard (1993), reported that the PSTs could not answer students' questions or explain to the students who had misconceptions that caused by the lack of knowledge of topic-specific representations, as well as content knowledge.

Moreover, all PSTs used the same topic-specific activities with the investigations and experiments. The finding implied that some PSTs focused heavily on textbooks or manuals without using other activities such as problems, demonstrations, and simulations. Consistent with De Jong and Van Driel (2004), reported that the PSTs who lacked content knowledge, could not design or adapt various activities. The factor that influenced to PSTs' instructional planning was teaching science topics that weren't relevant to their science majors. They had difficulties making decisions of the instruction and materials.

The PSTs' knowledge of assessment in science may not be sufficient.

All PSTs assessed the students' learning in science without appropriate assessment criteria, and the assessment processes they used were not consistent with learning objectives in their lesson plans. They also did not focus on alternative assessment. The PSTs focused on traditional forms of assessments with worksheets, tests or quizzes, in short answer responses. The findings were consistent with Friedrichsen *et al.* (2007), which reported that the PSTs had limited the knowledge of assessment in science. They did not use an alternative assessment, but focused heavily on students' worksheets. They also did not identify assessment criteria in the lesson plans.

Conclusions and Implications

Based on the results of the study, the author concluded that in this exploratory phase, the PSTs' PCK may not be sufficient. They had limited knowledge of all components of PCK: orientations toward teaching science, knowledge of science curriculum, knowledge of students' understanding of science, knowledge of instructional strategies and knowledge of assessment in science including content knowledge. They also could not integrate all kinds of PCK's component and content knowledge appropriately and effectively. The results indicate that the PSTs in various disciplines do not have sufficient understanding of PCK. The results are consistent with the previous study (Friedrichsen et al., 2007).

This has implications, as it would tend to indicate that the PSTs' field experiences took place at schools without integrating all components of PCK, and content knowledge appropriately and effectively. Moreover, when they did not fully understand content knowledge, it influenced instructional strategies which implemented a teacher-centered approach, as well as teaching in the way that caused students' alternative conceptions. When the PSTs hold alternative conceptions, they had difficulties identifying their students' alternative conceptions and correcting them (Magnusson et al., 1999). Therefore, it may be suggested that the science teacher preparation program should go back to the courses in education and science to develop the PSTs' PCK during field experiences. Moreover, the PSTs will be aware of the importance of PCK development, thus they should be provided with pre-service training, workshops, or mentoring so that they can develop their PCK.

Regarding the limitation of the findings in the study, it is not possible to make a generalization to the whole PSTs in Thailand, because the author just represented PCK with a small portion on participants who enrolled in the field experience course in 2013, at a university located in Bangkok. However, it would be valuable to address these PCK issues to a larger number of the PSTs, if the practitioners believe their situations to be similar to that described in the study, that may relate the findings to their own positions, to be consistent with Guba and Lincoln (1989), the readers must determine how far they can be confident in transferring other situations with results and conclusions as they are presented. It is also important that a sufficient description of the phenomenon under investigation is provided to allow readers to have a proper understanding of it, thereby enabling them to compare the instances of the phenomenon with those that they have seen emerge in their situations.

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A Model of the Adoption and Integration of ICT into Science Teaching: an SEM approach

delivered by
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Abstract

This study aims to develop and test a casual model of teachers' adoption and integration of ICT into teaching underpinning theory of planned behavior. The secondary data were retrieved from the database of the Second Information Technology in Education Study (SITES) 2006. The sample comprised 679 science teachers from 465 schools from 13 educational service areas in Thailand. To empirically test the model, LISREL 9.1 was employed. The results indicate that the structural model provided a good fit to the data (Chi-square = 449.08, df=239; 2/df=1.87, p=0.0000; RMSEA=0.047; CFI 0.99). Attitudes (= 0.54, p<0.01) and perceived behavioral control (= 0.27, p<0.01) were significantly related to the intention. The relationship between subjective norm and intention was not significant (=0.12, p>0.05). These three determinants collectively explained 52 % of the variance in intentions. The implication for designing and implementing a professional development program to promote the adoption and integration of ICT into teaching science is discussed.

Keywords:

Causal Model; Adoption and Integration of ICT into Science Teaching; Teaching Science

Introduction:

ICTs offer a range of tools for use in school science activity to enhance both practical and theoretical aspects of science teaching and learning. These tools include, but are not limited to tools for data capture, processing and interpretation; publishing and presentation tools; information systems; and educational software. With the assistance of these technologies, students' motivation and engagement are improved; self-regulated and collaborative learning facilitated; school and contemporary science linked; and work production expedited living more room for thinking, discussion, and interpretation. Unfortunately, Thai teachers have rarely adopted and integrated ICT in the classroom. This is evidenced in Second Information Technology in Education Study (SITES) 2006, an international comparative study conducted by the International Association for Evaluation of Educational Achievement (IEA). SITES aimed to study information and communication technology (ICT) usage and practices in teaching

science and mathematics and its impact on teaching and learning process. The findings show that among the total number of 23 participating education systems, Thailand was reported to have comparatively low computer and internet access for pedagogical use. In respond to this worrisome reality, the Thailand government has launched the Master Plan on ASEAN Connectivity (ASEAN, 2011) and national ICT for Education policies, widely known as, Thailand ICT 2020 (Ministry of Information and Communication Technology, 2011). These documents state that Thailand is committed to establishing an information infrastructure to enable ICT to improve their competitiveness in the world economy.

The Ministry of ICT in partnership with the Ministry of Education have promoted the use of ICT in classrooms to enhance quality of teaching and learning, expand access, and sustain life-long learning. The students are encouraged and facilitated to learn to use ICT and use ICT to learn so they gain knowledge and skills and become IT and internet-literate. In terms of professional development, the Ministry of Education have improved teachers' capacity on effective ICT-Pedagogy integration and advocate the development of a whole-school support strategy on integrating ICT in Education. The introduction of ICTs does not simply ensure the transformation of science education. In doing so, the teachers have a critical role in selecting, evaluating, and integrating ICT into his or her classroom.

This study is therefore carried out to examine the relationship between factors affecting the adoption and integration of ICT into the classroom by developing and testing the proposed hypothetical structural equation model. The findings would suggest to policymakers, educational administrators, and practitioners the conditions under which ICT would be adopted and integrated into a lesson by teachers so teaching and learning are optimized.

Research Purpose:

The present study aims to examine the effect of attitude, social nomination, and perceived behavioral control regarding pedagogical use of ICT on the adoption and integration of ICT into teaching suggested by theory of planned behavior. **Literature review:** The theory of planned behavior was proposed by Ajzen (1985). This theory indicates the link between belief and behavior. It has been tested and confirmed by a number of studies in various fields such as marketing, education, public relation, and education on a number of issues such as condom use, pro-environmental behavior, intention to prevent becoming overweight and GM food-consumption. The theory states that the strongest or most proximal predictor of behavior is intention. Behavioral intention is an individual's readiness or perceived likelihood that he or she will perform or engage in a given behavior. The intention is thought to be the result of attitude toward performing the behavior, subjective norm, and perceived behavior control.

The attitude toward behavior (ATT) is the degree to which performance of the behavior is positively or negatively valued. The attitude is determined by behavioral belief (BB), an individual's belief about the consequences of particular behavior. The subjective norm (SN) is the perceived social pressure to engage or not engage in a behavior. It is a person's belief about whether significant others feel that he or she should perform the target behavior. The subjective norm is influenced by normative belief (NB), an individual's perception of social normative pressure. Perceived behavioral control (PBC, or self-efficacy) is an individual's perceived ease or difficulty of performing the particular behavior. It is determined by control beliefs (CB) - how that person thinks about the presence of factors that may facilitate or impede performance of the behavior. The perceived behavior control is also found to directly determine actual behavior. These factors have a direct relationship in a model in that the more favorable the attitude toward behavior and subjective norm, and the greater the perceived behavioral control, the more likely the person would intend to perform the behavior in question. In the same negative direction, the perceived behavioral control could be hindered by negative control beliefs, in the case of sustainable behaviors, for example, constraints such as a lack of accessible recycling infrastructure.

When TPB is applied to explained factors influencing teachers' adoption and integration of ICT into teaching in this study, the proposed model is described below. If teachers believe in the benefit of ICT in promoting students' learning (BB), it is likely that they will have positive attitude (ATT) and intend (IN) to adopt and integrate it into teaching and learning process. If adoption and integration of ICT in classroom is a national policy and highly valued by their principal and colleagues, they would intend to follow this social norm (SN). If the teachers perceive a high likelihood of success on using ICT for educational purposes (PBC) and such success is under his or her control (CB), he or she will intend to use ICT in the classroom. If teachers have no time committed, no technical and mental support, no understanding from their colleagues and superiors, no collaboration in schools, unsupported structure of educational systems, and restrictive curricula, they would think they could not make it; they would think that it was too difficult to accomplish. They start to lose confidence by these uncontrollable external barriers. Hence, the hypothetical model to be tested empirically in this study is illustrated below:

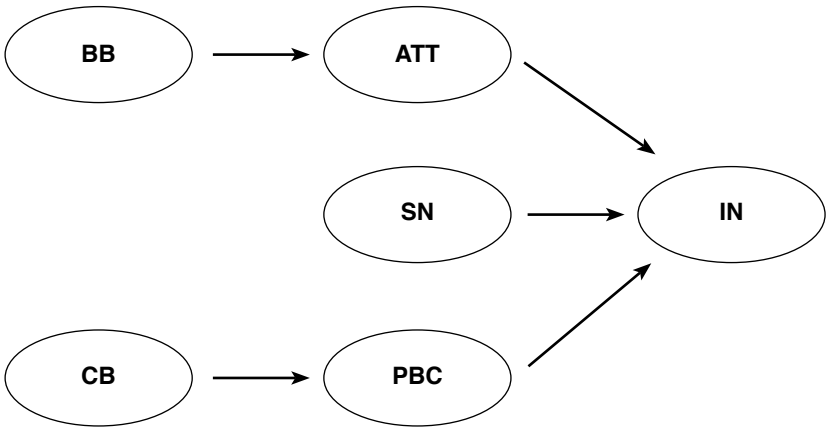


Figure 1: *A hypothetical model of the adoption and integration of ICT into Teaching.*

Note: *ATT: Teacher's perception about the importance of various curricular goals; PBC: Teacher's self-reported levels of confidence in accomplishing pedagogical use of ICT; IN: Teachers' priorities for different pedagogical uses of ICT within the next two school years; BB: Teacher's perception of the extent to which school staff hold a shared vision and mission for ICT literacy; and CB: Teacher's perception of the extent to which various kinds of supports are available.*

Research methodology:

The empirical data from Second Information Technology in Education Study (SITES 2006) database was retrieved and used in testing the hypothetical model. SITES 2006 is an international comparative study conducted by the International Association for Evaluation of Educational Achievement (IEA). SITES aims to study information and communication technology (ICT) usage and practices in teaching science and mathematics and its impact on teaching and learning process. There were 23 education systems participating in SITES 2006 including information from roughly 8,000 schools, 13,000 mathematics and 16,000 science teachers. The survey was administered towards the end of the school year. Each participating education system appointed a National Research Coordinator (NRC), together with staff members at their national center to conduct complex sampling, translation, and data collection tasks. The implementation must be in accordance with SITES 2006 guidelines and procedures.

Ms. Pornpun Waitayangkoon and Ms. Somsri Tangmongkollert from the Institute for the Promotion of Teaching Science and Technology (IPST) and their organization were

appointed by Thai government at the time to be Thailand's NRCs and national center for SITES respectively. The Thai population, the focus of the present study, were Grade 8 science teachers. The sample comprised 679 science teachers at 465 schools from 13 educational service areas in Thailand using a two-stage stratified cluster sampling design. Explicit stratification variables were school types (public or private), urbanization (urban or rural), and school size (very large, large, medium-size, small, or very small). The implicit stratification variable was the educational service area. Seventy one percent of the respondents were female. The majority of the respondents (32 percent) aged between 40-49 years old; followed by 30 percent aged between 30-39 years old. Eighty five percent of the respondents earned a bachelor degree as their highest level of education. Regarding teaching experience, 56 percents of the teachers had been teaching science for more than ten years. The majority of the respondents (83%) owned a computer at home.

Provided by the national center, IEA DPC drew school samples, taking into account national stratification needs. If the selected schools agreed to participate in the study, the national center randomly selected two eligible science teachers using software provided by IEA DPC. The NRC could opt to administer the survey questionnaire online or on paper. The SITES2006 survey was administered from March to June 2006. To ensure high quality and international comparability of data, the national center has to run several quality control and assurance procedures. The cleaned data from participating education systems were then weighted and transformed to international database structure; the dataset from different countries consisted of the same variables with the same coding scheme. The SITES 2006 international database and user guide were organized and maintained for public users by IEA aiming to support and promote secondary analysis. The database is accessible on IEA's study data repository website, http://rms.iea-dpc.org.

Measures:

The measure was selected from SITES 2006's Teacher Questionnaire. Six scales from the original version; curriculum goals, teacher self-reported ICT skills, teacher vision of ICT use in the near future, presence of community of practice in school, and presence of community of practice in school (I, II, and III) that were in correspondence with factors in the proposed model were selected and renamed, respectively; attitude towards pedagogical use of ICT (ATT), perceived behavioral control over pedagogical use of ICT (PBC), intention to use ICT (IN), behavioral belief in pedagogical use of ICT (PBC) and control belief (CB) over pedagogical use of ICT. The six scales, after the revision as the result of confirmatory factor analysis make up a total number of 24 items (Table 1). All items were measured on a 4-point Likert scale. Each scale is measured by 3 to 6 indicators.

Data analysis:

To test the proposed model of the adoption and integration of ICT into teaching, structural equation modeling or SEM analysis was conducted. Variables in the SEM may influence one-another reciprocally, either directly or through other variables as intermediaries. In SEM, a structure of the covariance matrix of the measures is generated; the parameters of the model are estimated. This implied model is then compared to an empirical covariance matrix to examine whether the two matrices are consistent with one another. If the model fits the data, the structural equation models can be considered a plausible explanation for relations between the measures. With SEM analysis, latent variables can be constructed and unbiased estimates for the relations between latent constructs are derived since measurement errors are taken into account in the model building.

To analyze the data, LISREL 9.1 statistical package was used as follows. After defining the data, data screening was carried out. The results showed that there were 603 cases with no missing data from the total of 679. The cases with missing values were treated by matching imputation hence 641 complete cases were included as the number of observations in the subsequent analysis. The SITES teacher questionnaire used ordinal response scales. Rather treating the ordinal variables as if they were continuous variables, ordinal data were kept as they were in the analysis to prevent misleading results. Even weighted least square (WLS) gave more accurate parameter estimates, standard errors, better fit indices than other methods suggested to estimate the model with non-normal and ordinal data; unweighted least squares (UWL) and diagonally weighted least squares (DWLS) in the simulation evaluation (Yang-Wallentin & Jöreskog, 2010); WLS is, however, unadvisable for either the model with a small sample size or a large model or the combination of both (Mîndrilă, 2010) as in this present study. In situations in which the assumption of multivariate normally is severely violated and/or data are ordinal, the diagonally weighted least squares (DWLS) methods provide more accurate parameter estimates. Input matrices of polychoric correlation and asymptotic covariance were estimated. The robust DWLS is based on the polychoric correlation and asymptotic covariance matrix of the polychoric correlations was included in the analysis. In LISREL 9.1, the functionality of LISREL and PRELIS are combined, therefore, it is no longer necessary to estimate an asymptotic covariance matrix with PRELIS and read this into LISREL. DWLS computes robust chi-squares and subsequent indices, by correcting for non-nomality. Particular attention was given to CFI and RMSEA indices since there had been evidence in a previous simulation study to be more trustworthy than other fit indexes for ordered categorical data (Yu, 2002). The two-step approach suggested by

Anderson and Gerbing (1988) was followed. First, measurement model (CFA) relating observed variables to latent variables was developed. The goodness of fit of this model was examined. The research examined the reliability of the measures and the validation (convergent and divergent) of the indicators in relation to the constructs. Then the proposed structural equation model was tested. The goodness of fit of this model as a whole had been examined. However, the fit indices recommended for categorical variables as the case of this study are CFI (close to 1) and RMSEA (approximately less than .06) (Finney & DiStefano, 2006). There is likely to be a practical problem with using chi-square as a sole measure of fit because of its sensitivity to sample size and its assumption of multivariate normality. The hypothesized model in this study is quite complicated and its categorical data, by nature, deviate from normality.

Results

1. Descriptive statistics

The frequencies of students' responses to a particular statement indicating a construct in the model are summarized in Table 1. It was found that the majority of the respondents "very much" agreed with all statements indicating the attitudes toward pedagogical use of ICT (ATT) such as ICT for increasing motivation, and fostering students' collaborative and organizational skills. This is in correspondence with their responses to the indicator of ATT's determinant, behavioral belief in pedagogical use of ICT (BB). When asked about their perceived behavioral control over a number of indicators to the adoption and integration of ICT into teaching such as using ICT to monitor students' progress and evaluate learning outcome; using ICT to give effective presentation, the level of confidence was generally dropped to "somewhat" level. This is consistent with its theoretical determinant, the control belief of the adoption and integration of ICT into teaching. Among the indicators of the control belief, the majority of teachers did not think that the administrative work arising from the use of ICT in his or her teaching was easy to do at school. When asked about the influence of the subjective norm of the pedagogical use of ICT, the majority of teachers reported that they somewhat co-taught with other teachers but discussed the problems with their colleagues and teachers from other schools a lot. Regarding the intention for the pedagogical use of ICT (IN), the majority gave high priority to most of the indicators, except the indicator, "using ICT to provide opportunity for students to collaborate with and learn from people outside their classroom" to which they gave medium priority.

Table 1: *Items of the questionnaire for the various scales and descriptive statistics*

Constructs	Indicators (SITES's variable names)	Labels			
		Not at all	*A little	*Somewhat	**Very much
Attitude towards Pedagogical Use of ICT (ATT)	BTG08F1: To increase learning motivation and make learning more interesting	-	1.6	18.3	80.1
	BTG08H1: To foster students' ability and readiness to set their own learning goals and to plan, monitor and evaluate their own progress	-	3.1	28.8	68.1
	BTG08I1: To foster students' collaborative and organizational skills for working in teams	-	1.7	18.2	80.1
	BTG08L1: To prepare students for competent ICT use	1.4	7.4	28.2	63.1
Perceived behavioral control over the adoption and integration of ICT into teaching (PBC)	BTG21J1: I know which teaching/learning situations are suitable for ICT use.	10.6	22.8	43.7	22.8
	BTG21L1: I can use ICT for monitoring students' progress and evaluating learning outcomes.	14.4	29.4	37.6	18.6
	BTG21M1: I can use ICT to give effective presentations/ explanations.	15.0	29.1	36.5	19.4
	BTG21N1: I can use ICT for collaboration with others.	13.0	26.9	39.9	20.2
	BTG21P1: I can use the Internet (e.g., select suitable websites, user groups/discussion forums) to support student learning.	9.4	16.4	36.6	37.6
Intention for pedagogi-cal use of ICT (IN)	BTG22A1: To monitor more effectively the progress of my students.	0.6	5.8	39.4	54.1
	BTG22C1: To provide better and more interesting lectures/presentations to my students.	0.5	3.4	30.4	65.7
	BTG22E1: To provide more activities that address individual differences among my students.	0.9	6.9	37.2	54.9
	BTG22H1: To involve my students in scientific investigations (involving laboratory work)	1.4	4.2	31.5	62.9
	BTG22I1: To provide more opportunities for my students to collaborate with or learn from people outside of their classroom, including peers and external experts	2.3	13.8	42.9	41.0
	BTG22K1: To provide more opportunities for my students to collaborate with their classmates	0.9	4.2	29.7	65.1

Constructs	Indicators (SITES's variable names)	Labels			
		Not at all	*A little	*Somewhat	**Very much
Behavioral belief in pedagogical use of ICT (BB)	BTG25A1: We discuss what we want to achieve through our lessons.	1.6	11.4	38.3	48.7
	BTG25B1: Teachers are constantly motivated to critically assess their own educational practices.	0.8	7.8	36.8	54.6
	BTG25C1: Teachers are expected to think about the school's vision and strategies with regard to educational practices.	0.6	5.5	34.7	59.2
Subjective norm of the pedagogical use of ICT (SN)	BTG27A1: I co-teach with my colleagues.	12.5	21.6	38.0	27.9
	BTG27B1: I discuss the problems that I experience at work with my colleagues.	1.4	9.1	31.6	57.9
	BTG27C1: I work with teachers in other schools on collaborative activities.	5.2	21.6	34.7	38.5
Control belief of the adoption and integration of ICT into teaching (CB)	BTG28B1: My students can access computers easily outside scheduled class time without my help.	11.7	27.4	36.0	24.9
	BTG28C1: The administrative work arising from the use of ICT in my teaching (e.g., booking computer laboratories, changing class schedules) is easy to do in my school.	20.8	33.2	32.2	13.8
	BTG26C1: I am able to implement innovations in my classroom according to my own judgment and insights.	2.5	13.0	46.3	38.2

** "A little" and "somewhat" are replaced by "low priority" and "Medium priority" in IN respectively; ** "Very much" is replaced by "A lot" in BB, PBC, SN and CB and "high priority" in IN*

2. Measurement model results

A CFA for the measurement model with six constructs was performed. The initial model demonstrated a moderately acceptable with the data ($\chi2 = 696.75$, df = 310, $\chi2$/df = 2.25, p = 0.0000, RMSEA = 0.069, CFI = 0.99). After deleting the indicators with low loading and the indicators found to correlate very highly (e.g. BTG21D1 for subjective norm, $\lambda = 0.27$), the final measurement model results were good, indicating good reliability, although the chi- square value was significant ($\chi2= 464.52$, df = 237, $\chi2$/df = 1.96, p = 0.00, RMSEA = 0.045, CFI = 0.99) (Table 2). The results of the measurement model indicate that the factor loadings of the latent variables are

generally high and all are statistically significant (i.e., > 0.5, p <0.001). All t-tests are significant indicates that all items are measuring the construct they are associated with. Given acceptable composite value (> 0.6), the convergent validity of the scales is established. Convergent validity is further evidenced since most indicators' standardized loading on their posited latent construct is greater than twice its standard error (Anderson and Gerbig, 1988). The AVE values are higher than the suggested cut-off at 0.6 (Bagozzie et al., 1991) except those of subjective norm and control belief. Hatcher (1994) noted that "very often variance extracted estimates will be below 0.50" (p. 331). To examine the internal consistency of each scale, Conbach's alpha was calculated. The Conbach's alpha values of all constructs are higher than the suggest cut-off at 0.70 (Nannally, 1978) except those of subjective norm (0.60) and control belief (0.63).

Table 2: *Parameter estimates for the CFA measurement model of the 6 constructs*

Constructs	Indicators	Std. factor loading	Std. error	t-value	Conbach's alpha	Composite reliability	Variance extracted
Attitude towards Pedagogical Use of ICT (ATT)	BTG08F1	0.83*	-	-	0.77	0.90	0.69
	BTG08H1	0.87	0.06	18.35			
	BTG08I1	0.86	0.06	17.27			
	BTG08L1	0.75	0.06	14.78			
Perceived behavioral control over the adoption and integration of ICT into teaching (PBC)	BTG21J1	0.85*	-	-	0.93	0.95	0.80
	BTG21L1	0.89	0.03	36.52			
	BTG21M1	0.95	0.03	38.49			
	BTG21N1	0.94	0.03	37.76			
	BTG21P1	0.84	0.03	32.74			

Constructs	Indicators	Std. factor loading	Std. error	t-value	Conbach's alpha	Composite reliability	Variance extracted
Intention for pedagogical use of ICT (IN)	BTG22A1	0.87*	-	-	0.89	0.94	0.73
	BTG22C1	0.92	0.03	33.92			
	BTG22E1	0.86	0.03	31.83			
	BTG22H1	0.84	0.04	23.94			
	BTG22I1	0.79	0.03	26.85			
	BTG22K1	0.85	0.03	28.45			
Behavioral belief in pedagogical use of ICT (BB)	BTG25A1	0.86*	-	-	0.87	0.93	0.82
	BTG25B1	0.94	0.04	27.52			
	BTG25C1	0.93	0.04	29.93			
Subjective norm of the pedagogical use of ICT (SN)	BTG27A1	0.61*	-	-	0.60	0.70	0.45
	BTG27B1	0.77	0.13	9.53			
	BTG27C1	0.60	0.11	8.92			
Control belief of the adoption and integration of ICT into teaching (CB)	BTG28B1	0.59*	-	-	0.63	0.70	0.44
	BTG28C1	0.63	0.08	13.16			
	BTG26C1	0.75	0.10	11.71			

** Initially fixed at 1 for estimation purpose*

Discriminant validity is assessed by comparing the shared variance (squared correlation) between each pair of constructs against the average of the AVEs for these constructs. The variance extracted estimates should be greater than the squared correlation estimate. This criterion was met in this study as shown in Table 3.

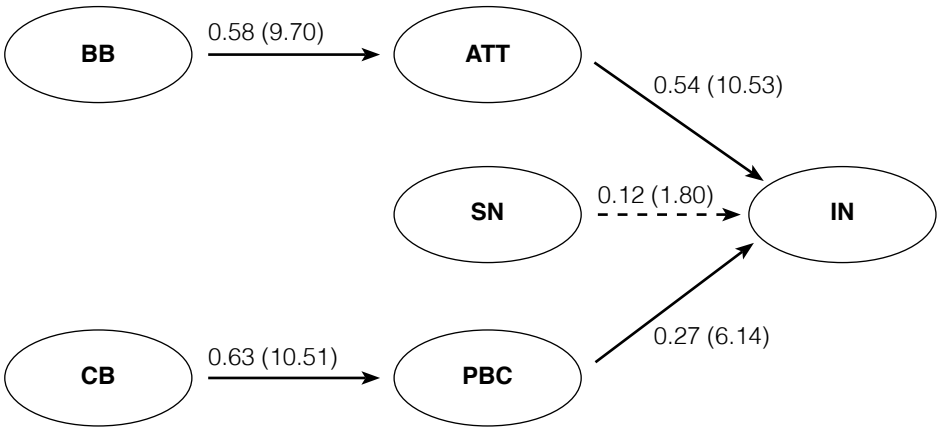
Table 3: *Discriminant validity checks by comparing the average variance extracted and the square of correlation*

Constructs	Square of correlation (average variance extracted for the pair of constructs)				
	PBC	**IN**	**BB**	**SN**	**CB**
(ATT)	0.12 (0.69, 0.80)	0.39 (0.69, 0.73)	0.18 (0.69, 0.82)	0.16 (0.69, 0.45)	0.16 (0.69, 0.44)
PBC		0.17 (0.80, 0.73)	0.09 (0.80, 0.82)	0.08 (0.80, 0.45)	0.42 (0.80, 0.44)
IN			0.23 (0.73, 0.82)	0.15 (0.73, 0.45)	0.20 (0.73, 0.44)
BB				0.33 (0.82, 0.45)	0.33 (0.82, 0.44)
SN					0.36 (0.45, 0.44)

3. Structural model

Beck and Ajzen (1991) suggest that to predict behavior it may sometimes be sufficient to consider only intentions. The structural model have the same indicator structure as the measurement model but included direct paths from attitudes, norms and behavioral control to intentions and from behavioral beliefs to attitudes and from believed control to perceived behavioral control. The structural model provided a good fit to the data (Chi-square = 449.08, df = 239; $\chi 2/df = 1.87$, $p = 0.00$; RMSEA = 0.047; CFI 0.99). Attitudes ($\beta = 0.54$, $p < 0.01$) and perceived behavioral control ($\beta = 0.27$, $p < 0.01$) were significantly related to intentions. The relationship between subjective norm and intention was not significant ($\beta = 0.12$, $p > 0.05$). These three determinants collectively explained 52 % of the variance in intentions. Behavioral beliefs ($\beta = 0.58$, $p < 0.01$) and control belief ($\beta = 0.63$, $p < 0.01$) were significantly related to attitude and perceived behavioral control respectively.

Behavioral beliefs could explain 34% of the variance in attitude and control belief could explain 40 % of the variance in perceived behavioral control.



Chi-Square = 449.08, df = 239, P-value = 0.0000, RMSEA = 0.047

Figure 2: *The estimated model of the adoption and integration of ICT into teaching*

Note: *Standardized coefficients with t value in the parentheses. Standardized factor loadings of indicators on latent variables are not shown here. Dashed lines denote tested but nonsignificant relationships.*

Discussion:

The findings of this study confirms the theory of planned behavior and are consistent with a number of previous studies that have applied this theory to explain performing particular behaviors (Harding et al., 2007; Stone et al., 2007). As expected, attitude favorable toward pedagogical use of ICT, norm supportive of pedagogical use of ICT, and high perceived behavior control pedagogical use of ICT were positively associated with intention to adopt and integrate ICT into teaching science. Behavioral belief and control belief have positive correlation with the attitude toward and perceived behavioral control over pedagogical use of ICT. A notable finding of this current study was support for the attitude. It could predict the intention better than either perceived behavioral control or norm of pedagogical use of ICT.

This finding is consistent with the study of Demirci (2009) that discovered that Turkish teachers who had negative attitude towards Geographic Information systems (GIS) as neither fulfilling their needs nor their students' needs would not integrate the technology into Geography. In contrast, if teachers' attitudes were positive, they could provide useful insight and showed intention to adopt and integrate ICT into teaching and learning process. In the large scale survey conducted by Drent and Meelissen with Dutch teachers in 2008, the findings indicate that the attitude towards computers have a direct and strong influence on the innovation use of ICT by the teachers. This study also found that perceived behavioral control over pedagogical use of ICT

positively related to their intention to adopt and integrate ICT in their teaching. This confirms a number of previous studies just to name a few (Yuen & Ma, 2008; Peralta & Costa, 2007). These studies found that teachers' judgment of their capability to use a computer influenced their intention and use of ICT in classroom.

However, the results did not confirm the hypothesized relations between SN and the intention. This is consistent with the previous studies conducted by Trafimow and Finlay (1996), Cialdini and Trost (1998), Hansen and Jensen (2007). They found that the effect of subjective norm was insignificant and very low in the full model. They explained that a potential cause for the insignificance of the relation between SN and intention may be the evolvement of "individualism" that could affect peoples' decision making. Striving for individualism leads to the rejection of dependency (Pchiffman & Kanuk, 2004). People that hold this value are less likely to follow the guidance of other people in order to reinforce their feeling of independence and self-identity.

The relationship between subjective norm and intention in this study may be moderated by individualism. For those lacking individualism, the subjective norm may influence the intention but for people holding this value and positive attitude towards pedagogical use of ICT, they would adopt and integrate ICT into their teaching regardless the subjective norm. The subjective norm was more relevant to the individuals who could access the collective self in a prominent manner. This collective self is dependent upon interpersonal bonds to others. People showing affiliation to in-group membership would be more concerned to the adoption and integration of ICT into teaching and the impact of subjective norm may be more pronounced on the intention. If the teachers lacked interpersonal skills, they, as per the results, could neither build relationships, nor gracefully collaborate with other teachers; in effect, they could not influence or be influenced by their peers. In addition, teachers may not be aware that their influence is what can make the difference in their teaching practice. They may be very humble to show off, regarding this as a good manner in the public especially when working with senior teachers or they prefer to stay in the safe zone when working in teams. This is quite a common value and practice among Thai people.

Implication of the study:

It was evidenced in this present study that the behavioral belief influenced science teachers' attitude toward pedagogical use of ICT. That means that the more the teachers believe in the impact of ICT in their teaching practice and students' learning, the more positive attitude toward pedagogical use of ICT and in turn, more likely they would intend to adopt and integrate ICT into their lesson. To enhance teachers' behavioral belief of pedagogical use of ICT in professional development, they should be given a role of learners. They should witness and directly experience

the desirable consequences of the pedagogical use of ICT; more interesting, fun and engaging than a plain lesson. Alternatively, they are asked to watch the video of an effective ICT driven science lesson and encouraged to critically reflect upon and exchange ideas with fellow participants on whether and how ICT were adopted and integrated into the science lesson and its effectiveness regarding students' learning. In addition, they should be encouraged to try it themselves-designing a lesson and have a micro teaching, and get instant and constructive feedback from their instructors and peers. Technical difficulties and related issues in using ICT should be brought in. Tips and techniques to deal with these problems and challenges should be discussed so the participants are, in advance, well equipped and feel best prepared for the coming reality and uncertainty when they return to school. This would boost up their perceived behavioral control of ability to use ICT in classroom, another significant determinant of the intention to adopt and integrate ICT into teaching.

Factors that demote the use of ICT include lack of support from the school principals, lack of allotted time to implement the work plan and lack of financial and human resources. These uncontrolled realities seriously diminish teacher's perceived behavior control and in turn lessen the intention to adopt and use ICT. To resolve such constraints and limitations, it is advisable for the professional developer to invite the administrator and the school/district education leader to participate and contribute inputs throughout the process of the design and implementation of the professional development program so they would gain a sense of ownership, leadership and responsibility and would follow up and facilitate the teachers' adoption and integration of ICT in teaching on site. They would build a collaborative working environment in school, so the subjective norm would matter and take effect. Like target teachers, these school principals and head teachers should be empowered so they would deepen the appreciation to pedagogical use of ICT, build capacity and have commitment to promote, support and sustain the implementation of educational innovation.

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Enhancing the Quality of Learning Through the Use of Infographics as Visual Communication Tool and Learning Tool

delivered by
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Abstract

The research objective was to examine the use of infographic in two dimensions, infographic as visual communication tool and infographic as learning tools to enhance effective learning of 20 fourth year undergraduated students majoring in Business and Computer Education who enrolled Knowledge Management Course at Vocational Education Department, Faculty of Education, Kasetsart University during the first semester of 2013 academic year.

The research design was combined quantitative and qualitative research using questionnaires. Numerical data were analyzed using frequency and percentage and the qualitative data were analyzed using content analysis.

The research findings were as follows:

1. Most of students agreed that using infographic as Visual Communication Tool could enhance appeal, comprehension and retention

2. The students' opinion towards the use of infographic as Learning Tool was highly positive. (X=4.82)

The results revealed in visual communication tool dimension that infographics could enhance appeal, comprehension and retention, which are the basic provisions of communication in the majority of the students. Therefore, infographic, when used as visual communication tool, could provide effective communication. The results revealed in learning tool dimension that students were most satisfied with mean of 4.82. Therefore, infographic when using as learning tool, could promote satisfaction at a most satisfied level. The overall results suggested that infographics yielded a positive impact when used as visual communication tool and learning tool to enhance the quality of learning.

Introduction:

Education is considered as the important tool to develop quality people in the future (Research Center, Bangkok University, 2009). However, according to the survey of Thai people's perspectives toward the education reform, one of five education problems in Thailand was that students lacked interest or had shorten span of interest

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in learning and did not pay much attention to learning (Suan Dusit Poll, Suan Dusit Rajabhat University, 2009).

Furthermore, boring classrooms, one of education problems in Thailand, made students unhappy and were not enthusiastic in learning as there were no interesting learning tools applied to stimulate their learning. It resulted in not understanding what have been taught. (Lifang, 2012). The research center of Bangkok University also published results from the survey in the topics of "Students' feeling towards Studying" and proposed one suggestion from students that learning methods should be adjusted by using learning techniques and creating learning environment that support the learning (Research Center, Bangkok University, 2009).

With these education problems in hand, quality of learning was expected to be low but due to the importance of learning in the 21st century, quality of learning plays an increasingly significant role. More emphasis has been put on learning tools that can be applied to enhance learning to be at a good quality level. Visual communication is one of the most exciting and potentially useful and powerful learning tools in education according to the words stated that every picture tells a story or a picture worth a thousand word as it is the form of communication that relies in part or whole on vision for its understanding (Sless, 1981) and it is normally comprised of texts and pictures in communicating the story, which can convey facts and ideas in a wider and deeper range than almost any other means of communication (Kepes, 1944). Research also showed that 30 to 40 percent of people are visual learners (Harvard Business School, 2003).

Infographic, which is one kind of visual communication, is gaining popularity and has becoming one of the most effective forms of content for communicating information in the digital era (Smiciklas, 2012) and also becoming great educational materials to use in both teaching and learning (Kharbach, 2012). It has been used in a variety of media both traditional media such as newspaper and magazine and digital media such as Facebook, Twitter and Youtube because it moved away from text communication to visual communication, which is more attractive and easier to understand than text communication.

An infographic is defined as a visualization of data or ideas that tries to convey complex information to an audience in a manner that can be quickly consumed and easily understood (Smiciklas, 2012). It comes from information and graphics. However, it is mutli-modal in the sense that it can have different forms of text, flowcharts, diagrams, images and many more (Kharbach, 2012).

Special attention was therefore drawn to enhancing the quality of learning through the use of infographics in two dimensions.

The first dimension is using infographic as visual communication tool as when using infographics to communicate, it is physically easier to relate and connect to information (Smiciklas, 2012). Three basic provisions of all effective visual communication methods according to Lankow, Ritchie and Crooks (2012) were shown as follows

1. Appeal. Communication should engage an audience.

2. Comprehension. Communication should effectively provide knowledge that enables a clear understanding of the information. It implies that the viewer should be able to easily understand the information that is presented to them.

3. Retention. Communication should impart memorable knowledge. It means that the viewer should remember the data presented by the infographic.

The second dimension is using infographic as learning tool. Infographic is considered as visual aid that can be used to give content, explain content, use as learning activity such as mind map or case study, show example and conclude content with the aim to support learning and make student feel satisfied with this learning tool.

Due to the fact that it is considered as a powerful visual communication tool, it has high potential to use as great learning tool as Smiciklas (2012) stated that visualizing information can improve learning. Infographics provide a format utilizing visuals that not only appeal to an audience hungry for information but also aid in the comprehension and retention of that material (Lankow, Ritchie and Crooks, 2012). Courses that teach students to create their own infographics using a variety of tools may encourage engagement in the classroom and may lead to a better understanding of the concepts they are mapping onto the graphics (MacQuarrie, 2012) as infographics can present knowledge in an easy-to-digest format (Smiciklas, 2012).

Some of the learning benefits associated with infographics include improved comprehension of information, ideas and concepts, enhanced ability to think critically and develop an organized ideas and improved retention and recall of information (Inspiration Software Inc., 2013).

Therefore, infographics seem to have a very high potential to bring into education and use it as a useful tool to enhance quality of learning with the strong belief that if it is carefully integrated and used, it will help enhance the quality of learning through its power of visual communication and learning.

Methodology:

The research methodology used for this study were quantitative and qualitative method. The research instruments were questionnaires composing of two parts asking for opinions of students towards infographic using as visual communication tool and infographic using as learning tool.

Questionnaires consisted of the use of infographic as visual communication tool in terms of appeal, comprehension and retention and 5-point Likert Scale measuring satisfaction of using infographic as visual aid including open-ended questions rechecking the overall quality of learning. Experts helped verify the questionnaires before applying to students and the researcher took advice and adjusted accordingly.

The samples were twenty students selected by purposive sampling from undergraduated students who enrolled in Knowledge Management course in Business and Computer Education, Vocational Education Department, Faculty of Education, Kasetsart University during the first semester of 2013 academic year.

Six infographics covering main contents of Knowledge Management Subject were presented to students to examine the impact of the quality of learning in two dimensions, that is, infographic as visual communication tool measuring appeal, comprehension, retention and infographic as learning tool measuring satisfaction in a 5-point Likert Scale format and overall quality of learning in those two dimension via open-ended questions. Quantitative data was analysed by using SPSS for Windows and content analysis was used for analyzing qualitative data.

Results, Discussion and Conclusion:

Results

The results from the research were as follows:

1. Students opinion on using infographic as a Visual Communication Tool

Table 1 Infographic as Visual Communication Tool N=20

Use of Infographic	Appeal				Comprehension				Retention			
	Appeal		Not Appeal		Understand		Not Understand		Recall		Not Recall	
	Number	Percentage	Number	Percentage	Number	Percentage	Number	Percentage	Number	Percentage	Number	Percentage
1	18	90	2	10	19	95	1	5	17	85	3	15
2	20	100	-	-	20	100	-	-	20	100	-	-
3	19	95	1	5	20	100	-	-	19	95	1	5
4	19	95	1	5	20	100	-	-	19	95	1	5
5	20	100	-	-	19	95	1	5	19	95	1	5
6	20	100	-	-	14	70	6	30	17	85	3	15

Table 2. Students opinion on using Infographics as a Visual Communication Tool

N = 20

Use of Infographic	Comprehension				Retention			
	Understand		Not Understand		Recall		Not Recall	
	Number	Percentage	Number	Percentage	Number	Percentage	Number	Percentage
1	15	75	5	25	19	95	1	5
2	19	95	1	5	20	100	-	-
3	19	95	1	5	20	100	-	-
4	19	95	1	5	20	100	-	-
5	19	95	1	5	20	100	-	-
6	19	95	1	5	20	100	-	-

The overall result finding indicated further that infographic using as Visual Communication Tool could enhance comprehension and retention in the majority of students. For comprehension, it was found that the majority could give topics and details of what have been studied in those infographics and for retention, it was found that the majority could recall topics and details once seeing infographics.

2. Students opinion on using infographic as a Learning Tool

Table 3 Infographics as a Learning Tool

N=20

Dimension of using infographics	Mean	Interpretation
Giving Content	4.85	Most Satisfied
Explaining Content	4.65	Most Satisfied
Using as Learning Activities	4.75	Most Satisfied
Showing example	4.90	Most Satisfied
Concluding Content	4.95	Most Satisfied
Total	**4.82**	**Most Satisfied**

The data from table 3 indicated that students were most satisfied with the use of infographics as learning tool to enhance the quality of learning in a most satisfied level (mean = 4.82) and were most satisfied when using infographics to give content, explain content, use as learning activities, show example and conclude content.

Discussion

Results showed positive learning stemming from changing roles of infographic, teacher and students as following

1. Changing Role of Infographics

Infographic played an important role in communicating with and connecting to students by way of not only presenting knowledge and stimulating interest but also reaching and engaging students through varied learning activities that infographics were interactively used. It can be seen from student comments in part of visual communication tool that infographic attracted interest, stimulated learning, helped recognize content easily and made easy for them to understand while comments in part of learning tool were enhanced learning, better learning, quality of learning and effective learning based on visual attractiveness, easy recognition and easiness to understand and learn. The finding was in accordance with Kharbach (2012) that infographic can become great education materials to use in both teaching and learning in the sense that it could promote basic communication and Lankow, Ritchie and Crooks, (2012) stated that effective visual communication must basically provide appeal, comprehension and retention, which infographics can promote appeal, comprehension and retention.

2. Changing Role of Teachers

Teachers played an important role in using infographics as a helping tool to communicate with students and connect students to learning by way of deciding topics to use and designing ways to use with the intention to stimulate students' interest, help students to conceptualize and retain knowledge. Smiciklas (2012) also stated that visualizing information can improve learning and courses that teach students to create their own infographics using a variety of tools may encourage engagement in the classroom and may lead to a better understanding of the concepts they are mapping onto the graphics (MacQuarrie, 2012) while Jennifer Brister (2013) stated that visual aids affect learning by helping to keep attention focused on a visual aspect of the presentation. These aids can help children to break down information and manage on their own. Using visual aids in the classroom is a good way to make a lesson more memorable to the student involved. Teaching with infographics requires teachers to carefully plan how to bring in infographics regarding which content to use, what to communicate, which learning activity to combine and when to facilitate learning as infographics can be used to communicate and connect to students in many ways such as giving content, using as case study or showing examples.

3. Changing Role of Students

Students played an important role in engaging in the class, being interactive with learning activities with the use of infographics and connecting themselves to learning along with the facilitation of teachers. The finding was also aligned with Inspiration Software Inc. (2013) which stated that some of the learning benefits associated with

infographics include improved comprehension of information, ideas and concepts, enhanced ability to think critically and develop an organized ideas and improved retention and recall of information. Their roles require them more to think, communicate their understanding and participate in the class so that teachers can check and support their learning as needed. Although they have to change their way of studying to be more participative and interactive, their views on the use of infographics were still positive. Most of students preferred using infographics as learning tool in a variety of way such as giving content, explaining content, using in learning activities, showing examples and concluding content at a most satisfied level and agreed that infographics could enhance their learning.

Changing roles of infographic, teachers and students seemed to help teachers communicate better and help students learn better according to the findings.

Conclusion

It can be concluded that the infographic incorporated throughout the subject can promote the quality of learning as it has a positive impact and can be used as an effective visual communication tool and learning tool to enhance quality of learning. Therefore, it is recommended for instructors to take into consideration for the use of infographics as a communication tool to engage students (Appeal), provide knowledge (Comprehension) and impart memorable knowledge (Retention) and as learning tool to keep attention on subject communicated and presented (Appeal), to connect to knowledge and conceptualize it (Comprehension) and make knowledge more memorable (Retention). However, it is recommended that more research is necessary to verify the potential use of infographics in other environments.

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Keywords:

Quality of Learning, Infographics, Visual Communication Tool, Learning Tool

Moral and Ethical Requirements of Graduate Doctors: The Employer's Viewpoints

delivered by
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Abstract

Objective:

To identify the moral and ethical requirements of employers who could give their feedback on future doctors that graduated from Burapha University. The administrators, doctors, and nurses in this study were chosen to represent the employer viewpoints. Differences between the groups were also analyzed and discussed in the study.

Methodology:

406 samples were collected by random sampling using a five-point scale and open-ended questionnaire sent by registered mail.

Results:

The top three requirements were punctuality, patient-centered health care, and accountability. The moral and ethical aspects that differ significantly among groups of respondents included patient-centered health care, accountability, exhibiting appropriate medical ethics, and treatment without discrimination. The study found that nurses required higher moral and ethical levels from graduate doctors than administrators and doctors did. Respondents also emphasized the value of humanity and holistic health care. Moral and ethical value should be instilled during the early years of medical school by using role models, case studies, and established standards.

Conclusion:

Employers need graduate doctors with a higher level of moral and ethical behaviors. Regarding employer's viewpoints, one of the most important moral and ethical aspects is punctuality. Nurses required higher moral and ethical levels from graduate doctors than administrator and doctors did.

Keywords:
moral, ethics, graduate doctor, employer requirement

Introduction

With the progression of new medical technologies and the complexity of the doctor-patient relationship in the era of globalization, moral and ethical issues were the important topics under focus in the medical profession along with the physician's knowledge and skill[1-3]. In Thailand, the Medical Council of Thailand is an authority to deal with the practice of medicine, that includes establishing rules and regulation of professional competencies in the area of professional habits, attitudes, morals, and ethics, under the Medical Profession Act (1982)[4]. Morals and ethics are also the essential part of outcome competencies of graduates in the Thailand Quality Framework (TQF) for higher education [5]. Research studies revealed that morals and ethical attributes of Thai medical students had some gaps and needed to be improved[6-8]. Differences in culture, economics or position in health care contribute to perception and expectation of professional ethics[9,10]. The Faculty of Medicine, Burapha University is one of the medical schools responsible for culminating the doctor in the eastern and some central regions in Thailand. It's important to identify the moral and ethical requirements from employers who could give their feedback on future doctors that graduated from Burapha University. In this study, the administrators, doctors, and nurses were chosen to represent the employer viewpoints. The difference between the groups was also analyzed.

Material and Method

The population consists of 10,265 administrators, doctors, and nurses in 85 government hospitals in the eastern and some central regions in Thailand representing the employer viewpoints on graduate doctors from Burapha University. The sample size was calculated from Cohen table[11] with the power of 0.80 and the medium effect size of 0.15[12]. The 406 samples were collected by random sampling. According to TQF for higher education of Doctor of Medicine on the moral and ethical domain of learning outcomes of the graduates' characteristics, the questionnaires were constructed of 8 aspects including exhibiting appropriate medical ethics, integrity, exhibiting a credible personality, punctuality, being accountable, treatment without discrimination, respecting the rights of patients and patient-centered health care. The 34 items of 5-scale and 7 items of open-ended questionnaires were sent to 3 professors who were distinguishably recognized in moral and medical ethics, medical education and academic quality assurance for content validity. Reliability was 0.80, calculated from 50 pilot samples. The questionnaires were sent by using registered mail and the respondents were kindly asked to send back directly to the researcher by pre-paid

registered mail. The response rate was 77.34%. 11 subjects were excluded from 326 received questionnaires because of missing main direct and indirect variable data. The percentage of data from administrators, doctors, and nurses were 5.73, 12.74 and 81.53, respectively. Most of the samples (37.90%) have contact with the graduate doctors during the internship every day. Descriptive statistics and one-way ANOVA were used for data analysis. The level of statistical significance was found at 0.05 level. The present study was funded by the Faculty of Medicine, Burapha University and was approved by the Ethical Committee of Burapha University.

Results

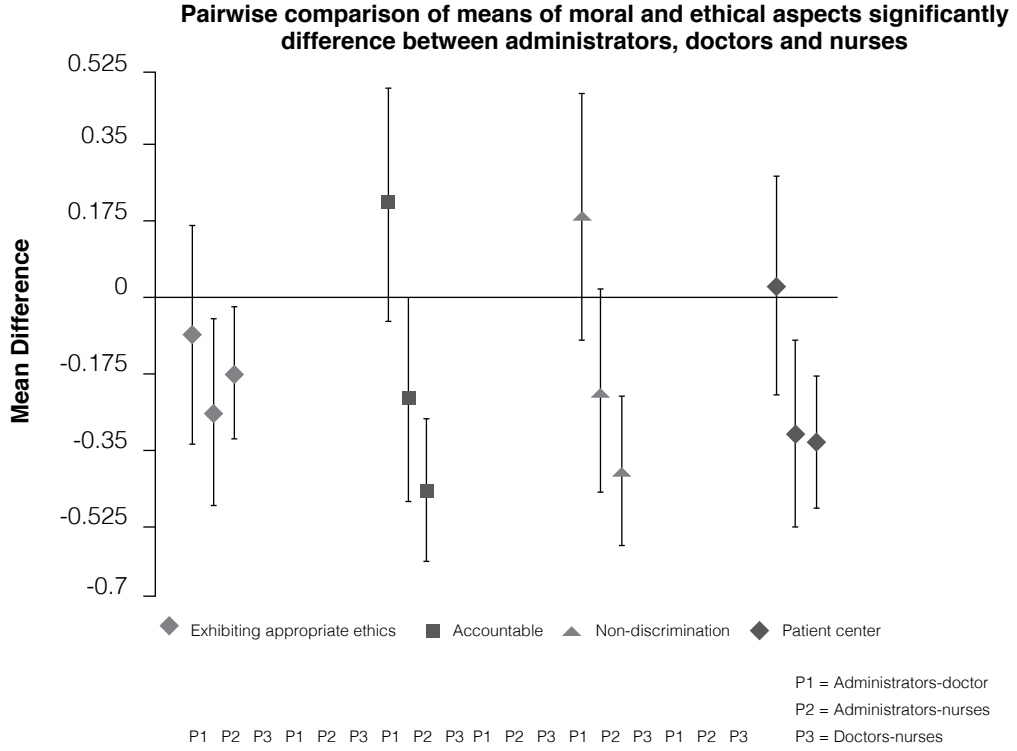
The results reviewed high levels of moral and ethical aspects required by employers with average scores of 4.08 from 5. The top three requirements were punctuality, understanding and being able to provide patient-centered health care and being accountable to patients and assigned duties (Table 1).

A one-way ANOVA was conducted to compare moral and ethical requirements of administrators, doctors and nurses. Overall, there was a significant difference on the level of requirements at the $p < 0.05$ level for the four aspects including patient-centered health care, being accountable, exhibiting appropriate medical ethics, and treatment without discrimination (Table 2). Post hoc comparisons, using Least Square Difference (LSD) method, indicated that nurses significantly required higher moral and ethical levels from graduate doctors than administrators or doctors did (Figure 1).

Table 1. Mean and SD with significance testing of moral and ethical requirements of the administrators, doctors and nurses

Moral and ethical requirements for graduate doctors	Administrators (n = 18)	Doctors (n = 40)	Nurses (n = 256)	Total (n=314)	F	p-value
	Mean (SD)	Mean (SD)	Mean (SD)	Mean (SD)		
Punctuality	4.75 (0.39)	4.65 (0.48)	4.79 (0.42)	4.77 (0.43)	1.74	0.177
Patient-centered health care	4.21 (0.48)	4.19 (0.48)	4.53 (0.46)	4.47 (0.48)	12.43	<0.001*
Being accountable	4.13 (0.46)	3.91 (0.54)	4.37 (0.49)	4.3 (0.52)	16.11	<0.001*
Integrity	4.24 (0.42)	4.26 (0.46)	4.28 (0.52)	4.27 (0.51)	0.73	0.930
Exhibiting appropriate medical ethics	3.79 (0.38)	3.88 (0.43)	4.06 (0.73)	4.02 (0.47)	5.21	0.006*
Treatment without discrimination	3.67 (0.47)	3.49 (0.43)	3.9 (0.53)	3.83 (0.54)	12.00	<0.001*
Respecting the rights of patients	3.74 (0.4)	3.61 (0.39)	3.63 (0.42)	3.63 (0.41)	0.68	0.507
Exhibiting a credible personality	3.38 (0.38)	3.34 (0.4)	3.43 (0.42)	3.41 (0.42)	0.73	0.481
Total	3.98 (0.42)	3.91 (0.45)	4.12 (0.49)	4.08 (0.47)	11.24	<0.001

Figure 1: *Comparison of the means of moral and ethical aspects is significantly different between administrators, doctors and nurses*



Discussion

The administrators, doctors, and nurses required moral and ethical characteristics in graduate doctors at a high level. This finding came along with social trends that call for the good doctors who not only focus on medical knowledge but also have humanistic and ethical competencies[3-5,13-14]. The outstanding character needed was punctuality. In medical practice keeping in-time at every step is very critical, even to save one's life. And perhaps punctuality is mostly straightforward to judge compared with other aspects which could be influenced by a social or cultural context. Importantly, Burapha University announced punctuality as a basic moral characteristic for students in every faculty in part of the academic quality assurance. The least needed aspect, at a moderate level, was to exhibit a credible personality. A professional personality is more an external part that would be easier to be trained and there are variations in acceptance depending on social, culture or situation[15-17].

The aspects that differed significantly among groups of respondents were patient-centered health care, being accountable, exhibiting appropriate medical ethics, and treatment without discrimination. The study found that nurses significantly required higher moral and ethical levels from graduate doctors compared with administrators and doctors. Nursing is a profession that has close contact with patients, gaining the opportunity to identify the gap between expectation and reality as customer or colleague as seen in some frictions of nurses on young doctors behavior[9]. Almost all administrators are doctors that usually take their role in medical practice. However, this study revealed there was no significant difference between the requirement of administrators and doctors.

Regarding the above finding, it can be explained that doctors' and administrators' requirements on moral and ethical issues were significantly lower than nurses. The limitation of health system resource allocation is the factor that threatens young doctors' moral and ethical reasoning development. According to world health statistics 2010 from WHO[18], Thailand's doctor to population ratio was 3:10,000 ranking below the average ratio in the South-East Asia region or the average global physician density that were 5:10,000 and 14:10,000, respectively. Excluding the care of illegal workers and families that have no health care coverage, the health care system in Thailand included 3 health schemes: civil servant medical benefit (CSMBS), social security scheme (SSS) and universal health care coverage (UC), which are under the process of development including the issues of uncertainty and inequity among these health care schemes[19-21]. The front-line doctors, most of whom are young, have to decide the proper treatment that is suited to any patient's health scheme as well as the hospital facilities under the time limit to overcome an overwhelming workload. These surrounding factors more or less influence their own decision-making process. However, the medical system takes moral and ethical issues as an important consideration for medical students or doctors as can be seen in the continual

development of the guidance and rules as well as improvement of the medical curriculum[4-6]. For the open-ended questionnaires, the subjects emphasized the importance of role models. Case studies in real scenarios point out that the assessment of the doctors' ethics should be done objectively from the start of the medical school year or earlier.

Conclusion

The administrators, doctors, and nurses needed graduate doctors with high levels of moral and ethical behaviors. The finding was in accordance with trends of medical curriculum based on TQF that tightly integrate moral and ethical aspects as core values. From the employer viewpoints, the most important moral and ethical aspect is punctuality. Nurses require higher moral and ethical levels from graduate doctors than administrators and doctors. Health organizations or related policymakers should manage these differences of opinions by establishing venues for co-workers to exchange their views in order to reduce conflicts and initiate improvements in patient care.

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Strategic Use of Surveillance Information System in a Time Frame of Internal Quality Assurance

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Abstract

A period of Twenty months to complete an Internal Quality Assurance (IQA) is too long to monitor the achievement of indicators before the assessment, while effectiveness is one of the critical factors that will affect the success of Quality Assurance. Unfortunately, some institutes may not be able to succeed. How do administrators monitor the achievement of indicators effectively in real time? In the year 2010, the surveillance Information System (SIS) was adopted and applied to use in School of Tourism Development at Maejo University, for online monitoring of IQA and EQA indictors. The surveillance committee was also promoted to analyze activities which entered into the system from responsible bodies and to revise the score of indicators accordingly. Four meetings were held to revise indicators while SIS was used for monitoring the achievement. SIS showed the real time score of each indicator on the dashboard that compared the target and performance. Details of activities were displayed when indicators were selected. The results of IQA assessment in the year 2010 reported that the total average score was 4.36, the highest score in the social science's faculty. For Component 9: System and Mechanism of Quality Assurance, the score was 5 due to SIS was an innovation and it was distributed to inside departments and outside MJU. However, It was stopped in the following year although the result was satisfied because the responsible bodies had to re-enter all data into the CHE QA system at the end of the period.

Keywords:

Surveillance Information System, Internal Quality Assurance, Quality Assurance, CHE QA system, IQA Monitoring

Introduction:

National Education Act BE 1999, Section 6 refers to the standards of Quality Assurance which requires all education institutes in Thailand must have a system of quality assurance as part of a process for administration work (Office of the National Education Commission 2002, 28). All institutes must evaluate Internal Quality Assurance (IQA) by a committee every year and External Quality Assurance (EQA) by an outside

committee every five years. However, the institute's performances as IQA and EQA indicators for the previous 20 months are evaluated each year. January-December (calendar year), May-June (academic year), October-September (fiscal year). The final working data has to be entered into the information system called "CHE QA" in September of every year to evaluate the institutes by IQA committees.

Figure 1 shows the time frame of Quality Assurance in Year 2010 that School of Tourism Development (TDS), Maejo University, had to perform their activities within 20 months before IQA assessment. The question is how the administrators monitor the achievement of all indicators during this time frame.

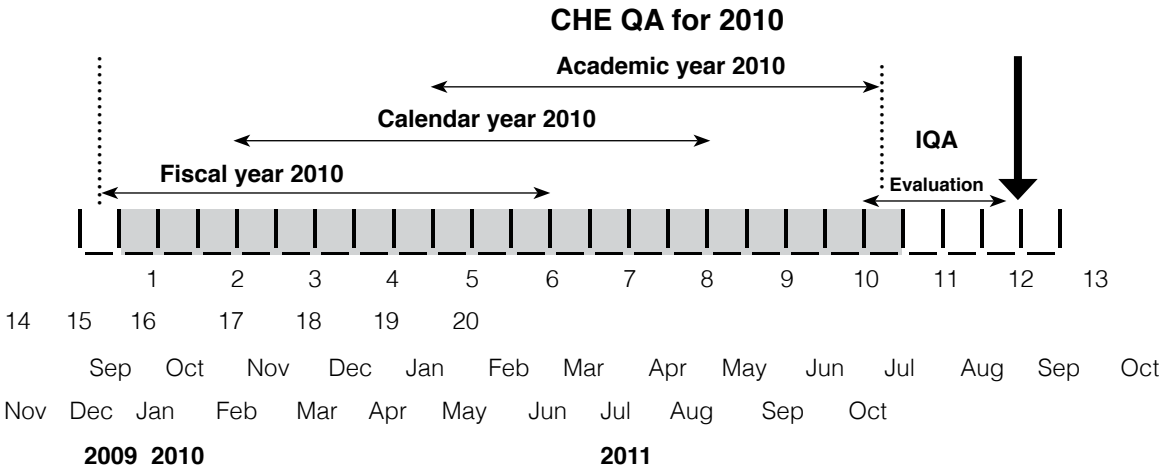

Figure 1: *TDS's Time frame of Quality Assurance for Year 2010*

However, effectiveness is one of critical factors that will affect the success of quality assurance especially for the institute which has many activities in the year. Indicators are necessary and need to be improved and developed accordingly by using Information System as a tool to monitor, follow up, and control indicators of the institutes. Hence, Surveillance Information System is a tool which is necessary for real time monitoring from online internet.

Methodology:

In 2010, Surveillance Information System (SIS) was adopted and applied to be used as a tool in School of Tourism Development for online monitoring of IQA and EQA indicators. It allowed administrators and responsible bodies to analyze and evaluate performances effectively and timely. The objective of SIS is to monitor IQA and EQA indicators in real time by Surveillance Committee and administrators. Details are as follows:

Surveillance Information System

Surveillance Information System (SIS) was adopted from "Educational Quality Surveillance Information System: EQSIS" by changing indicators from research university indicators to IQA indicators (Paisarn Kanchanawong 2010, 282). The scope of SIS is to store all activities data and display the scores of all indicators in one page called "Dashboard" and give more information of selected indicators in a detail which are shown in Fig.2, Fig.3 and Fig.4.

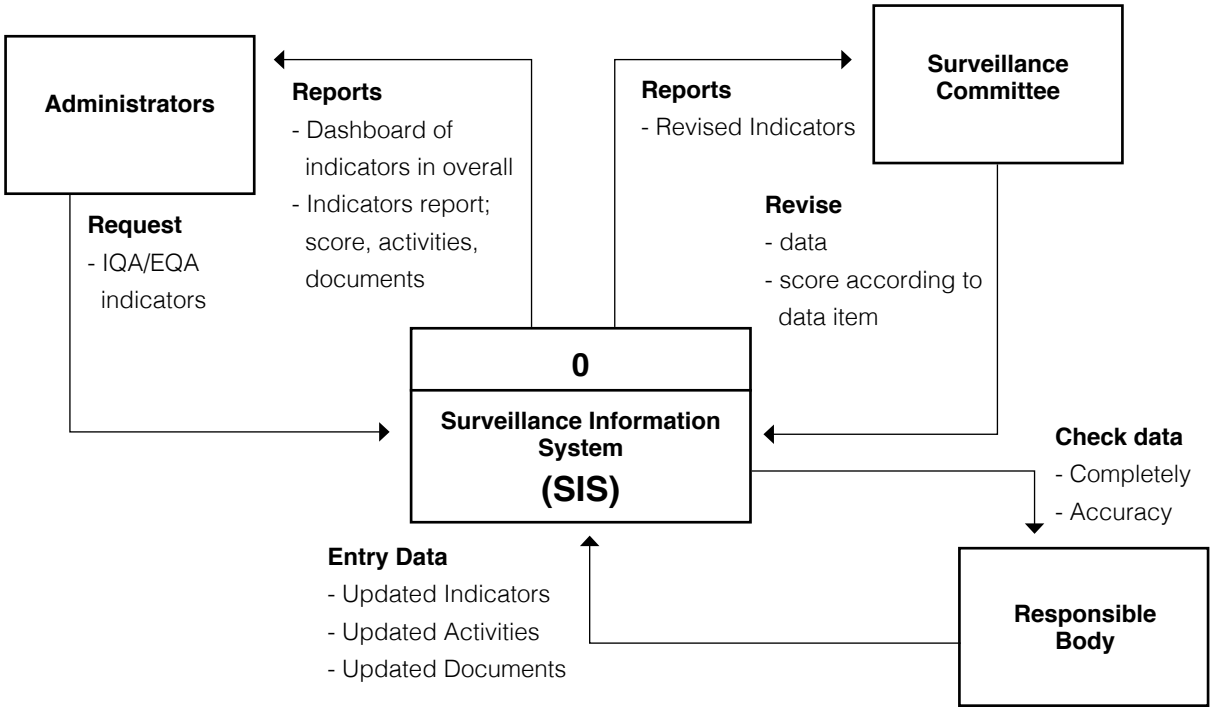

Figure 2: *Context Diagram of Surveillance Information System (SIS)*

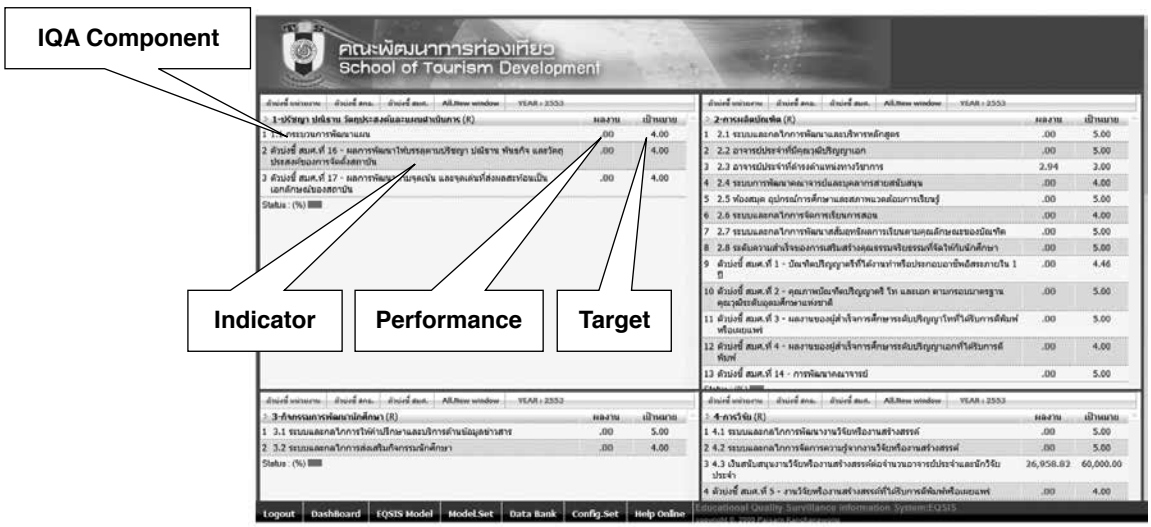

Figure 3: *Indicators Dashboard; Showing target and score of indicators*

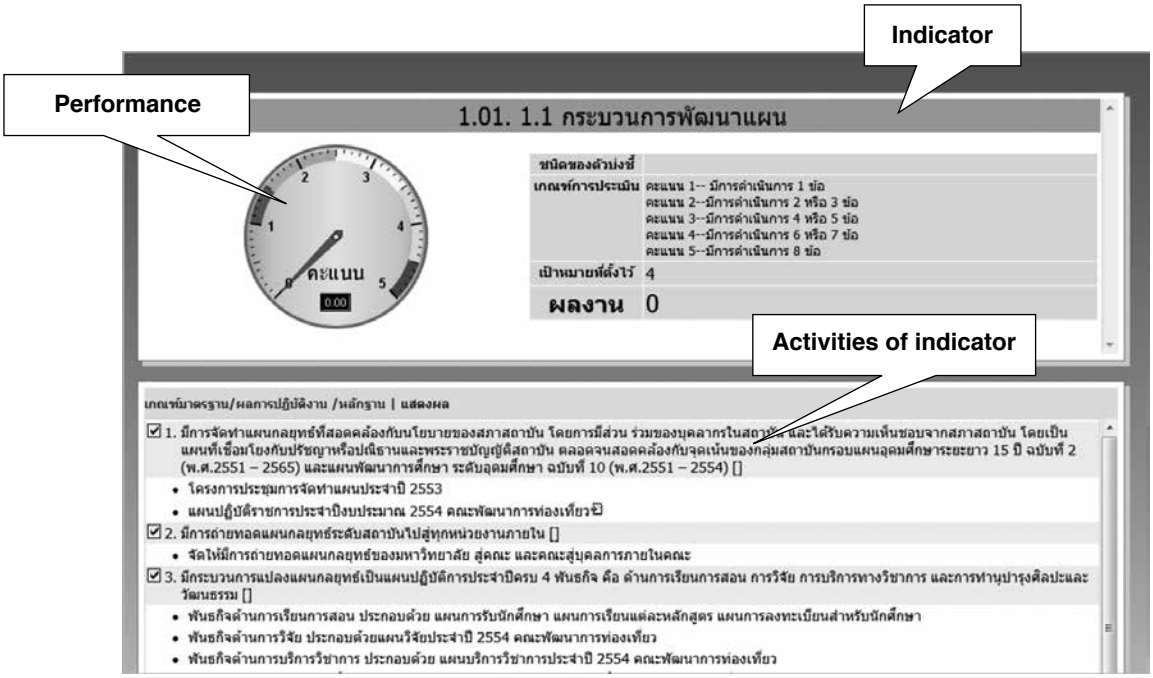

Figure 4: *Details of selected indicators*

Surveillance Committee

The Surveillance Committee was appointed by the head of unit in the School of Tourism Development. Their functions were to monitor, follow up, and revise data and scores of indicators according to the activities which was entered by responsible bodies. There were 4 meetings which had the following objectives:

Meeting 1 – Revise the comments from previous Internal Quality Assessment, Find the solution of those comments, determine the responsible bodies in each indicator, and set up the target for indictors.

Meeting 2 – Follow up the activities in the system and revise the score depending on activities which was entered by responsible bodies.

Meeting 3 – Follow up the activities in the system and revise the score depending on activities which was entered by responsible bodies.

Meeting 4 – Follow up the activities in the system and revise the score depending on activities which was entered by responsible bodies. Finalize the score and data before entering into the CHE QA system.

Results, Discussion and Conclusion:

The TDS's administrators and responsible bodies worked closely and could monitor the performance of indicators via SIS as real time from online internet during the 20 month period. IQA assessment report showed TDS's total average score was 4.36 (Office of Quality and Educational Standard 2010). For Aspect 9: System and Mechanism of Quality Assurance, a score of 5 was obtained due to the appropriate use of Surveillance Information System and it was distributed to the departments inside and outside MJU (Office of Quality and Educational Standard 2010). The advantage of the SIS was the activities and score of KPI could be monitored from anywhere and anytime within time frame of IQA. But the problem was that the data had to be re-entered into the CHE QA system before the Assessment which was required by the government, thus had doubled the work of the responsible bodies. So it was halted the following year although the result was satisfactory. From my point of view, the SIS is very useful for administrators to monitor the performance boost-up of the institutes. Therefore, the recommendation from this work is to couple the CHE QA system to the surveillance system in order to monitor indicators from online internet for the institutes within the time frame of working for Educational Quality Assurance before the IQA Assessment.

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Striving for Performance Excellence at Stamford International University of Thailand

delivered by
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Abstract

In Thailand, the Office of the Higher Education Commission (OHEC) has introduced a rigorous quality assurance process in an attempt to measure and improve the performance of public and private universities and colleges in the country. The OHEC uses the Internal Quality Assessment (IQA) system to measure yearly performance of all public and private universities. At the same time, the Office for National Education Standards and Quality Assessment (ONESQA) uses the External Quality (EQA) system to measure five-year outcomes of universities' operations, and it has the official authority to approve or revoke the accreditation of those universities. This paper describes and reviews the higher education system management system in Thailand and how it supports Thailand higher education to achieve and exceed international standards. The case of Stamford International University is elaborated to demonstrate how Stamford improved its educational quality in the past three years from a "very poor" rating in the beginning, to achieve an "excellent" rating as set forth by the Ministry of Education, Commission on Higher Education and the Office for National Education Standards and Quality Assessment. A chronological description is used to show how a continuous improvement process takes place in the university. Senior leaders who understand, support and commit the strategic moves of the proposed quality framework regulated by the Ministry of Education are the most critical components of successful implementation. Besides, integration of quality processes into a culture of excellent performance is very essential to its success.

Keywords:

IQA, EQA, Continuous Improvement process, strategic success.

Introduction

Since the inception of a national education plan in B.E. 2542 (1999), quality management of Thai higher education has reflected clear evidence of progressive improvement with its more advanced measurement tools. Key drivers of this improvement are the Commission on Higher Education (CHE) and the Office for National Education Standards and Quality Assessment (ONESQA) which launched implementation of quality assurance practices at all levels of education throughout the country in B.E. 2545 (2002) (5,10). CHE developed the annual quality measurement system called "Internal Quality Assessment" (IQA) required of all public and private universities. The objectives are to measure the quality of both academic and business process operations in higher education institutions each year. The resulting scores give annual guidance for value-added improvements to all public and private universities (5,6). Simultaneously, ONESQA, an independent authority agency, has developed a five-year quality measurement system called "External Quality Assessment" (EQA) that measures the outcomes of higher education operations toward achieving standards that represent the national education norm. The ONESQA measurement results in a designation of "recognized" or "unrecognized" by the Thai Ministry of Education (3,4). Since the Thai quality measurement and management system was established ten years ago, quality improvements are visible, and the performance of most Thai universities has improved, especially so, the public universities that are classified as research institutions. The top public research universities which participate in the government quality assurance program have clearly performed well in the international arena.

Recent international education trends as well as the ASEAN Economic Cooperation in 2015 agreement have forced Thai higher education to be more international. Thai universities must cooperate with other ASEAN universities to develop agreed-upon international education standards to mobilize ASEAN students for employment opportunities in any ASEAN country in order to move the ASEAN economy forward. The recent emerging need of international higher education standards is emphasized by economic need. It gives rise to the innovative concept of a professional measurement system derived from industry. Thailand has long participated in the United States industrial quality assessment system under the 1987 Malcolm Baldrige National Quality Improvement Act. Subsequently the Thai Ministry of Industry initiated the Thailand Quality Award in B.E. 2539 (1996) in an attempt to improve Thai industrial productivity and give an annual award from the Thai Prime Minister to the top industry as measured by the Thailand Quality Award criteria. Recent cooperation between the Ministry of Education and the Ministry of Industry has resulted in improved Thai education performance under the Thailand Quality Award system framework. The new award is the Thailand Quality Award which is patterned after the

Malcolm Baldrige National Award (MBNA) developed in partnership with the United States MBNA committee. The Thai Commission on Higher Education with the cooperation of the Thailand Quality Award committee hence have initiated the application of educational criteria for performance excellence from the Baldrige national quality program in an attempt to apply this new measurement to all universities in the near future. Many public and private universities voluntarily applied for this new quality program. The CHE intends to implement these educational criteria for performance excellence, shortened to "EdPex," as a continuing measurement tool after the successful implementation of the existing Internal Quality Assessment and External Quality Assessment for those universities who look beyond their current successful quality status (1, 2, 3, 4, 5). The Thai education authority aims to achieve a higher successful quality standard at a higher international level and to be a leading ASEAN educational quality and standards system.

Thailand Quality Framework and System

At present, there are two existing quality assessment systems that work in unison to measure and improve the Thai higher education system, namely the annual internal quality assessment (IQA) and the five-year external quality assessment (EQA) governed by the Commission on Higher Education (CHE) and the Office for National Education Standards and Quality Assessment (ONESQA), respectively. The IQA focuses more on the input and process Key Performance Indicators (KPI) while the EQA measures the outcome of KPI's. The combination of the two assessment systems in a five-year cycle provides a comprehensive performance measurement of a university or college. Both CHE and ONESQA show and rank the assessment result scores publicly. A passing score is 3.51 out of 5, rated as "Good" and a score of 4.51 or above, is rated as "Excellent" for both IQA and EQA systems. The criteria and KPI's for the two systems are described in the following sections.

Internal Quality Assessment by the Commission on Higher Education

IQA or the Internal Quality Assessment system authorized by the CHE or the Commission on Higher Education is used to measure and evaluate education operations, aiming to produce highly qualified graduates corresponding with society's needs. Educational quality assurance is one of the essential responsibilities for administering education. The IQA is comprised of nine components and 23 key performance indicators. Each KPI has a full score of 5 based on clear documentary evidence following the steps of approach, development, learning, and innovation or ADLI. The concept is similar to the concept of plan, do, check, act steps (PDCA) of quality circles developed by Dr. W. Edwards Deming (1).

The nine components of the IQA system are as follows: (1) Philosophy, commitments, objectives, and implementation plan, (2) Teaching and learning, (3) Student development activity, (4) Research, (5) Academic services, (6) Culture and arts preservation, (7) Management and administration, (8) Finance and budgeting, (9) Quality assurance system and mechanism. All of these components are tied into the system of quality management as input, process, and output with their variety of KPIs as shown in Figure 1.

Component	Number of Indicators			
	Input	**Process**	**Output/Outcome**	**Total**
(1) Philosophy, commitments, objectives, and implementation plan		Indicator 1.1	Indicators (ONESQA) 16 and 17	1+2
(2) Teaching and learning	Indicator 2.2, 2.3 and 2.5	Indicators 2.1, 2.4, 2.6 and 2.7	Indicators 2.8 and Indicator (ONEESQA) 1,2,3,4 and 14	8+5
(3) Student development activity		Indicators 3.1 and 3.2		2
(4) Research	Indicator 4.3	Indicator 4.1 and 4.2	Indicators (ONESQA) 5,6 and 7	3+3
(5) Academic services		Indicators 5.1 and 5.2	Indicators (ONESQA) 8, 9 and 18	2+3
(6) Cultural and arts preservation		Indicator 6.1	Indicators (ONESQA) 10 and 11	1+2
(7) Management and administration		Indicators 7.1, 7.2, 7.3 and 7.4	Indicators (ONESQA) 12 and 13	4+2
(8) Finance and budgeting		Indicator 8.1		1
(9) Quality assurance system and mechanism		Indicator 9.1	Indicator (ONESQA) 15	1+1
Total	**4**	**18**	**1+18**	**23+18**

Figure 1: *The 9 components and 23 Indicators (CHE) and 18 Indicators (ONESQA)*
Source: *Internal Quality Assurance for Higher Education Institutions Handbook B.E. 2553 (2010), Office of Higher Education Commission (OHEC).*

All of the above 23 KPI's under nine components are used to measure the performance of all universities and colleges in Thailand (5,6). Recently, in B.E. 2551 (2008) and B.E. 2552 (2009), CHE reported that there were 131 universities and colleges that had participated. In B.E. 2551 (2008), 26 universities and colleges reached the standards set by CHE while in B.E. 2552 (2009), the number of universities and colleges dropped to 17, and the number of "Excellent" scores improved significantly to more than half of the total of 131 participating institutions. The old, easier scoring system where 3.00 was a full score and 2.51 or above rated as "Excellent," has changed to the present full score of 5.00 and "Excellent" at 4.51 or above. It is expected that the number of universities and colleges rated as "Excellent" will drop under this stricter rating scheme. Overall, the CHE is shaping the way to improve the system of performance measurement to achieve better quality for higher education in Thailand.

External Quality Assessment by the Office for National Education Standards and Quality Assessment

The Office for National Education Standards and Quality Assessment (ONESQA) presently has completed its second five-year external quality assessment cycle of higher education performance measurement, namely cycle 1 between B.E. 2544 (2001) and 2548 (2005), and cycle 2 between B.E. 2549 (2006) and 2553 (2010). ONESQA used the EQA to measure the outcomes of higher education operations by focusing on the past three consecutive years of outcome information. The EQA framework consists of 18 Key Performance Indicators (KPI's) of output and outcomes (3,4).

The passing score of EQA is 3.51 or above, rated as "Good" and the "Excellent" score is 4.51 or above out of the full score of 5.00. In the assessment process, ONESQA classified all assessing institutions into four groups including: (1) Graduate production with research focus, 23 institutions participated, (2) Graduate production with society and community development focus, 101 institutions participated, (3) Graduate production with culture and arts development, 15 institutions participated, (4) Graduate production, 63 institutions participated. Initially, 202 institutions participated in B.E. 2551 (2008), and of these, sixteen were declared "Unrecognized" institutions in the preliminary announcement by ONESQA in September B.E. 2551 (2008). ONESQA granted an extension of six to twelve months to those institutions who did not pass with minimum acceptable scores to improve their performance.

The latest results from the second cycle of external quality assessment by the ONESQA between B.E. 2549 (2006) and 2553 (2010) show that there were 254 institutions participating in B.E. 2554 (2011) throughout Thailand and only eight institutions received "Unrecognized". Some of those institutions who "failed" could not survive, resulting in subsequent mergers and acquisitions.

Continuous Improvement in Higher Education Performance Excellence with the U.S. Malcolm Baldrige National Quality Award

The Commission on Higher Education (CHE), in cooperation with the Thailand Quality Award (TQA) committee, is in the process of conceptualizing the higher education performance excellence track, also known as the "EdPex" project. The quality framework concept is adopted from the Baldrige National Quality Program: Education Criteria for Performance Excellence. The criteria emerged from Thai industrial practice towards performance excellence initiated by the TQA committee under Thai Ministry of Industry since B.E. 2545 (2002). During the past ten years, there have been only three industrial companies out of 270 applicants to receive the top quality award called "Thailand Quality Award (TQA)". The top quality award grading scale is equivalent to the U.S. Malcolm Baldrige National Quality Award (MBNQA) calibrated by the U.S. MBNQA committee. The framework for Baldrige Educational Criteria for Performance Excellence is shown in Figure 2. The framework consists of broader and more flexible criteria in determining the maturity level of higher education performance through the meticulous examination and consensus judgment of qualified TQA practitioners. The seven evaluation criteria are: (1) Leadership, (2) Strategic Planning, (3) Customer Focus, (4) Measurement, Analysis, and Knowledge Management, (5) Workforce Focus, (6) Operations Focus, (7) Results.

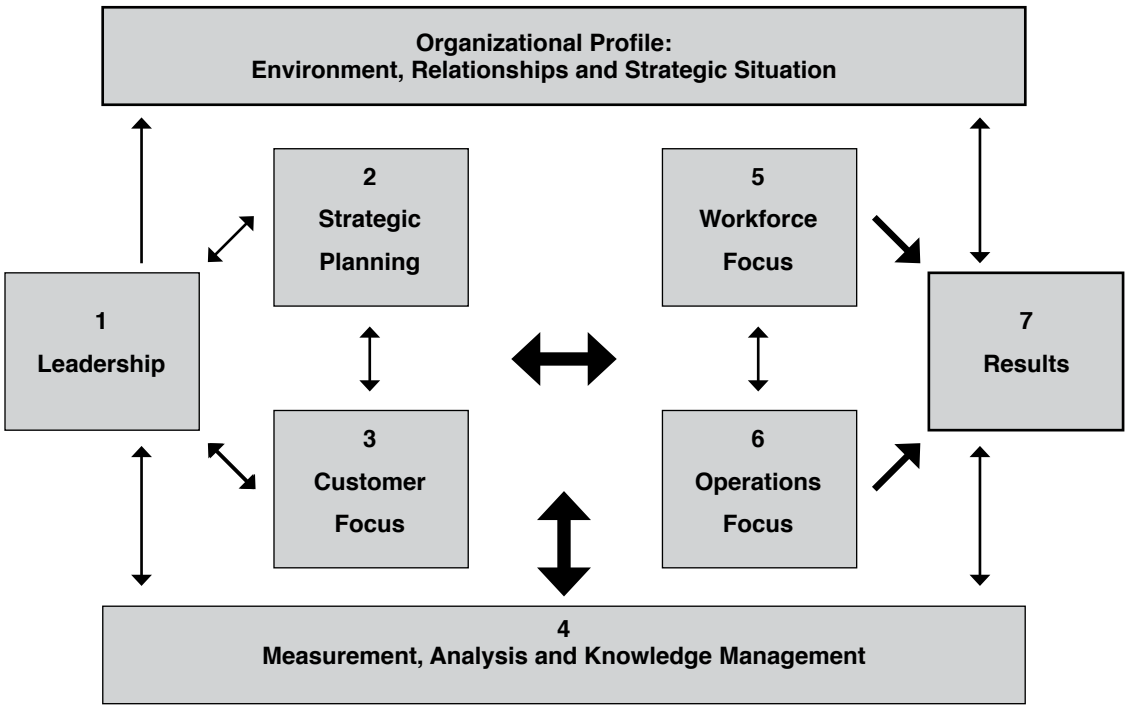

Figure 2: *TQA Framework Adopted From Education Criteria of Malcolm Baldrige Performance Excellence*

Source: *The 2009-2010 Education Criteria for Performance Excellence, Office of Standards and Higher Education Assessment, Office of Higher Education Commission August 2010.*

The Case Example of Benefits of Thai Higher Education Quality Improvement

Stamford International University has experienced the troubles of failed and unrecognized status, however, the university finally recovered and delivered a successful implementation achievement in establishing continuous improvement using the Approach(A), Deploy(D), Learning(L), Innovation(I) concept from the Commission of Higher Education (CHE) and Office for National Education Standards and Quality Assessment (ONESQA).

Stamford International University was established in 1995, located near Hua Hin, Petchaburi Province. The university started teaching all undergraduate programs in English. In 2008, Stamford has expanded its campus to Bangkok at Rama IX, on the Motorway road to Suvarnabhumi International Airport. Its aims to replicate English programs at the Bangkok campus while initiating Thai language program at the Hua Hin campus in order to utilize the beautiful facilities there.

In 2008, the university had three undergraduate faculties, and a graduate school, offering 12 programs in Bachelor of Business Administration, Bachelor of Arts, Bachelor of Science, Master of Business Administration, and Master of Public Administration. The second round of ONESQA's five year evaluation process was conducted during 3, 4, 5 and 27 April 2008 by a qualified external committee. The 2008 external quality assessment (EQA) results were "failed" and "unrecognized" as shown in Figure 3, waiting for a second round of EQA within two years. The total number of enrollments dropped to about 350 in 2009 academic year for both campuses even though the university spent heavily on advertising campaigns to promote the new campus facility in Bangkok.

The 2008 External Quality Assessment

The 2008 EQA system consisted of 7 components including: (1) quality of graduates, (2) research and creative works, (3) academic services, (4) arts and cultural maintainability, (5) personnel and institute development, (6) curriculum, teaching and learning, (7) quality assurance system. Stamford got "satisfactory" on component (1), while the other six components were unclear and needed improvement, thereby "failed" in general performance.

Quality Component	Result
1. Quality of graduates	Satisfactory
2. Research and creative works	Unclear and inefficient - Failed
3. Academic services	Very limited - Failed
4. Arts and cultural maintainability	Unclear and need to be improved
5. Personnel and institute development	Unclear and need to be improved
6. Curriculum, teaching and learning	Non-compliant with CHE regulations
7. Quality assurance	Lack of QA system and mechanism
General Performance	**Failed**

Figure 3: *The 2008 EQA Results*
Source: *Internal Quality Assurance for Higher Education Institutions Handbook B.E. 2553 (2010), Office of Higher Education Commission (OHEC).*

The New Alignment of Business and Academic Strategies

The author officially joined Stamford International University in January, 2009. The university was challenged by a critically serious uncertainty situation. Thriving in the uncertainty, the critical strategies have been prioritized by first correcting the academic system and mechanism to strictly comply with the CHE's regulations with respect to the internal quality assessment (IQA) requirements. Secondly, the business strategy to increase enrollment through admission processes was implemented. The academic strategy was to strengthen the quality of existing programs in the bachelor's degrees and master's degrees, without considering new strategic programs, such as a doctoral degree. A doctoral program requires heavy investment in quality resources to be successful. The 2009 business strategy was necessary to spend very efficiently on promotion and advertising, which was five times less than the previous year. Business and academic strategies were aligned and implemented as in the following categories and targeted achievements:

I. Leadership and Strategies.

The group of working advisory boards was initiated by the university license holder to conquer the critical problems, thereby reporting to the University Council Chairman. The group consists of the license holder as a chief advisor, president, an academic advisor and a business advisor. The advisory board meets weekly to give advice on both business and academic issues necessary for the president to take appropriate action in the organization. The new strategy was proposed by the president in consent with the chief advisor. The main thrust of the new strategy is to rectify the academic system and mechanisms in strict compliance with the CHE's internal quality

assessment (IQA) and ONESQA's external quality assessment (EQA) requirements with necessary resources within the given time frame of two years set forth by Ministry of Education. The capital for human, academic, student activities, and marketing and admission was proposed in yearly and five yearly plans with a financial recovery constraint. Measurement and Key Performance Indicators were newly established to meet the CHE's regulations and legal requirements at the targeted levels in the projected years ahead.

The weekly management meeting for all academic and business executives has been set to execute the approved annual strategic plan, including academics, marketing and admissions, student activities, and new regulations. The biweekly academic meeting for all faculties, including the graduate school, has been set to execute the academic operational plan, e.g., teaching and learning, student's satisfaction outcome, attrition rate reduction, and other urgent matters.

The good practice of transparent financial reporting system and procedures was authorized by the license holder and the president and reported at a University Council meeting. The organizational plan for academic and supporting personnel was proposed in the projected annual and five year plan. The principle of legal and ethical behavior was promoted and fostered in the organizational culture. The code of conduct for faculty members and personnel was established and implemented along with the students' ethical behavior and dress code. Criteria for performance reviews of University Council leadership were established. They aim to improve and develop organizational good governance and to deliver an appropriate and effective leadership system.

II. Academic Operations and Measurements

The single most critical strategic objective was to rectify the existing academic system and mechanism to meet the requirements of ONESQA's external quality assessment and to simultaneously meet the CHE's internal quality assessment in the 2009 academic year. Both IQA and EQA reports of academic year 2008 provided the immediate key guidance to start with. Then, the university's quality assurance team proposed a project plan for the academic year of 2009, including all the necessary action plans together with relevant budgets under the close supervision of the president. The key performance indicators (KPI's) of each IQA and EQA criteria were developed and calculated with targeted achievable scores in all quality components.

The 2009 project plan was considered, discussed, and refined by the advisory committee to meet budget constraints and finally get consent for implementation. Intensive in-house training by external IQA and EQA experts was conducted for all faculty members, academic executives, and the president. Proper dated documentation related to the action plan project was properly implemented in all faculties and departments. Existing curricula were revised and updated to comply with the CHE's regulation requirements, then reported to the University Council meeting to be acknowledged and approved. An interactive teaching and learning methodology was implemented in all classrooms with attendance and number of

hours recorded in compliance with the CHE regulation. A students' satisfaction survey was conducted in all classes every semester to rate the teaching faculty performance. A risk management system was developed in both academic faculties and business units to identify critical activities that needed to be closely monitored.

The most critical academic issue was production of research, creative works, and academic services. The research policy committee was established in 2009, chaired by the president. The university exploited its strength of tourism and information technology in winning academic service contracts from several local provincial governments and the Thai Ministry of Tourism and Sports. The external fund generated many research and academic articles published in academic journals. In addition, the university set a policy for graduate students to conduct research projects and produce research publications.

The 2009 IQA Result

In October 2009, the university went through the internal quality assessment process (IQA) conducted by CHE. The 2009 IQA score result is shown in Figure 4. Note that the university level score was 2.63/3.00 rated Excellent, the graduate school was 2.41 (Good), liberal arts was 2.48 (Good), business administration was 2.40 (Good), and science and technology was 2.35 (Good). Relevant documentation was collected primarily from January to May 2009, after the current university president took office.

The IQA committee cited that university strengths are: (1) Stamford executives and faculty members were strongly determined, devoted, and committed to managing to achieve quality of education, (2) Stamford possesses "internationality" in response to the present and future direction of higher education, (3) there is a diversity of multi-cultural activities. Improvement areas are: (1) needs a development plan for individual faculty members to grow their academic competency, (2) needs benchmarking by shared experience, (3) needs a working committee for developing teaching and learning quality, (4) needs to support and promote faculty members in producing national and international publications.

The 2010 IQA Result

In October 2010, the university went through an internal quality assessment (IQA) by CHE. The 2009 IQA score result is shown in Figure 4. Note that the university level score was 4.67/5.00 rated Excellent, graduate school was 3.91/5.00 (Good), liberal arts was 4.26/5.00 (Good), business administration was 4.22/5.00 (Good), and science and technology was 4.43/5.00 (Good).

Strengths are in the following: (1) well-prepared and developed excellent style of presentation, (2) visionary senior leadership, (3) determined and committed faculty and personnel, (4) clear philosophy and vision especially progressivism, (5) good

environment, small class-size, and student conviviality, (6) Caring instructors. Improvement areas are: (1) its own unique style, (2) adopt a research theme and better research teamwork, (3) better communication channels between Bangkok and Hua Hin campuses, (4) a clear strategic plan in moving towards internationality, (5) a plan to develop quality of faculty members in producing academic works (6) readiness for education innovation and development (7) strong education partnership for university operations, (8) universities for benchmarking, (9) more educational facilities, e.g. classroom, laboratory, and others.

IQA Score Improvement Yearly since 2009

	2009	2010	2011	Improvement
Stamford International University	2.63/3.00	4.67	4.86	Excellent 3 consecutive years
Graduate School	2.41/3.00	3.91	4.67	Good → Excellent
Liberal Arts	2.48/3.00	4.26	4.74	Good → Excellent
Science and Technology	2.35/3.00	4.43	4.70	Good → Excellent
Business Administration	2.40/3.00	4.22	4.87	Good → Excellent
Excellent Score Standards	2.51	4.51	4.51	

Figure 4: *The Score Results of Internal Quality Assessment in 2009, 2010, and 2011*
Source: *Stamford International University, 2009, 2010, 2011 Internal Quality Assessment Report CHE Online Website.*

The Repeated 2008 or the 2nd Round EQA Result in 2011.

On the 18th to 20th April 2011, the university went through an external quality assessment (EQA) process by ONESQA. The repeated 2008 result was shown in Figure 5 and 6. Note that the university level score was 4.14/5.00 rated (Good), graduate school was 3.98 (Good), liberal arts was 3.85/5.00, business administration was 4.20, and science and technology was 3.80/5.00. The results were collected from the academic year 2008, 2009, and 2010 documents.

The EQA committee cited that "Stamford International University passes the external quality assessment standard and is rated Good. Faculties of science and technology, business administration and liberal arts unconditionally pass the external quality standard." The non-recognition was revoked.

Improvement areas are: (1) strengthening the research and creative works by expanding the research network with other universities and integrate research to all missions of the university, (2) developing effectiveness and efficiency of the administration system and mechanism to increase number of enrollments to meet the

business plan. It includes fund sourcing and revenue generation by academic services, (3) budget efficiency consideration, increase exploitation of external resources, and recruitment of the Thai and international faculty members with qualifications relevant to specifications set forth by CHE.

2011 IQA Result

On 10th, 17th and 27th August 2011, the university went through the 2012 IQA process under CHE committee. The results are shown Figure 7. Noted that the university score was at 4.86/5.00, Excellent level, graduate school was at 4.67, liberal arts was at 4.74, science and technology was 4.70, business administration was at 4.87. All faculties received excellent scores, including the university level.

2011 IQA Results

Quality Component	Score	Result
1. Quality of graduates	4.62	Excellent
2. Research and creative works	4.00	Good
3. Academic services	3.54	Good
4. Art and cultural maintainability	4.00	Good
5. Personnel and institute development	4.00	Good
6. Curriculum, teaching and learning	4.11	Good
7. Quality Assurance	5.00	Excellent
Average Score	**4.14**	**Good**

Figure 5: *2011 External Quality Assessment Result*
Source: *Stamford International University, External Quality Assessment Report by the Office for National Education Standard and Quality Assessment (ONESQA).*

In general, Stamford International University has demonstrated continuous improvements of the internal quality process every year under the framework established by the Thai Commission on Higher Education, along with the Key Performance Indicators for quality improvements. Recently, there appears to be increased demand for research activities in all public and private universities.

The IQA committee commented that 1) good development in preparing the well thought out document, 2) a determined and judgmental leader, 3) faculty members and staff clearly understand and link to leaders' thought in striving for a leading international university, 4) needs a long term plan in academic preparation for ASEAN Economic Community.

The partnership between Stamford International University and Laureate International Universities began official operations in January 2012. There has been a huge beneficial gain in the international cooperation among the world's largest education network under Laureate, i.e. 66 universities in 30 countries in many areas of academic excellence. New world class programs have been introduced, such as, international hotel management with the Blue Mountain Hotel School, Australia, Bilingual programs, and a future art and design school.

2012 EQA Result by ONESQA

The third round of external quality assessment (EQA) for Stamford International University was completed on September 20-22, 2012. The 2012 EQA score result from the 18 key performance indicators of the weighted average of the academic years 2009, 2010, and 2011 was 4.75/5.00, rated as Excellent.

2012 External Quality Assessment by ONESQA

University/Faculty	EQA Score 11 Primary KPI		EQA Score 11 Primary KPI	
	Score	Result	Score	Result
Stamford International University	4.90	Excellent	4.75	Excellent
Faculty of Business Administration	4.58	Excellent	4.56	Excellent
Faculty of Science and Technology	4.84	Excellent	4.69	Excellent
Faculty of Liberal Arts	4.82	Excellent	4.61	Excellent
Graduate School	4.79	Excellent	4.77	Excellent

Figure 6: *Stamford International University 2012 External Quality Assessment Result by ONESQA*

Source: *2012 External Quality Assessment by ONESQA, Stamford International University.*

The ONESQA EQA committee recommended proposed areas for improvements including 1) increase in academic titles for faculty members, 2) research publications should be focused more to the areas of specialty in the programs offered, 3) should do more on the management and exploitation of the academic knowledge acquired from the research to the community benefits. Strengths that the university has demonstrated are 1) the strategic management the English teaching that integrated all students and all academic programs is very efficient, especially, the Laureate English Program is beneficial to all students that are learning English, 2) well-managed diversity in the international environment which comprises 56 nationalities representing about 40 percent of total undergraduate students, 3) students demonstrated excellent performance in national and international competitions, such as, the winner in the English national public speaking contest and the winner of international business competition, 4) Stamford has documented the ability to perform continuous quality improvement in the past three years in achieving the excellent level, moving from failed to good and then to excellent.

Concluding Remarks

Stamford International University has worked hard to improve its educational quality under the Thai Ministry of Education quality framework for more than three years, from a poor to an excellent level. The resulting student enrollments have dramatically increased yearly, six-fold within three years mainly because of the great improvement of the educational quality under the Thai Ministry of Education system and the strategic improvement in the admission and marketing operations. This was accomplished by the strong and determined teamwork of all faculty members, all supporting staff, administrators, and senior leaders with strong support from the university council members. The main strategic initiative is the understanding of the well aligned business strategies and academic operations and measurements in all levels from the top executives to all supporting staff in all areas. Lastly, the partnership between Stamford International University and Laureate International Universities since 2012 has increased students' benefits through its international education network from 29 countries and 66 universities on all continents. The author is convinced that the quality framework of the Thai Ministry of Education is the right path to improving Thai higher education in the long run.

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University Students' Role in Shaping Their Learning Experience in The 21st Century

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Abstract

The article deals with the needs and responsibilities of university students in the 21st century. It is an era of technology and globalisation. The higher education should welcome the new trends which would be the parts and parcels of it. For achieving the aims and objectives of higher education, the staff and the students may work with collaboration. The students should be taken into account while designing curricula. The students, in 21st century, should demand authentic learning. This paper talks about the authentic learning practices that would help students develop their knowledge of communication, collaboration, and leadership skills. It also discusses the importance of information technology in the process of learning with self-reliance and positive out-puts. The students have to take on responsibilities to self-manage, to find opportunities for interdisciplinary learning and to translate academic learning into practice. They have to find quality learning resources and technologies which would facilitate their learning experiences.

Key Words:

authentic learning, communication, collaboration, learning experiences, responsibilities.

Introduction

For the successful implementation of quality improvement changes, an organisation needs the necessary supports and systems. This implementation of supports and systems is called the Quality Culture Assessment Tool. This tool has been developed to assess and understand their quality culture for participation in the National Standards Assessment Program (NSAP). It also highlights areas which could influence the implementation of change. The lowest performing areas may influence how a service is able to participate in NSAP. The Quality Culture Assessment Tool simply provides guidance on the frameworks and systems that are required to support continuous quality improvement and factors that contribute to success. The "shared values, beliefs, expectations and commitments toward quality" as well as "a structural element

with the processes that sustain quality and aim at coordinating efforts" is called Quality Culture. To achieve aims and objectives of any university in the era of globalisation and technology of the 21st century, universities must invent and implement new strategies. Along with this, the students also have to observe certain duties towards the university.

New Trends in Higher Education:

In the past decade, higher educational institutions across the globe have been buffeted by a complex set of pressures. Foremost among them is the growing importance of knowledge-led economies that have placed higher education at the centre of national competitiveness agendas. Higher educational institutions are increasingly viewed by policy makers as 'economic engines' and are seen as essential for ensuring knowledge production through research and innovation and the education and continuous up-skilling of the workforce. This has resulted in a Modernisation Agenda for Universities-and has been translated into new national policies affecting principally governance, autonomy, funding, research and external quality assurance. These fundamental changes, along with the implementation of the core reforms, are deep and significant. They have had a significant impact on all the activities of universities and their partnerships with other higher education institutions and with their stakeholders. They also have resulted in an increased emphasis on the universities' strategic capacity and their professionalism. The changes have consumed both time and resources, especially on staff members, and require effective institutional leadership. In addition, the current economic crisis has had a negative effect in many countries: some have had to cut their education budgets while student demand to enter higher education or to stay on for additional qualifications is growing. This, in combination with mounting pressures on public funding, has led to debate on the issue of tuition fees and free admission to higher education in some countries. Finally, the rise in participation rates has led to changes in the shape and size of many higher education systems. Thus, many countries have seen a significant increase in the number of institutions, but recent demographic declines have resulted in bringing together several institutions under federated structures.

Roles of Students: Participation in Curricula Designing

As far as higher education is concerned there is a growing interest in students becoming more active participants and co-creators of their learning experiences. One of the key areas where students could have greater engagement and impact on their own learning is in curriculum design. Scholars do not agree about definitions of curriculum, but most common conceptualisations view the curriculum as the 'structure and content of a unit'…… 'programme of study' and 'the students' experience of

learning' and 'a dynamic and interactive process of teaching and learning' (Fraser and Bosanquet, 2006: 272). Often students are kept away from curriculum planning processes. Yet, what is less common is students are more active in decision making roles about curriculum design. Currently, academic staff often act as gatekeepers to curriculum design. There should be a deep level of student engagement through the students' active participation in the curriculum design process.

For the betterment of current structures the collaborative reforms of curriculum design is necessary. By doing this the students will demonstrate high levels of self-directed learning and autonomy along with improved levels of confidence and motivation with an improved student performance. Students will change their views of curriculum design as a result of their active participation in curricula processes. They will understand course design to be a complex process and will have a greater understanding of the demands on academic staff within this process. The process of collaborating with students will demand a lot from academic staff. However, all tutors will have a rich experience of learning from students through opening up more meaningful dialogue with them.

Issues and Challenges in the Process

For many academic staff, the idea of handing over some control of the curriculum to students will seem very threatening, or they may feel that students, particularly in their first years, have little to offer to the curriculum design process. However, students will contribute meaningfully in the curriculum design process if they receive support from teachers and as long as their suggestions are taken seriously. For many teachers, constraints on their time will be a barrier to them trying new approaches that appear to be time consuming. For some teachers, there is concern that they are the people responsible for ensuring the programme is taught. If anything goes wrong, the perception is that it will be deemed their fault. However, academic staff and students who have co-created the curriculum, they will get experiences of working together and the shared responsibility for the curriculum that emerges from the process. Students are likely to get the most from actively participating in curricula that are their own courses – this helps them gain the greatest ownership over their own learning. However, by definition this implies that for each new course or programme, students need to actively participate in creating their own curriculum, raising concerns about the sustainability for this kind of collaborative approach to curriculum design.

Need For Authentic Learning

Authentic learning focuses on a real-world, complex problems and their solutions, using role-playing exercises, problem-based activities, case studies, and participation in virtual communities of practice. The learning environments are inherently

multidisciplinary. They are "not constructed in order to teach geometry or to teach philosophy. A learning environment is similar to some 'real world' application or discipline: managing a city, building a house, flying an airplane, setting a budget, or solving a crime, for example. Going beyond content, authentic learning intentionally brings into play multiple disciplines, multiple perspectives, ways of working, habits of mind, and community. Students immersed in authentic learning activities cultivate the kinds of portable skills of judgment to distinguish reliable from unreliable information, patience to follow longer arguments, ability to recognize relevant patterns in unfamiliar contexts, and the flexibility to work across disciplinary and cultural boundaries.

Educational researchers have found that students involved in authentic learning are motivated to persevere despite initial disorientation or frustration. The learning event essentially encourages students to compare their personal interests with those of a working disciplinary community: "Can I see myself becoming a member of this culture? What would motivate me? What would concern me? How would I work with the people around me? How would I make a difference?" Colleges and universities across the country are turning to authentic learning practices and putting the focus back on the learner in an effort to improve the way students absorb, retain, and transfer knowledge. The following are examples of authentic learning practices and their benefits.

Role Playing Based Learning

The role-playing would help to immerse students in the complexities of authentic decision making, helping them develop the communication, collaboration, and leadership skills they will need to be successful practitioners in their fields. This will expose students to the wide range of social, political, economic, and scientific conflicts that affect complex engineering projects, particularly those that may be multinational in scope. Students from different disciplinary backgrounds, including civil, environmental, telecommunications, software, and mechanical, will use this learning tool to collaborate with others on authentic problems of global importance. They will get a chance to learn by doing more precisely, to learn by reconstructing key architectural and artistic environments of the ancient world.

Peer Review Based Evaluation

Peer Review is a free web-based program that allows instructors to incorporate frequent writing assignments into their courses, regardless of class size, without increasing their grading workload. Students are trained to be competent reviewers and are then given the responsibility of providing their classmates with personalized feedback on expository writing assignments. Meanwhile, with access to all student work, instructors can monitor the class as a whole and assess the progress of each

student. The CPR system manages the entire peer-review process, including assignment creation, electronic paper submission, student training in reviewing, student input analysis, and final performance report preparation.

Working with Remote Instruments

Through a browser interface, it is possible for students around the world to conduct experiments with specialized equipment located on their college campus. For example a shake table that simulates earthquakes and a sensor-equipped flagpole that measures meteorological parameters. Software agents oversee instrument usage, assigning priorities to individual experiments. For students without immediate access to expensive specialized equipment or extremely rare scientific instruments, this approach can open the door to active learning experiences that would otherwise be beyond their reach.

Working with Research Data

In disciplines from ornithology to social history, students are becoming legitimate peripheral participants in virtual communities of practice, collecting data either first-hand or through remotely located smart sensors. In other cases, students use data collected by researchers (such as virtual sky data accessible through the National Science Digital Library Project) to conduct their own investigations. They are practicing higher-order analysis on real data sets while contributing to the common knowledge base.

Reflecting and Documenting Achievements

The students have to study their own learning patterns in an effort to improve their performance over time. In addition, a feedback cycle allows students to post their individual work electronically, perform intra-group and extra-group reviews, question project assumptions, and learn to critique their peers constructively, as they must do throughout their whole careers.

Learning with Information Technology

In the 21st century, a number of educational researchers have come to the conclusion that "the value of authentic activity is not constrained to learning in real-life locations and practice, but that the benefits of authentic activity can be realized through careful design of web-based learning environments." Today's web-based learning environments give students access to many of the same resources that professionals use in their research. With Web-based access to radio astronomy data, for example, students have discovered stars overlooked by veteran researchers. History students with access to American Civil War archives are drawing their own conclusions about the history and sociology of that period. With online access to remote instruments,

students are using rare or expensive equipment to run experiments and interpret data for themselves. In the process, they are dealing with incomplete and uncertain information, coming to grips with complex patterns, and realizing the messiness of real-life research where there may not be a single right answer. Technology is also providing access to phenomena that might otherwise remain opaque to many novices, particularly so-called experiential learners. Software visualizations, images, audio, and haptics bring abstractions to life. For instance, when scientific, mathematic, and engineering concepts require learners to build abstract mental models that involve invisible factors, such as intangible force fields and interactions among charged particles, visualization and haptic devices can be used to help learners feel force, pressure, and temperature. Educators can use web-based communication tools to help students collaborate with one another, sharing and constructing knowledge. Social networking tools can help learners find a broader community willing to share information and references. And students can reflect on their learning and performance by taking "snapshots" of their group activities with the help of blogs, e-portfolios, quizzes, and video-capture tools. Authentic learning can rely on educational software developed to simulate typical scenarios that professionals encounter in real-world settings. Along with communications tools, these online experiences often integrate intelligent tutoring systems, concept mapping, immediate feedback, and opportunities for reflection, including the chance to replay recorded events and adopt alternative decision paths. The software taps into the various pressure situations and emotions that teachers are likely to experience as they engage their students in a lesson. Technological support for today's authentic learning environments commonly includes:

1. High-speed Internet connectivity for provision of multimedia information. It includes dynamic data and practical visualizations of complex phenomena and access to remote instrumentation in conjunction with expert advice.
2. Communication and social networking tools for the support of teamwork, including collaborative online investigation, resource sharing, and knowledge construction.
3. Intelligent tutoring systems, virtual laboratories, and feedback mechanisms that capture rich information about student performance and help students transfer their learning to new situations.
4. Mobile devices for accessing and inputting data during field-based investigations.

What Makes Authentic Learning Effective? Authentic learning deals with the way the human mind turns information into useful, transferable knowledge. Cognitive scientists have developed a comprehensive portrait of the learner. The following principles illustrate the alignment between learning research and authentic learning:

5. When we approach a subject for the first time, we immediately try to perceive the relevance of the new concept to our lived experience. When a new piece of information simply doesn't fit in any of our existing knowledge structures, it is often rejected. This means that the more encouragement a learner has to become invested in material on a personal level, the easier it will be to assimilate the unfamiliar.

6. The concepts being learned are always part of a much larger "learning event" and are directly linked in the learner's mind with social circumstances-the setting, the activities, the people. Along with this emerging learner profile, cognitive scientists are studying the mind-set of the educator or subject matter expert, with some illuminating results.

7. The teacher-as-facilitator can make or break a learning event. Learning methods evoke feelings in students that reinforce, support, or detract from knowledge construction. Even the brightest team of students dealing with complex, sustained investigations may have difficulty making good judgments. It is the educator's role to design appropriate comprehension checks and feedback loops into the authentic learning exercise. For example, students engaged in publishing a peer-reviewed journal will evaluate each other over the course of the project and may receive additional guidance from the educator in the role of publisher or editorial board member.

8. An educator must give a student a capacity to act, decide, and commit. Researchers warn that higher education has focused for too long on inculcating and assessing those cognitive skills that are relatively easy to acquire-remembering, understanding, and applying-rather than the arguably more important skills of analyzing, evaluating, and creating. Moreover, in developing these lower-order thinking skills, educators largely have to ignore the other major learning domains, which determines whether a student has the necessary will, desire, commitment, mental energy, and self-determination to actually perform at the highest disciplinary standards. The students should be engaged in issues of concern to them, from global warming to world hunger. Those who adopt innovative learning strategies must be ready to adjust their assessment strategies accordingly. Otherwise, the purpose of the entire enterprise may be defeated. There are eight critical factors that are essential for a successful learning environment: goals and objectives, content, instructional design and methods, learner tasks, instructor roles, student roles, technological affordances, and assessment.

An educator can introduce authentic content, replacing textbooks with historical documents and scientific data from remote sensors. He can design problem-based activities to replace lectures. He can expect students to collaborate with one another. He can even surrender some of his own power as an expert to join students as a co-learner. And he can support all this innovation with visualizations, simulations, and interactive technologies. Still, he may not achieve his goals if he neglects to rethink his assessment strategies.

After all, what is the use of adopting loftier goals for yourself and your students if you continue to use multiple-choice tests that seek the "right" answer, capturing only the lower level knowledge that is easiest to measure? Rather than relying on a single assessment method, instructors who adopt authentic learning methods must analyze multiple forms of evidence to measure student performance, including observations of student engagement and artifacts produced in the process of completing tasks.

Learning and Learners

Teachers need coherent, supportive Programmes of Study that will encourage them to understand their work differently than the factory model allows. Their job, in the 21st century, is to introduce students into living fields of knowledge and the ways of living that are appropriate to that field. It is to be for students, an example of what it means to be interested in the ways of that place and to support them as they learn to find their way around in it.

Enhancement of Teaching and Learning the Nine Principles

There is a need of fundamental training in teaching for all new academics. New promotions policies that recognise leadership and scholarship in teaching should be implemented. Rigorous, peer-reviewed audits of teaching and learning performance should be undertaken. Teaching awards that require the exercise of an evidence-based, professional approach to teaching as well as basic competence should be announced. Financial rewards to academics for publications and scholarships for university teaching faculties should be given every year. The authorities must establish some formal benchmarking of teaching quality and academic quality assurance with leading international research universities. They should carry some mandatory annual surveys based on the students' experience of courses and facilities, linked to funding and Academic Board Reviews, the Nine Principles are:

a) An atmosphere of intellectual excitement.
b) An intensive research culture permeating all teaching and learning activities.
c) A vibrant and embracing social context.
d) An international and culturally diverse curriculum and learning community.
e) Explicit concern and support for individual development.
f) Clear academic expectations and standards.
g) Learning cycles of experimentation, feedback and assessment.
h) Premium quality learning resources and technologies.
i) An adaptive curriculum.

Responsibilities of Students

Every university expects students to take on the following responsibilities as members of the university community: To shape their educational experience

positively; Be well informed about course requirements applying to their faculty and seek faculty assistance if in doubt; Use initiative in learning and aspire to intellectual independence; Accept and act on advice and feedback on academic performance; To prepare diligently for qualifications, employment and continuous learning; Take responsibility to self-manage their enrolment and course planning, using advice from their faculty; Participate constructively in learning in classes and online; Take joint responsibility for their education and be self-directed learners; Engage closely with faculty and discipline-based colleagues and participate in professional bodies where appropriate; Explore opportunities for interdisciplinary learning and for translating academic learning into practice; To be a part of university environment; To be diligent learners and to submit assessments punctually; Be informed about support services to meet academic and personal needs and seek information if unsure; Use university resources responsibly and observe university statutes, regulations and policies; Care for the campus and surrounding areas, including the amenity of neighbours; Support the university's continuous improvement endeavours by providing considerate and honest feedback on academic and support services; To show and earn respect in relating with others in the university and the wider community; Treat staff and other students with respect and courtesy; Respect the opinions and beliefs of others and engage in rational discussion in areas of disagreement; Consider involvement in university activities which extend or enrich the study experience, both on campus and beyond; and display professional conduct while undertaking work and practicum placements, fieldwork or educational exchanges. All these duties are to be observed by a student in this era of globalisation and technology. That would lead a student to his/her success.

Conclusion

For the quality improvement of any university a Quality Culture Assessment Tool has to be used by it. This will help the university to participate in the National Standards Assessment Programme. The basic need of the university is to sustain the collaborative participation of the Staff and the students. The students may understand certain identified places of quality: the learning programme (what they needed to learn), learning relationships (who they needed to learn from and with) and learning spaces (where they needed to learn). The Learning Programme will deal with the real life skills, debating skills, basic philosophy, raise global awareness, self-discovery, self-knowledge, languages and communication skills, interpersonal skills, current events and learning beyond the curriculum. The learning relationship will deal with more personal groups, table groups, discussion groups, and more teachers with fewer students in the classroom. The learning spaces would contain more options for furniture, labs, open areas and windows, no closed doors, private study areas, brighter, colourful spaces, and central space and school built around it. There should be a

curriculum (Programs of Study) that reveals the living character of the disciplines and that provides an adequate response to the invitations that these students have opened. It is now time for the authorities to step forward to accept the responsibility of providing a curriculum framework that is responsive to these realities: the students, the new research findings and the new demands that the world is making on education.

Along with these requirements the students must observe certain rules and regulations of the university. They have to follow some essential duties towards the university. The students have to prepare diligently for qualifications, employment and continuous learning. They have to be part of the university environment. They also must show and earn respect in relating with others in the university and the wider community.

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Development of an Internal Quality Assurance Model for Subject Group Level in Basic Education

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Abstract

The aim of this research is to develop an internal quality assurance model for subject group level in basic education. The research methodology is divided into three parts. The first part is the creation of an internal quality assurance model for subject group level in basic education. This was accomplished by studying and analyzing data from previous research and studying the current quality assurance process of education in the schools. The samples consist of educational administrators, personnel responsible for quality assurance, and heads of 8 subject groups in basic education. The sample size is comprised of 37 schools consisting of 10 individuals from each school, totaling 370 people. The samples were selected by Stratified Random Sampling based on the size of the school. These were divided into 2 groups for obtaining information: 4 schools using the Focus Group Interview technique, and 33 schools using questionnaires. The second part is the study on the efficiency of the model created which was carried out by conducting a pilot test on one school. The efficiency of the model was studied in four dimensions: the Feasibility Standard, the Propriety Standard, the Utility Standard, and the Accuracy Standard. The third part is the study on the effectiveness of the model which was determined from the performance based on the standards for internal quality assurance as presented in the Self-Assessment Reports (SAR) submitted by the 8 subject groups.

The results are as follows:

1. The internal quality assurance model for subject group level in basic education is formed and driven by the application of the PDCA cycle. It is divided into three steps: preparation, implementation, and reporting. The execution of each step is integrated together and continuously on an annual basis.

2. The efficiency of the model with regard to the Feasibility Standard, Propriety Standard, Utility Standard and Accuracy Standard was found at a high level.

3. The model was found to be highly effective. This is evident from the result that all subject groups achieved a higher performance level than their set goal.

Keywords:
internal quality assurance, subject groups, basic education.

Introduction

According to Section 6 of the National Education Act B.E. 2542, the aims and principles of education is clearly defined and states that education must be employed to develop Thai citizens in order to thrive in physical, mental, intellectual, literate, and moral aspects; to have ethics and culture; and to coexist happily with others (Office for National Education Standards and Quality Assessment B.E. 2547: 5). Quality assurance has to be integrated in the regular process of administration and teaching of the school in order to continuously improve the quality of the students over time. This will ensure that schools are providing quality education that meets the standards which will produce Thai youths that are ethical, happy, and able to proudly cooperate and compete with other countries internationally. The National Education Act B.E. 2542 sets out in Section 6 the standards and quality assurance in education. It states that agencies and educational institutions are to provide quality assurance in education. This is to be part of the administration process that needs to be implemented continuously. Annual reports are to be submitted to affiliated agencies and organizations involved and to be publicly disclosed. According to the National Education Act B.E. 2542 Amendment (No. 2) B.E. 2545 on quality assurance for education, quality assurance is an important issue that must be implemented collectively with education administration. Moreover, decentralizing management to the local level and schools is encouraged. A quality assurance system is necessary to ensure that all students will receive an education that is of similar quality regardless of their locale. The goal of the assessment is not to punish but to reflect the performance of the school in order to provide education that would benefit the students fully. Thus, quality assurance is an assurance to the students. As a result, educational institutions must be aware of the quality of education in order to improve the quality and standards of education and to support the external assessment of the Office for National Education Standards and Quality Assessment (ONESQA).

According to second stage of the external quality assessment on basic education which has been implemented for 3 years (2006-2009) and has been 60% completed, it was found that a common suggestion towards affiliated agencies is that there is a need to focus on development of teachers on the efficiency of teaching especially on the utilization of student-centered learning techniques. This also includes creating an integrated teaching plan, analyzing students individually, using diverse assessment and evaluation techniques that correspond to the topic being taught, using research-based learning to solve problems in teaching and learning and/or create new innovations, and developing new teaching and learning techniques that conform to the

core curriculum for basic education B.E. 2551 which would initiate the students to think systematically, love learning, love reading, be capable of self-learning, be able to read and write and be able to apply knowledge effectively resulting in direct development of the students' achievement. Based on stage II and III of the external quality assessment, it has shown that the teacher is an important factor that would influence students to develop their competency. In order for the students to be competent, the teachers must have efficient teaching and learning techniques especially for student-centered learning. **(Office for National Education Standards and Quality Assessment, 2009).**[3]

In order to develop the ability to learn, students must go through processes that have quality. Therefore, schools must provide quality education and student-centered learning. This can only be achieved by having teachers that are capable of using this technique. The teacher is analogous to a researcher since they must know their students individually and be able to assess them in order to improve the teaching and learning experience. Quality assessment must be implemented by the schools regularly in order to improve continuous quality. This includes making self-assessments and systematically recording data. Quality assessment will enable awareness on the strengths and weaknesses of the school in order to adjust and improve education. The characteristic of a good internal quality assurance system is to be able to implement it in concurrence with normal practice. The assessment process must be systematic, continuous, and authentic. Each subject group has a set standard of learning as an important goal for improving the quality of learning. The learning standard specifies what students need to know and perform. It indicates desired morale, ethics, and values from students when completing their basic education. The learning standard is also an important mechanism in driving the development of the entire education system as well as a tool for the quality assurance system. This is applied through the internal and external quality assurance system which includes both regional and national tests. The quality assurance system should reflect the quality of education and help develop the students to meet the set learning standards (Ministry of Education. 2008: 8).

Therefore, each subject group must have a system in place and guidelines for teachers in order to accomplish the internal quality assurance at the subject group level. This is necessary to ensure the quality of teaching of the school. In order to develop an internal quality assurance model for subject groups in basic education, research and systematic study is needed.

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[3] Report Conference, "ONESQA cover around 9 years old."

Research objectives

The objectives of this research are as follows:

1. To create an internal quality assurance model for subject group level in basic education.
2. To study the efficiency of the model created.
3. To study the effectiveness of the model created.

Methodology

The main principle of this study is to obtain an internal quality assurance model for subject group level in basic education within the context of the school. The research is divided into three parts as follows.

The first part is to create an internal quality assurance model for subject group level in basic education which comprises two steps: 1) study and analyze research papers related to quality assurance in education and external quality assurance, basic education standards, and the Core Curriculum for Basic Education B.E. 2551; 2) study the current quality assurance practice within the educational institution and survey their opinions on the current quality assurance practice as well as their opinions on the course of action for quality assurance for subject group level by using questionnaires.

Contributors for this part of the study include the principal, head of the quality assurance department, and head of 8 subject groups, totaling 10 individuals from each school. The samples are comprised of 37 schools giving the overall number of 370 people which are divided into two groups: 1) the group providing quantitative data consisting of 330 people from 33 schools; and 2) the group providing qualitative data through Focus Group Interviews consisting of 40 people from 4 schools which were purposively selected from the school size of small, medium, large, and extra-large. The criteria for the selection of the samples is that the school must be voluntary to participate in the research, administrators are aware of the importance of quality assurance in education, and staff is willing to cooperate with the implementation of the project. Samples from each class were randomly selected from 30% of the population.

The second part is to study the efficiency of the model created. This was done by conducting a pilot test on one school from the sampling group which was purposively selected based on the criteria that the school must be voluntary to participate in the research, administrators are aware of the importance of quality assurance in education,

and staff are willing to cooperate with the implementation of the project. For this part of the study, the authors chose Ladplakao School. The testing period was from August 2012 to September 2013. The study was conducted by visiting the school after using the quality assurance model. The efficiency of the model was studied in four dimensions: the Feasibility Standard, the Propriety Standard, the Utility Standard, and the Accuracy Standard. **The Index of Item Objective Congruence (IOC)**[4] values for the questions range from 0.67 to 1.00.

The third part is to study the effectiveness of the model created. This was conducted by asking each subject group to submit a Self-Assessment Report (SAR) for the individual level and subject group level at the end of the first semester of the 2012 academic year. The report is to evaluate the results on development and improvement of performance according to the goals set by the standards of quality assurance from the affiliated education agency. Only the standards related to education management of the teachers that affect learning of the students were evaluated. According to the Standards for Quality Assurance in Basic Education B.E. 2553, there are a total of 15 standards. The 6 standards that are relevant for this study are: Standard 2-students have desirable morale, ethics, and values; Standard 3 - students have the skills to seek knowledge on their own, love to learn, and continuously develop themselves; Standard 4-students are capable of thinking systematically and creatively, and are able to solve problems sensibly and reasonably; Standard 5 - students have the knowledge and skills required by the curriculum; Standard 6 - students have the skills to work, love to work, capable of working with others, and have a positive attitude towards lawful occupations; and Standard 7-teachers within each subject group perform according to their responsibilities efficiently and effectively.

Results

The results are divided into three parts in relation to the research method as follows: The first part is the result on development of the quality assurance model for subject group level in basic education. Relevant research and papers were studied to understand problems and good approaches in the implementation of quality assurance in educational institutions of various sizes. The aim is to incorporate the implementation with the staff's normal practice without increasing the work load. The implementation of quality assurance is based on the following principles: 1) implementation of quality assurance is a responsibility for all personnel as part of each person's assignment; 2) quality assurance aims to improve the quality of each individual's performance since

[4] The Index of Item Objective Congruence (IOC) provides useful information about the agreement between content specialists' ratings as to whether each item in a test or questionnaire measures the intended objective. The limits of the index range from -1.00 to +1.00.

it will also result in the improvement of the institution; and 3) quality assurance emphasizes the improvement of the teaching and learning experience, as it is to be part of the administration process that needs to be implemented continuously, not merely conducted for the occasional assessment; 4) quality assurance requires the cooperation of all staff, as it cannot be employed or assigned to any other parties; and 5) quality assurance requires recognition and application of the assessment results on improving the quality of education by educational institutions. A model (draft version) was developed based on the PDCA cycle in conjunction with regulations on the System, Codes, and Procedures for Quality Assurance for Education B.E. 2553. It was then inspected by experts. Results show that the execution method for each task, the period of time to perform each task, and tools for collecting data in each process are appropriate (mean = 4.84). The feasibility (mean = 4.56), clarity (mean = 4.59), and ease of use (mean = 4.57) were excellent. The authors adjusted and improved the model according to the recommendations of experts. Finally, the model for internal quality assurance for subject group level in basic education was developed. The process is divided into three steps as follows:

Step 1 Preparation

Plan (P) consists of the following sub-steps: 1) appoint the team in each subject group; 2) analyze the context in each subject group; 3) set the annual focus/goal of improving the quality of education; and 4) form annual action plans for each subject group.

Step 2 Action

Do (D) the tasks as planned which consists of the following sub-step: 5) implement the action plan. Check (C) the quality which consists of the following sub-step: 6) evaluate the performance.

Step 3 Report

Act (A) consists of the following sub-steps: 7) report the results from each subject group; and 8) improve and plan for the following year.

The principles of quality assurance can be compared to the Internal Quality Assurance Model for Subject Group Level in Basic Education as shown in Table 1. The implementation of the model consists of 8 steps and is operated in each cycle as shown in Figure 1. The execution plans for each year are shown in Table 2.

Table 1 *Comparison between principles of quality assurance and the Internal Quality Assurance Model for Subject Group Level in Basic Education.*

Principles of quality assurance	Ministerial regulations on the System, Codes, and Procedures for Quality Assurance for Education B.E. 2553	PDCA	The Internal Quality Assurance Model for Subject Group Level in Basic Education
Quality Control	1. Define education standards.	Plan (P)	Step 1 Preparation 1. Appoint the team in each subject group.
	2. Form education development plans for the educational institute according to the educational standards of each institute.		2. Analyze the context in each subject group.
	3. Create an information management system.		3. Set the annual focus/goal of improving the quality of education.
	4. Execute the educational development plans.	Do (D)	4. Form annual action plans for each subject group.
Quality Auditing	5. Provide monitoring of the quality of education.	Check (C)	Step 2 Action 5. Implement the action plan.
Quality Assessment	6. Provide an evaluation of the quality of education according to education standards.		6. Evaluate the performance.
	7. Provide annual reports of the internal evaluation results.		Step 3 Report 7. Report the results from each subject group.
	8. Provide for continuous education quality improvement.	Act (A)	8. Improve and plan for the following year.

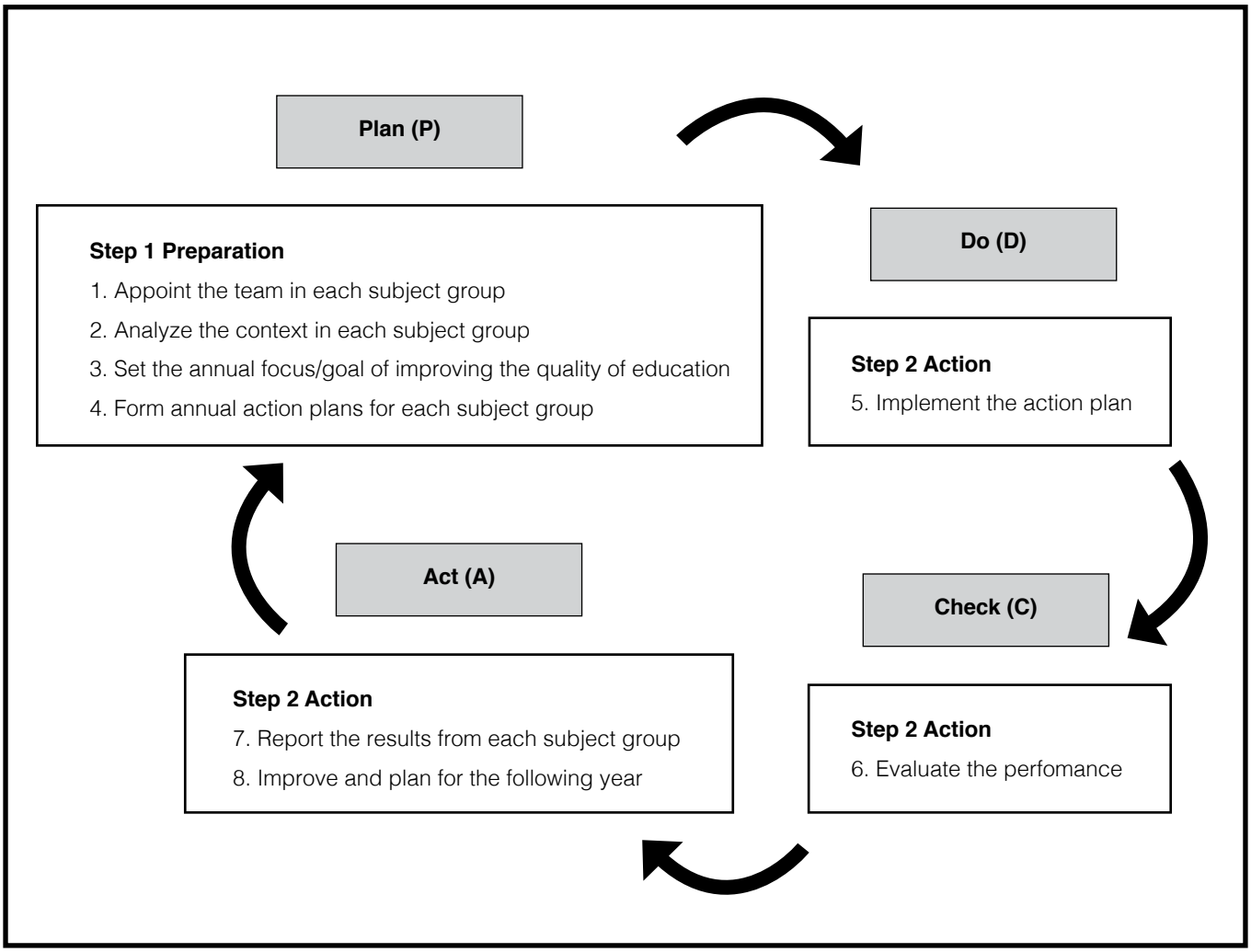

Figure 1: *Diagram showing steps involved in the implementation of the Internal Quality Assurance Model for Subject Group Level in Basic Education and the operation cycle.*

Table 2 *Annual plan for execution of the Internal Quality Assurance Model for Subject Group Level in Basic Education.*

Step	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar
Step 1 Preparation 1) Appoint the team in each subject group	↔											
2) Analyze the context in each subject group.	↔											
3) Set the annual focus/ goal of improving the quality of education.	↔											
4) Form annual action plans for each subject group.	↔											
Step 2 Action 5) Implement the action plan.		→	→	→	→	→	→	→	→	→	→	
6. Evaluate the performance		→	→	→	→			→	→	→	→	
Step 3 Report 7) Report the results from each subject group.											↔	→
8) Improve and plan for the following year.												↔

The second part is the results of the study on the efficiency of the Internal Quality Assurance Model for Subject Group Level in Basic Education. It was found that the overall efficiency is high. When considering individual aspects, its usefulness is high for all issues, having the highest mean (4.28) on its support for organizing work functions. On the feasibility of the model, it was found to be high on all issues, having the highest mean (4.32) on the ease of understanding and simplicity of the model. In regards to propriety, it was found to be high on all issues having the highest mean (4.05) on the appropriateness of the model for the monitoring and supervisory systems. The accuracy of all issues was also found to be high with the highest mean (4.32) on the accuracy of the self-assessment report by subject group level since it reflects the actual performance.

The third part is the result on the study on the effectiveness of the Internal Quality Assurance Model for Subject Group Level in Basic Education. The results from the Self-Assessment Report (SAR) of the 8 subject groups for one half of the academic year based on the improvement and performance according to the 6 education standards show that all subject groups had a higher performance level than their set goal. Moreover, from the reports it was found that the functioning of each subject group was systematic, clearly planned, and included projects/activities into the teaching activities in order to develop the students according to the education standard. In addition, the organization of an information management system also contributed to the higher performance level than originally set. This shows that the developed model is highly effective.

Discussion

Various issues were encountered during the development of an internal quality assurance model for subject group level in basic education as discussed by the authors below.

1. It can be seen that the model brings about the teachers' involvement in quality assurance in addition to the administrative personnel. If every teacher conducts quality assurance, the success will fall to the subject group level as well as the institutional level. The model also reduces repetitive work since it is based on the PDCA system and implemented throughout the academic year. It obliges all levels, from the teacher, subject group, and the institution to function by the PDCA system. Therefore, affiliated agencies as well as ONESQA can perform an external assessment any time without the school having to prepare for the particular assessment. Moreover, the school administrators would be able to assess the teacher's individual performance without having to request the teachers to prepare a self-assessment report.

2. Since the model is based on the PDCA process, the teacher, the subject group and the institution all function based on the PDCA process as well. This is consistent with Suwimon Wongwanich (2000) who researched the development of an internal quality assessment system for educational institutes. Moreover, being based on the PDCA process, the model becomes part of the normal function and achieves the standard for its utility, feasibility, propriety, and accuracy.

3. The model is highly effective resulting in all subject groups having a higher performance level than their set goal. This is because all subject groups carried out the quality assurance that was completely designed based on the PDCA system in every step. This result corresponds to Nonglak Wiratchai (2002: 12) who stated that a quality system is the specification of standards or goals that the schools need to achieve.

Suggestions

The following lists suggestions for institutional levels that use this model:

1. The school administrators should establish teachers' awareness on the importance of quality assurance and how it would affect the students. Emphasis should be made that to conduct quality assurance it is important to perform their tasks as they normally would, only to provide additional focus on creating a system for controlling, monitoring, and assessing their performance clearly and objectively. Instructions should be clearly given before allowing the teachers to use the model.

2. The school administrators should analyze problems related to each subject group and list the problems that result in the failure of student development. Examples include readiness of the students, quality and quantity of the teachers, availability of teaching equipment, an appropriate infrastructure, budget received, and the curriculum being utilized. These problems should be listed out and ranked in order of the seriousness for seeking improvement within the subject group.

3. While using the model, school administrators should plan to regulate and monitor the subject groups as well as organize subject group meetings to facilitate reporting of their performance in order to exchange knowledge between the subject groups which can be used for future improvement.

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Development of Thaksin University's Master of Education Thesis Quality Assurance System Using the Balanced Scorecard Technique

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Abstract

This study aimed to develop a master's thesis quality assurance system using the balance scorecard technique. The objectives of the study were 1) to analyze basic information 2) to design a master's thesis quality assurance system and 3) to evaluate thesis assurance system of master of education by using the balanced scorecard technique. Research methods and development and action research were employed to develop a quality assurance system in collaboration with the lecturers, support staff members, and students in the M.Ed. Research and Evaluation programme at Thaksin University. This article is part of the development thesis quality assurance system as follows: 1) the result of basic data analysis 2) the result of design a master's thesis quality assurance system and 3) the trying out of master's thesis quality assurance system. The findings of the study were

1. An analysis and synthesis of the balanced scorecard theory and applications, comments from master's students concerning current circumstances, problems, needs in thesis writing system development, and a SWOT analysis found that students have encountered difficulties in thesis writing including time management, inconsistency of advisory sessions, budget, an understanding of research methodology, and a strategy and support system for completing the thesis as planned.

2. A master's thesis quality assurance system was developed under the supervision of the lecturers in the Research and Evaluation programme. The information from the background study was used to develop key quality indicators. Objectives, goals, and strategies were set by using the four perspectives of a balanced scorecard:

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customer, internal business process, financial, and learning and growth. Eight indicators were developed; three focused on students, three on curriculum management, one on financial management, and one on students' learning and development. After the system was developed, the system manual was sent to five experts to scrutinise. It was agreed that the system and the manual were suitable and practical. They reflected the four components of input, process, outcome, and feedback. Each component involved steps of planning, acting, observing, and reflecting. The master's thesis quality assurance system using the balanced scorecard technique has proved to be an efficient mechanism in students' thesis writing.

3. During the trial of the master's thesis quality assurance system over a period of 10 months under the quality assurance project with students in research and evaluation program, each activity consists of 4 steps as follows: 1) planning 2) acting 3) observing and 4) reflecting. The result of all activity shows that the students' progress in thesis writing skills. They have the ability to develop the conceptual topic to thesis proposal effectively.

Keywords:
quality assurance system, the balanced scorecard, Master of Education, action research

Introduction

Education quality assurance is a mechanism to ensure that quality of education management is maintained. There are three steps in quality assurance: quality control, quality auditing, and quality assessment (Amrung Jantawanich, 1999). In higher education, quality assurance is adopted at all levels including at faculty and programme levels in order to control, audit, and assess education quality in a more transparent and comprehensive manner.

At a Master's degree level, thesis writing and thesis quality improvement play a significant role for the success of education. The process needs collaboration in all dimensions from the programme administrators to the institutional body. The four perspectives of a balanced scorecard: customer, internal business process, financial, and learning and growth (Nopadol Rompho, 2002) can be used for internal quality assurance and to achieve the institution's strategic planning goals.

This study aimed to develop Thaksin University's Master of Education thesis quality assurance system using the balance scorecard technique. The objectives of the study were to analyse relevant basic information and to design a master's thesis quality assurance system.

Research Methodology

Research and Development methodology and Action Research were employed in the study. Two steps were taken 1) relevant basic information was analysed 2) a master's thesis quality assurance system was designed with a process of planning, acting, observing, and reflecting (Sukanya Kovilakool, 2002).

Step 1: To analyse basic information concerning thesis writing.

The balanced scorecard theory and applications were analysed and synthesised. Current circumstances, problems, and needs in thesis writing system development of Master's students were investigated using an open ended questionnaire. Responses from the questionnaires were analysed and used in a thesis writing SWOT analysis which was carried out by a focus group discussion between lecturers, support staff members, and students in the M.Ed. Research and Evaluation programme. The data from the focus group was then developed into a conceptual framework for the quality assurance system.

Step 2: To design a master's thesis quality assurance system

A master's thesis quality assurance system was developed under the supervision of the lecturers in the Research and Evaluation programme at Thaksin University. The data from the background study in step 1 was used to develop key performance indicators. Objectives, goals, and strategies as well as an action plan were set by using the four perspectives of balanced scorecard, namely, customer, internal business process, financial, and learning and growth. After the system was developed, nine quality assurance committee members from the Faculty of Education evaluated the appropriateness of the indicators. Feedback from the experts was used to design the system manual which reflected the four components of input, process, outcome, and feedback. The manual was then sent to five quality assurance and balanced scorecard technique experts to scrutinise and edit before it was tried out within the M.Ed. Research and Evaluation programme at Thaksin University.

Research results

This research study covered the first phase of master's thesis quality assurance process. The findings of the study were

1. An analysis of basic information concerning master's thesis quality assurance both from relevant documents and from the graduate students' comments and feedback revealed that the thesis quality assurance system was believed to enable students to write their theses with confidence and to complete the objectives of the thesis within the time limit that had been scheduled.

2. The information from the background study was used to develop key performance indicators using the balanced scorecard technique. The indicators were determined and scrutinised by the lecturers and support staff members in the Research and Evaluation programme and quality assurance committee members from the Faculty of Education. Eight indicators were developed. Three indicators focused on **customers** which are 1) a system and mechanism to develop a thesis writing course or module 2) a system and mechanism to improve the learning effectiveness in accordance with student characteristics 3) a system and mechanism to give academic advice and support to students. Three indicators involved an **internal business process** which are 1) a system and mechanism to manage a curriculum which promotes development of thesis topic, thesis proposal, and thesis writing 2) person specification and code of ethics of thesis supervisors 3) the quality of the thesis as being published in an academic journal, a printed material reviewed by experts, or being presented in an academic conference with a proceeding. One indicator was on **finance** which was a system and mechanism for thesis writing financial and budget management. The last indicator was on **learning and growth** which was a system and mechanism for thesis writing knowledge management.

When the quality assurance system and the system manual were reviewed by the quality assurance experts, it was agreed that the components of the assurance system could support the strategic plan. The components consisted of **phase one: input** which included rationale and understanding of thesis quality assurance, thesis writing background knowledge, eight key performance indicators, and quality assurance system manual; **phase two: process** which involved understanding of thesis quality assurance system, determining objectives, strategies and goals using the four perspectives of balanced scorecard, and performance assessment using key performance indicators; **phrase three: outcome** as presented in a performance report in accordance with the eight quality assurance indicators, and **phase four: feedback** which was carried out by an assessment of thesis quality assurance system through knowledge management, satisfaction of lecturers, support staff members, and students towards the system. Thaksin University's Master of Education thesis quality assurance system using the balanced scorecard technique can be illustrated in diagram 1.

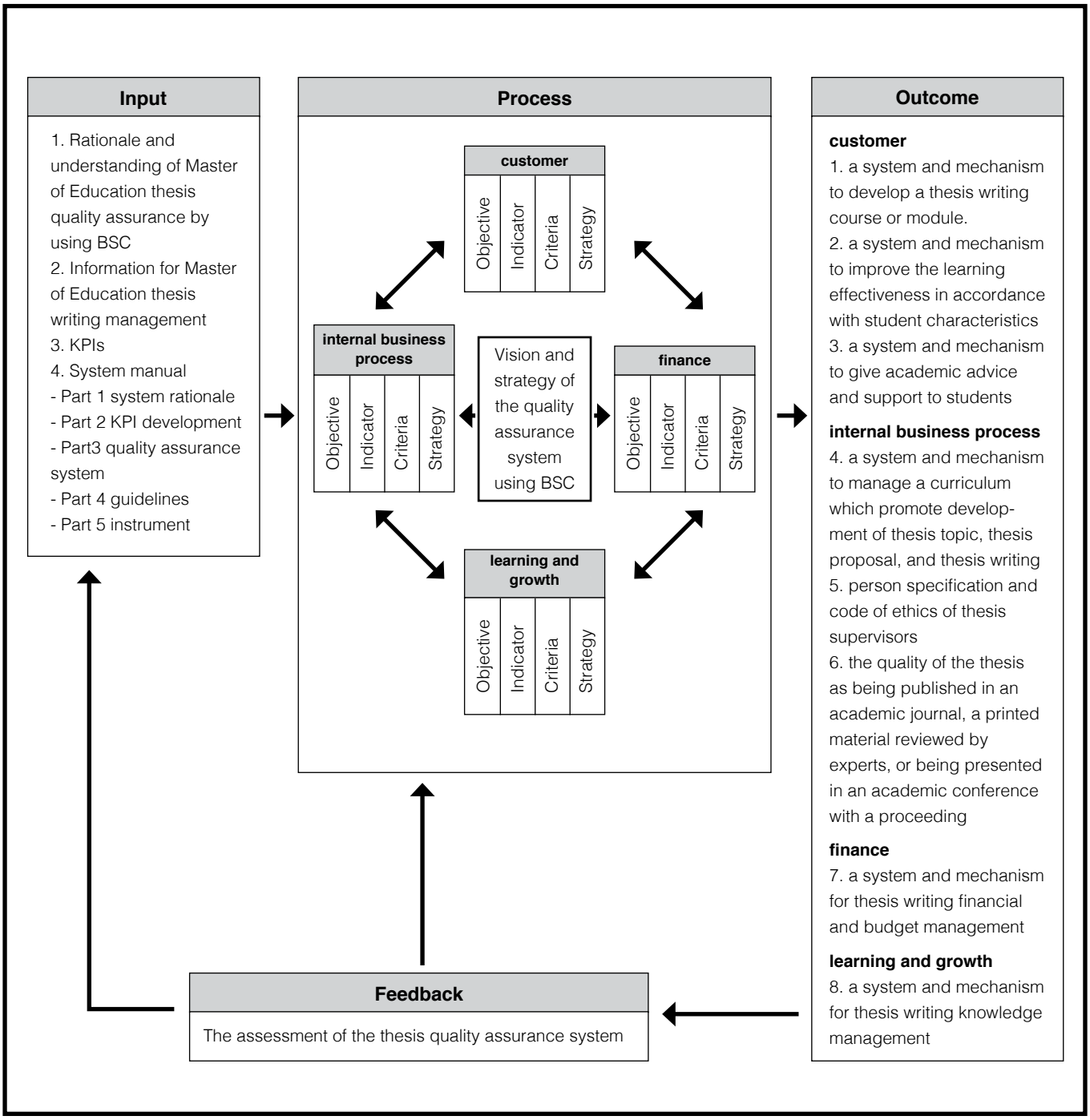

Diagram1: *Thaksin University's Master of Education Thesis Quality Assurance System Using the Balanced Scorecard Technique*

The above diagram showed that a customer perspective of the thesis quality assurance system using the balanced scorecard technique promoted a quality of learning management, the learning effectiveness in accordance with student characteristics, and student advising system. For the internal business process perspective which involved curriculum management, the system emphasised development of thesis topic, thesis proposal, and thesis writing, participation of the lecturers in the management of the curriculum, and thesis publication. The finance perspective promoted financial and budget management for thesis writing. The learning and growth perspective promoted students' thesis writing knowledge management. The quality assurance manual was designed after the system had been developed. The manual included the rationale of the system, the KPIs, the four perspectives of the balanced scorecard technique, the guidelines how to use the system, and data collection instrument according to the eight KPIs. It was hoped that the manual could be distributed and used by other organisations and that the manual could develop a mutual understanding of the KPIs which were developed by using the balanced scorecard technique.

It could be concluded that the eight KPIs developed by this study reflected the thesis quality assurance through collaboration among stakeholders and the management which involved customer, internal business process, finance, and learning and growth. These KPIs were truly a key mechanism to promote an efficient thesis quality assurance system.

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