Deriving Education Quality Assurance Criteria in IQA System of a Graduate-only Institution: A Delphi Method

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Abstract

The latest internal quality assurance (IQA) system developed by the Office of the Higher Education Commission (OHEC) gives an opportunity to each institution to select its own IQA system in order to manage education to be efficient and effective on an ongoing basis. Therefore, the institution needs to study related principle carefully to select suitable IQA system as it is one tool of organization development to achieve its goal. The purpose of this paper was to demonstrate a method of deriving quality assurance (QA) criteria for a graduate-only institution adopting the National Institute of Development Administration (NIDA) as a case study. The method applied here was the Delphi method. A Questionnaire for the Delphi was developed from a revision of QA frameworks, both national and international levels including the results of focus group and interviews. 35 subject matter experts (SMEs) were purposively selected from persons having responsibilities related to the IQA system at NIDA. Mode, Median, and Interquartile were used for data analysis. The study found 7 items with perfect consensus: 4 items in management section were under human resource management, and working systems topics, 2 items in teaching section were under program, and student development and support topics, including 1 item in academic service section. From the process of implementing the Delphi, it can be recognized as observation for future research that the QA frameworks for developing the questionnaire and the qualification of the SMEs are significant.

Keywords: Institution, Quality assurance, Internal quality assurance system, Thailand

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การได้มาซึ่งเกณฑ์คุณภาพการศึกษาในระบบประกันคุณภาพการศึกษาภายในของสถาบันการศึกษาระดับบัณฑิตศึกษา: วิธีการวิจัยแบบเดลฟาย (Delphi)

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บทคัดย่อ

ระบบประกันคุณภาพการศึกษาภายในฉบับล่าสุดที่พัฒนาโดยสำนักงานคณะกรรมการการอุดมศึกษา (สกอ.) เปิดโอกาสให้สถาบันการศึกษาเลือกหรือพัฒนาระบบประกันคุณภาพการศึกษาภายในของตนเองได้ เพื่อให้การจัดการการศึกษาเกิดประสิทธิผลและประสิทธิภาพอย่างต่อเนื่อง ดังนั้นสถาบันการศึกษาที่ต้องการออกแบบระบบประกันคุณภาพการศึกษาภายในของตนเองจึงต้องมีการศึกษาหลักเกณฑ์ต่างๆ อย่างระมัดระวัง เนื่องจากสิ่งนี้เป็นเครื่องมือหนึ่งที่ใช้พัฒนาองค์การให้บรรลุเป้าหมายที่ตั้งไว้ได้ การศึกษานี้มีวัตถุประสงค์เพื่อนำเสนอวิธีการในการได้มาซึ่งเกณฑ์ประกันคุณภาพการศึกษาภายใน สำหรับสถานศึกษาระดับบัณฑิตศึกษา ผู้ศึกษาเลือกสถาบันบัณฑิตพัฒนบริหารศาสตร์ (นิด้า) เป็นกรณีศึกษา วิธีการที่ผู้วิจัยนำเสนอ คือ วิธีการวิจัยแบบเดลฟาย แบบสอบถามสำหรับกระบวนการเดลฟายพัฒนาขึ้นจากการทบทวนกรอบประกันคุณภาพต่างๆ ทั้งในระดับชาติและนานาชาติ รวมทั้งใช้ข้อมูลจากการสนทนากลุ่ม และการสัมภาษณ์ ผู้เชี่ยวชาญจำนวน 35 คน ถูกคัดเลือกอย่างเจาะจงจากบุคคลที่รับผิดชอบงานประกันคุณภาพการศึกษาภายใน ค่าฐานนิยม มัธยฐาน และพิสัยควอไทล์ ถูกใช้ในการวิเคราะห์ข้อมูล ผลการศึกษาพบว่ามี 7 รายการที่ได้รับฉันทามติอย่างสมบูรณ์ 4 รายการ ถูกจัดในกลุ่มบริหารจัดการ ภายใต้หัวข้อการบริหารทรัพยากรมนุษย์ และระบบการทำงาน กลุ่มการเรียนการสอน 2 รายการ ภายใต้หัวข้อหลักสูตร และการพัฒนาและสนับสนุนการเรียนของผู้เรียน และกลุ่มบริการวิชาการ 1 รายการ จากการดำเนินการเดลฟาย ข้อสังเกตจากการวิจัยในครั้งนี้พบว่า กรอบประกันคุณภาพสำหรับการสร้างแบบสอบถาม และคุณสมบัติของผู้เชี่ยวชาญมีความสำคัญ

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Introduction

The Ministry of University Affairs was reorganized under the Ministry of Education as the Office of the Higher Education Commission (OHEC) in 2003 and was transferred to the new Ministry of Higher Education, Science, Research and Innovation in 2019. The ministry has recognized quality assurance as a significant issue in Thai higher education since 1996. Therefore, it announced the policies and guidelines for quality assurance in higher education based on three principles: 1) academic freedom 2) institutional autonomous and 3) accountability (OHEC, 2017). Subsequently, the National Education Act of B.E. 2542 (1999) and Amendments (Second National Education Act B.E. 2545 [2002]) was enacted and mentioned quality assurance system in higher education in Chapter 6 - Educational Standards and Quality Assurance. The chapter states that education shall have a system of educational quality assurance both internal and external quality assurance in order to improve quality and educational standards at all levels. Furthermore, it further states that parent organizations with jurisdiction over educational institutions and the institutions themselves shall set up an internal quality assurance system and recognize it as a continuously operating part of educational administration. The annual quality assessment report also needs to be prepared for related organizations and reveals to the public for the purpose of quality improvement. A further requirement was the establishment of the Office of National Education Standards and Quality Assessment (Public Organization) (ONESQA) to develop criteria and methods for external quality assurance to assess the quality of the institutions every 5 years (ONESQA, 2003). Currently, the fourth National Education Act of B.E. 2562 (2019) was enacted in 2019. The rationale for the promulgation of this Act was to amend the law on national education to stipulate the scope of the operation of the Ministry of Education and other departments to be consistent with the changed administrative power due to the establishment of the Ministry of Higher Education, Science, Research and Innovation (National Education Act, 2019). However, the main part related to internal quality assurance system in higher education was not amended.

Regarding the internal quality assurance (IQA) system, the OHEC has a responsibility to define educational policies, criteria, and various guidelines to encourage and support the development of procedures related to quality assurance in the institutions. Also, OHEC is in charge of monitoring, examining, and evaluating both public and private higher education institutions (Sandmaung & Khang, 2013). The OHEC has continuously reviewed and developed the IQA system. The first IQA system was launched in 2007 and was enforced to all Thai higher education institutions (HEIs) for assuring their operational quality every academic year. The operational indicators in the IQA system were categorized as input, process, and output indicators. These indicators were designed to align with the Ministerial Regulation Systems, Criteria, and Procedures for Internal Quality Assurance in Higher Education Institutions of 2003, the National Education Act of 1999 (2nd Amendment in 2002), the National Education Standards, the Higher Education Standards, and other related standards. Also, they were designed to be comparable to the external assessment indicators of the ONESQA. The second round of the IQA system was developed using the same principle of the first round and was established in 2010. However, the quality indicators in this round were focused only on the assessment of input and process. For the output, it was measured from the quality indicators of the third round of external quality assessment from the ONESQA. The second round of the IQA system was implemented to assure the quality of the HEIs for the academic year 2010-2013.

In 2014, the OHEC developed the new round of IQA system for the academic year 2014-2018. There were two significant adjustments compared to the previous systems: 1) all HEIs shall have the IQA system at program, faculty, and institution level in accordance with the Ministerial Regulations on System, Criteria ,and Methods for Educational Quality Assurance B.E. 2553 (2010) and 2) each HEI has an opportunity to select its own IQA system based on the principles of academic freedom and institutional autonomous to manage education to be efficient and effective on an ongoing basis ,but ensure that it is suitable for the HEIs' context and aim. As well, the selected IQA system needs to be aligned with the Higher Educational Standards and other relevant regulations and should also be prepared

for external quality assessment. HEIs may consider the IQA system from the latest version of the IQA system from the OHEC, the quality assurance system recognized at international level that can assure the quality of the HEIs at three levels; program, faculty, and institution, such as AUN-QA, EdPEx. Alternatively, ensure the quality assurance system was designed by the HEIs with the approval of the institution's council and the Internal Quality Assurance Commission on Higher Education (OHEC, 2017).

The National Institute of Development Administration (NIDA)

The National Institute of Development Administration (NIDA) has recognized as a public graduate–only institution under the jurisdiction of the OHEC, Ministry of Higher Education, Science, Research and Innovation. NIDA has realized quality assurance as one of the processes for educational administration, therefore, it appointed subcommittee for quality assurance to specify, enhance, and monitor the operation of the quality assurance processes of faculties and centers. Each faculty and center conducts a self-assessment report (SAR) and uses its results for improvement. NIDA has adopted the IQA system from the OHEC since 2007 (OHEC, 2017; Parkart, 2011).

During the academic year 2010 – 2014, NIDA had the SAR score in the highest range (4.91, 4.91, 4.91, 4.87 and 4.51 out of 5, respectively) (OHEC, n.d.). It can therefore be implied that NIDA has already achieved high quality in education consistent with the national standards. NIDA has a vision to be "a national leading institution producing leader and knowledge for changing at international level" such that NIDA's standard is ranked in World University Ranking according to NIDA 15-year Long Range Development Plan (2008-2022). However, NIDA is a graduate-only institution which does not allow NIDA to be ranked in World University Ranking. Therefore, the best way for NIDA to achieve its vision is to enhance its quality either in programs, faculty, or institution, or all of them to be recognized as a high-quality institution at the international level.

Research has been conducted by Prof. Dr. Tawadchai Suppadit about the development of guideline to increase the achievement of the IQA operation at NIDA

in 2014. The objective of this research was to study problems, obstacles, comments, and suggestions arising from IQA operations. These results were used for the improvement of the IQA procedures at NIDA. Data were collected from NIDA staff having responsibility related to IQA. They were requested to give opinions regarding the solution and the obstacles that were encountered during the IQA procedure. One finding was that some indicators used in IQA system from the OHEC were not appropriate for the operation of NIDA at both faculty and institution level (Suppadit, 2014). This infers that current quality indicators used in the IQA system are not suitable for the NIDA context. As quoted in the Manual for the Implementation of the AUN-QA Guidelines that "quality is primarily the responsibility of higher education itself" (ASEAN University Network-Quality Assurance, 2007). Thus, an efficient IQA system should be designed by each institution as no one system can be used for all. The institution should decide the most appropriate system for itself (ASEAN University Network-Quality Assurance, 2007). NIDA has its own characteristics as it is a graduate-only HEI, therefore, it will benefit from the Regulations and Guidelines regarding Higher Education Internal Quality Assurance 2014 announcement which allowed HEIs to create their own IQA system. Thus, NIDA can develop a new IQA system in its context and enhance its quality to the international level. Currently, NIDA has applied existing frameworks at the international level to assure its quality such as ASEAN University Network-Quality Assurance (AUN QA) and Association to Advance Collegiate Schools of Business (AACSB).

According to the importance of the IQA system previously described, the researchers intended to expose the process of deriving the educational quality assurance criteria in the IQA system suitable for Thai graduate-only institutions adopting NIDA as a case study.

Literature Review

Internal Quality Assurance System in Higher Education in Thailand

The OHEC has continuously developed the IQA system for Thai HEIs since 2007. Presently, the system is recognized as the third round which has been launched since 2014. The system was designed to establish internal quality

assurance for HEIs in three levels: the curriculum/program of studies level, the faculty level, and the institutional level. Each level has its own quality assurance components and indicators.

The curriculum/program of studies level consists of 6 components. These are 1) regulatory standards 2) graduates 3) students 4) instructors 5) curriculum, learning and teaching, learner assessment and 6) learning resources. The indicators at this level cover student encouragement and development, the procedure of learning and teaching establishment, teacher-student ratios at the graduate level (especially thesis supervision be in line with program standards), academic output, faculty research, teaching material, library, and other learning resources. In addition, quality assurance at the program level shall assess operations based on the Thai Qualification Framework for Higher Education through employment or self-employment rates, and the quality and dissemination of graduates student's publication output.

The faculty level consists of 5 components including curriculum/program of studies operational results (which belong to the graduate production component). These are 1) graduate production 2) research 3) academic service 4) preservation of arts and culture and 5) administration and management. The indicators at this level cover faculty performance that supports learning and teaching of each program under the faculty's operation including student activities, student services, academic services, research, administration, and quality assurance of the faculty.

The institutional level consists of 5 components including curriculum /program of studies operational results (belong to graduate production component) and faculty management results (belong to administration and management component). These are 1) graduate production 2) research 3) academic service 4) preservation of arts and culture and 5) administration and management. The indicators at this level are considered to be in line with the higher education standards: 1) the Standard for the Potential and Readiness of Education Management, and 2) the Standard for the Implementation of Higher Education Institutional.

Every academic year, the HEIs under this IQA system have to assess their educational quality with the results reported to the OHEC via CHE QA Online.

Educational Quality Assurance Frameworks at International level

This study applied the Delphi method for data collection to explore quality assurance criteria in the IQA system in the HEIs. A questionnaire used in the method was developed from 5 quality assurance documents at the international level. They were selected as 1) they can be applied to assure the educational quality in Thai HEIs 2) they were encouraged to use by the OHEC, and 3) their quality assurance framework/criteria/system is suitable for NIDA. All of which were reachable online at the links presented and were up-to-date at the time this article was written. Each one was summarized in the next part.

1. Education Criteria for Performance Excellence (EdPEx) (In Thai), available at www.edpex.org/2016/04/edpexcriteria58-61.html

2. The ASEAN University Network-Quality Assurance (AUN-QA) framework for institution level, available at: www.aunsec.org/pdf/Guide%20to%20AUNQA%20Assessment%20at%20Institutional%20Level%20Version2.0_Final_for_publishing_2016%20(1).pdf

3. The ASEAN University Network-Quality Assurance (AUN-QA) framework for program level, available at http://www.aunsec.org/pdf/Guide%20to%20AUN-QA%20Assessment%20at%20Programme%20Level%20Version%203_2015.pdf

4. The EFMD Quality Improvement System (EQUIS), available at https://efmdglobal.org/wp-content/uploads/2018_EQUIS_Standards_ and_Criteria.pdf

5. The EFMD Program Accreditation System (EPAS), available at https://efmdglobal.org/wp-content/uploads/EFMD_Global_EPAS-Standards_and_Criteria_2018.pdf

Education Criteria for Performance Excellence (EdPEx)

Education Criteria for Performance Excellence or EdPEx has been recognized as a quality assurance framework at the international level which has been developed according to Malcolm Baldrige National Quality Award: MBNQA (OHEC, 2011). The OHEC encourages HEIs that already had a high SAR score to apply EdPEx

as an IQA system to enhance its performance excellence. The EdPEx criteria consists of a set of seven questions regarding significant issues for managing and operating an education organization. Those seven aspects are 1) leadership 2) strategic planning 3) customer focus 4) measurement, analysis, and knowledge management 5) workforce focus 6) operations focus, and 7) results

The OHEC encourages the HEIs already had a high SAR score to apply EdPEx criteria as an IQA system for its performance excellence (OHEC, 2011).

The ASEAN University Network-Quality Assurance (AUN-QA) framework for institution level

The AUN-QA framework for the institutional level was developed by the ASEAN University Network-Quality Assurance (AUN-QA) network, a group of Chief Quality Officers (CQOs) appointed by the AUN member universities. The AUN-QA network has responsibility to encourage quality assurance in the HEIs, raise the quality of higher education, and collaborate with both regional and international bodies for the benefit of the ASEAN community. This framework is a second version and was redesigned to support the ASEAN Economic Community (AEC) and to promote cross-border mobility for students and faculty members and the internationalization of higher education.

The 2nd version of the AUN-QA framework for institutional level was designed as a holistic framework including strategic QA, systemic QA and functional QA. It consists of 25 criteria categorized in 4 categories: 1) strategic QA 2) systemic QA 3) functional QA, and 4) results.

Strategic QA consists of 8 criteria: 1) vision, mission and culture 2) governance 3) leadership and management 4) strategic management 5) policies for education, research and service 6) human resources management 7) financial and physical resources management, and 8) external relations and network

Systemic QA consists of 4 criteria: 1) Internal Quality Assurance (IQA) System 2) internal and external QA assessment 3) IQA information system, and 4) quality enhancement

Functional QA consists of 9 criteria: 1) student recruitment and admission 2) curriculum design and review 3) teaching and learning 4) student assessment 5) student services and support 6) research management 7) intellectual property management 8) research collaboration and partnerships, and 9) community engagement and service

Results consists of 4 criteria: 1) educational results 2) research results 3) service results, and 4) financial and market results

The ASEAN University Network-Quality Assurance (AUN-QA) framework for program level

The AUN-QA framework for program level has been developed continuously since 2004 by the ASEAN University Network-Quality Assurance (AUN-QA) network. Currently, the framework is recognized as a 3rd version launched in 2015. It was designed to focus on educational activities regarding 3 aspects: quality of input, quality of process, and quality of output. The framework consists of 11 criteria: 1) expected learning outcomes 2) program specification 3) program structure and content 4) teaching and learning approach 5) student assessment 6) academic staff quality 7) support staff quality 8) student quality and support 9) facilities and infrastructure 10) quality enhancement, and 11) output

The EFMD Quality Improvement System (EQUIS)

EFMD Quality Improvement System (EQUIS), institutional accreditation system for business and management schools developed by the European Foundation for Management Development (EFMD). The EQUIS evaluation considers each component of the framework and the inter-relationships between them.There are 10 assessment criteria under this can be divided into 10 assessment criteria covering 1) context, governance, and strategy 2) programs 3) students 4) faculty 5) research and development 6) executive education 7) resources and administration, 8) internationalization 9) ethics, responsibility and sustainability, and 10) corporate connections.

The EFMD Program Accreditation System (EPAS)

EFMD Program Accreditation System (EPAS), program accreditation system for business and/or management programs developed by the European Foundation for Management Development (EFMD). The EPAS accreditation framework is an input-output model moving from program design to program delivery to program outcomes. The framework can be divided into 5 assessment criteria covering 1) the institution in its national and international context 2) program design 3) program delivery & operations, 4) program outcomes, and 5) quality assurance processes.

Research Methodology

The Delphi Method

The Delphi method was mainly applied in this paper in order to explore quality assurance criteria for graduate-only institution's internal quality assurance system in Thailand by adopting NIDA as a case study. This method was selected as a data collection process because it may use for the investigation that aims to identify "what could/ should be" (Miller, 2006 as quoted in Hsu & Sanford, 2007) and for a significant decision-making that will lead to an organization policy development (Loo, 2002).

In this study, the researchers conducted two rounds of the Delphi. In round 1, the researchers applied a structured questionnaire developed from the revision of related documents and the results of focus group and interview sessions. In round 2, the researchers analyzed results from round 1 and adjusted the questionnaires for this round. The researchers had space for the respondents to leave a comment in each question of both rounds. At the end of each section, the researchers prepared a space for the respondents to add more items related to NIDA's quality assurance.

Questionnaire development

The questionnaire used in the Delphi was developed from two major sources: 1) quality assurance criteria in the IQA system from the OHEC, and the quality assurance frameworks for HEI at the international level as previously described, and 2) the results of focus group and interview sessions.

The focus group and interview sessions were conducted to gather information about the IQA system in Thai HEIs and the NIDA context. The questions for both focus group and interview sessions were formulated based on the IQA system from the OHEC and other Thai higher education regulations. The respondents in both sessions were purposely selected. For the interview session, executives developing the IQA system in a university were invited while the respondents in the focus group were senior executives at NIDA.

After consolidating and analyzing all data from both sources, the researchers formulated the Delphi questionnaire consisted of quality assurance criteria categorized in four sections (management, teaching, research, and academic service) with 91 items in total: 48 items were from the documents (52.7%) and 43 items were from the interviews or the focus group (47.3%). There were 48 items under the management section, 29 items under the teaching section, 11 items under the research section, and 3 items under the academic service section. The questionnaire had two parts on a five-point Likert scale. The first part was the importance of each item and the second part was the level of implementation of each item at NIDA.

Subject matter experts (SMEs)

In the Delphi, the samples or the subject matter experts (SMEs) are not random; instead, they will be selected by applying purposive sampling techniques (Hasson et al, 2000). As there are no specific criteria for recruiting a participant in the Delphi, they will be chosen from their related background and experiences, knowledge of the problem that can contribute to the study (Hasson et al, 2000; Hsu & Sandford, 2007; Okoli & Pawlowski, 2004). Therefore, the researchers purposively recruited the 35 SMEs from inside NIDA as they had experiences and the knowledge in the NIDA IQA system. The characteristics of these SMEs were 1) be an executive who had responsibility regarding the IQA system at the institution or school level, and 2) be a staff who had responsibility regarding the IQA system at the institution or school level. For managerial position, 7 executives were from the institution level (NIDA president, 5 senior executives, and Plan and Policy Analysis Division Director and 12 persons were from 11 schools and one college (Dean or Associate Dean for

Planning). For staff position, 4 were from the Education Quality Assurance System Development, Plan and Policy Analysis Division and the others were from 11 schools and one college.

Data analysis

Data analysis in the Delphi is an ongoing process as it needs to be done right after each round is completed. The results from the previous round will be data for the questionnaires adjustment in the next round, as well as, they will be feedback for the SMEs. For the first round, its results will be a basis for developing a structured questionnaire in the subsequent rounds (Powell, 2003). Data derived from the Delphi are both qualitative and quantitative data. To clarify, in the classic Delphi studies, open-ended questions will be applied to obtain the SMEs' opinions to develop the Likert-type scale questions in the initial round. The appropriate method for each data will be carefully selected. Measures of central tendency and level of dispersion will be applied for data analysis (Hsu & Sandford, 2007). Content analysis will be applied for qualitative data.

In the first round, 24 out of 35 SMEs returned the questionnaires (68.57% response rate). In the second round, 21 out of 24 SMEs returned the questionnaires (87.50% response rate). Due to missing values for one or more mutual points of view in several cases, those cases were excluded from the study. Thus, the sample size for this study was 21. The mode and median corresponding to each of the items in the first and second rounds were calculated using Microsoft Excel software. Hence, for this study, the second round will be considered for analysis purposes.

Determining consensus in the Delphi

Consensus in the Delphi among the SMEs may be reached after several rounds, however, it is possible to reach consensus after conducting only two rounds (Green, 2014). According to Avella (2016), he stated that consensus does not necessarily mean 100% of the panel agreed on an item, especially when the group is heterogeneous. Vernon (2009) added that consensus has traditionally ranged anywhere from 55 to 100% agreement, with most considering 70% to be suitable. Apart from measures of central tendency, standard deviations, percent of panel

agreement, and interquartile ranges (the middle 50% of the responses) have been documented to be mostly used for determining whether a panel reached consensus. Skulmoski et al. (2007) indicated that the analysis of the survey results from Delphi round one should be accomplished by using qualitative coding or descriptive statistic. It is important to allow panel members the opportunity to change or expand responses from each previous round. Preferably, the questions should become more focused on the specific details of each round as the process continues. Skulmoski et al. (2007) further stated that it is common to rank and rate the first-round responses, a practice essential for improving the reliability of the results.

Interquartile range

The interquartile range or IQR was used as part of the analysis for overall panel agreement in the Likert data from the Delphi round 1 and 2. Henning and Jordan (2016) agreed with Hsu and Sanford (2007) that this value tends to be one of the major descriptive statistics frequently used for data analysis in the Delphi process. The middle 50% of the responses is the focus of making this measurement objective and rigorous enough to determine whether consensus exists. According to Henning and Jordan (2016), the most customary practice is to declare consensus for a value less than one. Although the principal aim of the Delphi method is to reach consensus among the participants, still a common practice to measure it does not exist. Hence, there are studies that measure agreement through frequency distributions and others use the standard deviation or the interquartile range. As for the studies using interquartile range to assess consensus, the former should be less than 1.5 (Christie & Barela, 2005) and the latter is less than 2.5 (Kittell-Limerick, 2005).

In the current study, the adopted criterion of consensus was when an IQR≤1. Thus, in this study, an IQR less than 1 means that over 50% of all opinions fall on a certain point on the scale; this shows that they have reached a consensus. An IQR of zero indicates a perfect consensus among panel members: the higher the IQR, the greater the dispersion of the data.

For all the 91 questions, the following statistical parameters have been calculated median and IQR. The median is a better measure of the degree of group support for each factor; if it is high, we can conclude that there is a high level of

support from the group. The IQR permits us to see the dispersion of results, which is directly related to the standard deviation.

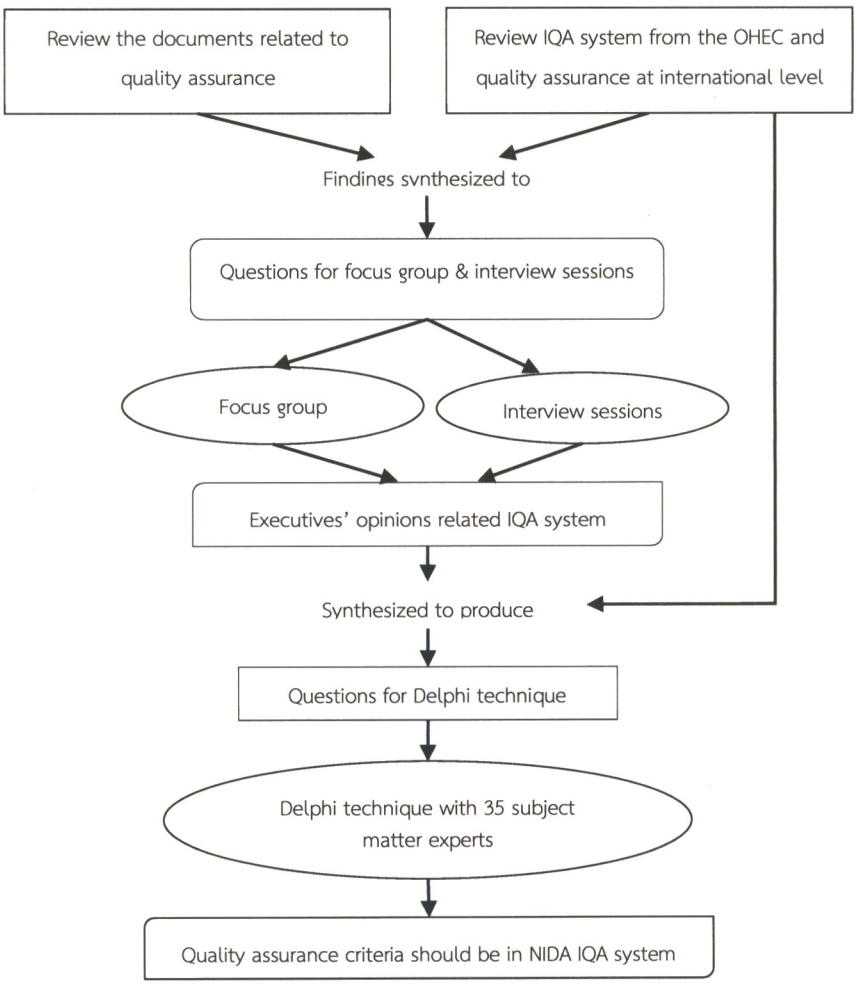

Figure 1 The process of deriving education quality assurance criteria

Findings

In this study, only the Delphi round 2 was used for analysis as mentioned in the data analysis section. The respondents were 21 SMEs including one from the executive board, 7 executives, 10 staff from each school, and 3 planners from planning division. From the Delphi round 2 analysis, 7 items from 91 items were determined consensus as they had a perfect consensus (IQR = 0) among panel members. Of these, 3 items were from the documents and 4 items were from the

focus group and interview sessions. According to the major purpose of this paper which was to demonstrate the process of deriving quality assurance criteria in the IQA system and limited pages of the article, therefore, the researcher does not present the findings from the Delphi round 1 and round 2 in this section. Table 1 demonstrates the items with perfect IQR categorized by quality assurance criteria sections.

Table 1 Items with perfect IQR categorized by quality assurance criteria

Items	IQR	Median		Sources
		L	H	
1. Management section				
1.1 Human resource management: employee support and development				
The employee development system of the institution is designed appropriately for each group of staff (no.20)	0	3		Documents
1.2 Working system				
Workflow in both core and support process is clearly defined to enable the institution to accomplish its mission and vision. (no.41)	0	3		Focus group/ interview
Workflow both core and support process is standardized to enable the institution to accomplish its mission and vision. (no.42)	0	3		Focus group/ interview
Workflow both core and support process is designed with the use of advanced technologies or innovations. (no.43)	0	3		Focus group/ interview
2. Teaching section				
2.1 Program				
Program objectives are set to meet expectations and the needs of stakeholders that are appropriate for the national context. (no.50)	0		4	Documents
2.2 Student development and support				
A career support system or career Center is developed for individual learners. (no.69)	0	3		Documents
3. Academic service section				
NIDA consulting center has been publicized to stakeholder thoroughly (no.89)	0	3		Focus group/ interview

From Table 1, the 7 items emerged from three sections namely; management, teaching, and academic service sections. There are 2 topics under the management section: human resource management: employee support and development (1 item), and working system (3 items). There are 2 topics under the teaching section: program (1 item), and student development and support (1 item). One item is under the academic service section.

Discussion

The following section will discuss the research experience using the Delphi method to derive education quality assurance criteria in the IQA system.

The questionnaire used in the Delphi process was developed from two major sources: 1) quality assurance criteria in the IQA system from the OHEC, and the quality assurance criteria for HEI at the international level as previously described, and 2) the results of focus group and interview sessions. After consolidating and analyzing all the data from both sources, the researcher formulated the Delphi questionnaire. The process of questionnaire development in this study was similar to that in Sandmaung and Khang, (2013), having the purpose to define the quality indicators that are suitable for assuring quality in HEIs in Thailand from the perspectives of stakeholders.

In Sandmaung and Khang's study the questionnaire based on a review of the literature and the OHEC quality indicators was developed, then referenced their results with the results of interviews with experts and a pilot survey. However, the respondents to the questionnaire were different. In that study, the questionnaires were delivered to more than 2,000 persons who were stakeholders, students, teaching staff, managerial staff and employers, as its purpose was to explore the quality indicators that were proper for assuring quality in HEIs in Thailand. This study, however, selected 35 subject matter experts purposively from inside NIDA as they had the experience and knowledge in the NIDA IQA system. This was important and relevant as the researcher was adopting NIDA as a case study.

The Delphi method was mainly applied for exploring quality criteria with respondents who had experience in the IQA system at NIDA. Having experienced SMEs as major respondents can give more specific and useful information to the study. As mentioned in the work of Ansah (2015) that a pragmatist strategic perspective was considered useful in analyzing higher education quality assurance conceptualizations because pragmatism focuses on solving a real-world problem in a context. However, most of the respondents who participated in this study were NIDA employees, both in the focus group and participating in the Delphi process. This

could result in important data from an outsider perspective, such as a quality assurance expert, not being included.

The number of SMEs is important when using the Delphi method. In this study, the 35 selected SMEs had responsibilities related to IQA system and were from various schools in NIDA. Even though they were all responsible for IQA related tasks, they were in different job position levels, had different numbers of years of service in NIDA, and had worked in schools of different disciplines, each of which had its unique characteristics. Therefore, it was recognized as a heterogeneous group. According to Hsu and Sandford (2007) and Loo (2002), the number of SMEs can range from five to fifteen when forming a homogeneous group, while in a heterogeneous group, a greater number of participants is expected. This is why 35 SMEs were selected for the study's purposes. Equally, the researcher must be concerned with keeping the final number of SMEs to be not less than 15 which can be a problem as all participating SMEs are in the study on a voluntary basis and they may refuse to participate at any particular time. Also, the number of SMEs must ensure a sufficient volume of information.

Recommendations

The results emerged in this study could not be generalized to other HEIs as the data collected in the study were specifically in the NIDA context. Nonetheless, the process of deriving quality assurance criteria in the IQA system demonstrated in this study contribute key implications for practitioners as follows:

First, the other types of HEIs, such as public universities, private universities, or the Rajabhat Universities which have their own specific strategies to become a leading university in developing communities may adopt the process of deriving quality assurance criteria presented in this study as one step of IQA system development for their own purposes. However, the developer of such a system must be concerned with the characteristics, mission and goals, and also the specific context and the objectives, of the HEI in order to select the right quality assurance framework for developing the Delphi questionnaire. EQUIS and EPAS were selected in this study because these two frameworks have quality assurance criteria that

could assess the internationalization of the HEIs. For example, EQUIS assesses internationalization of the student criteria by considering how the school helps its students to acquire intercultural skills and EPAS assesses internationalization of the program delivery & operations criteria by considering how the mix of international partnerships enhances the international learning experience of the program. On the other hand, the Rajabhat Universities have a vision to be a leading university in a developing community. This means that NIDA and the Rajabhat Universities may select a different framework to develop the Delphi questionnaire. As well, the documents used in the process such as those related to the Thai higher education regulations and the quality assurance frameworks need to be up-to-date.

Second, the OHEC may recommend the process of deriving quality assurance criteria from this study to the other institutions. In addition, the OHEC may design a program for developing educational personnel to have more knowledge of IQA systems, providing them with guidelines for designing the system.

Limitations and Future Research

To conclude, the Delphi is one suitable method to derive quality assurance criteria. However, the future researcher should be concerned with the characteristics, mission and goals of the HEIs, and also the specific context and objectives of the HEI, to select the right quality assurance framework for developing the Delphi questionnaire. For future applications, the researcher must then make sure that the framework used in the review process does actually fit his or her context. As well, the documents used in the process such as related Thai higher education regulations and the quality assurance frameworks need to be up-to-date. Furthermore, the level of expertise in the matter, numbers, and heterogeneity of SMEs are also significant issues in selecting what is most suitable for the particular research he or she is undergoing. Besides, the SMEs in the Delphi were only selected from academic and supporting staff from inside NIDA who have responsibilities or get involved in the IQA system. This could result in lacking of important data from an outsider perspective.

In addition, the future researcher may study other components which have to be in the IQA system such as the process of IQA system in order to develop the IQA system for an institution.

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