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The Development Of A Support System For The Follow-Up On Basic Education Quality Assessment And Accreditation

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ABSTRACT

The objectives of this research were 1) to develop a support system for the follow-up on basic education quality assessment and accreditation and 2) to assess and test the system's effectiveness. There were two phases that allowed the research objective, and this paper will show the result of the first objective, which is one part of the whole research. The target groups in the first phase were 1) 15 quality assurance experts selected by purposive sampling, 2) nine quality assurance and information technology specialists selected by purposive sampling, and 3) administrators and teachers who will be using the system and IT specialists who are responsible for the information system in the Office of Educational Standards and Quality Assessment (Public Organization). The tools used in this research consisted of the expert interview questionnaire, the expert discussion questionnaire and discussion recording form, and a system performance evaluation form. The statistic was using mean and S.D. The research found that 1) the support system for the follow-up on basic education quality assessment and accreditation consists of input, process, output, and feedback sections. This system has three stakeholders: administrators, monitoring supervisors (ONESQA and area), and schools. The system structure has two main components: frontend and backend functions. 2) the overall system was evaluated as effective at the highest level. The usefulness of the system and the consistency of the system's objectives were evaluated to be the most efficient. The aspect of functionality, the ability to display results as needed, and the ability to provide advice and assistance were most effective.

IndexTerms— Supporting System, Education Quality Assessment, Accreditation, National Education Standards and Quality Assessment

I. INTRODUCTION

Education quality assurance ensures that the quality of education satisfies the parents' expectations of their children. In short, it protects the quality of education. Education quality assurance guarantees proper procedures are used to raise the caliber of instruction, learning, training, and research to the national level. In addition to supporting teaching and learning improvement, quality assurance is crucial for accountability. It involves the systematic process of maintaining and enhancing educational provision's quality, equity, efficiency, and, to include, both internal and external evaluations of the school. [1]

External quality assurance refers to the assessment of educational management quality as well as monitoring and auditing of the educational quality and standards of educational institutions that external organizations or assessors carry out. Office for National Education Standards and Quality Assessment (Public Organization) or ONESQA has been appointed for such assessment. The office must assess all educational institutions at least once every five years, and the findings must be made to the public[2].

For the 2016-2020 assessment, ONESQA adjusted the evaluation indicators in response to the comments from the previous assessments. Instead of using generic criteria, ONESQA assesses the institutions using each of their internal quality assessment standards. The additional adjustments were 1) empirical qualitative data collection rather than quantitative methods, 2) evaluators consisting of experts from ONESQA, representatives from the institution governor, and management experts, 3) the holistic-approach evaluation, 4) institute

visitation based on the institute readiness and available information, 5) evaluation criteria based on the institute's internal quality assurance and national standards, 6) results presented as internal correction, improvement, and innovation, and 7) a total of 59,000 educational institutions[3],[4].

With these changes, researchers developed the support system for the follow-up on basic education quality assessment and accreditation to support the effectiveness of the school's quality monitoring procedures as well as the information that helps with future policy creation.

II. REVIEW STAGE

Information system
Information system development involves various important steps and components. To ensure efficiency and effectiveness In developing such a system, details of the main components and processes related to information system development are as follows[5].

System development factors
Many factors determine the structure of the information system, such as purchasing and data collection. Data analysis, processing and storage, Access to information and communications technology (ICT), and the dissemination of services to ICT users are also important.

Information system development steps
The system development process involves different steps. It starts with identifying the problem, setting initial goals, and accepting limitations in the development process. This is followed by a feasibility study covering technological, economic, organizational, legal, ethical, and temporal aspects, culminating in determining project control methods[6].

1. System analysis
System analysis consists of studying the current condition. Analysis of user problems and threats Checking current documents Preparation of supporting documents and research to determine user needs

2. system design
The design phase involves creating a new system design. Specifying hardware and software requirements, including new system configuration and considering methods to achieve desired results.

3. Deployment and testing of the system
This phase includes deploying the planning system, conducting user training, Making necessary corrections (immediate, parallel, pilot, and periodic), and conducting comprehensive testing[7].

4. Use and development
Post-implementation activities involve evaluating the system. Maintenance (such as debugging modernization), user satisfaction testing, and further development of the system according to the results of use

Important elements of information system design
1) Input Design involves controlling the amount of input data, reducing errors, and ensuring timely and appropriate data processing.
2) Process Design: Involves the calculation and transformation of input data into required information. Taking into account the hardware and software used.
3) Output design focuses on controlling the amount of output data, choosing the right presentation method, and guaranteeing accuracy and reliability.
4) Workflow design: Define procedures with emphasis on functions within the system. Confident in accuracy and safety
5) User Interface Design: Aims to enhance user experience and interaction with the system through user-friendly design features[8].
6) Security Design: Involves creating strong security measures to protect against data loss and unauthorized access.

Additional system development ideas
Electronic monitoring and support: Specialized information systems with tracking and report generation capabilities.
Determining efficiency and effectiveness: Measures the ability of an information system to achieve predetermined goals and generate benefits.

Quality Assessment in Basic Education Institutions based on Educational Standards
The National Education Act Amendments state that Office for National Education Standards and Quality

Assessment (Public Organization) or ONESQA is required to assess all educational institutions at least once every five years to ensure that the educational institutions operate within the national standards. To instill confidence among all stakeholders that the educational standards are met in all educational institutions, the Ministry of Education has reformed the educational quality assessment and assurance system to reflect real-world reviews with fewer indicators and complicated processes. Additionally, internal assessors receive training to develop the standards, credibility, and capacity to engage with and advise educational institutions.

Educational standards outline the desirable characteristics and qualities of educational institutions. These standards are established as a benchmark to promote and supervise quality assurance assessment (Office of the Board of Basic Education, 2005). The standards in this context are intended to promote equal opportunities in improving the quality of education. The standards, therefore, focus on the following two aspects of educational management:
1) Every educational institution has criteria under the same standards.
2) The standards provide educational institutions with a crystal-clear picture of which direction to improve the quality of education.
Additionally, the establishment of standards sets clear expectations for those involved in education management, including administrators, parents, communities, and other organizations. All parties can work together to ensure that education meets the quality requirements of the standards. As a result, the standards serve as the foundation for human capital development and are the most critical objective for all parties. To achieve the outcomes in accordance with the established educational standards, everyone must be accountable and carry out their responsibilities in educational management.
The development of educational standards is based on the foundation that these standards must be achievable and measurable. The standards must be concise yet able to reflect the quality of the education in its context. The basic education standards consist of learners; quality, managerial process, and learner-centered instruction.
Educational Quality Assessment: Ensures that educational institutions meet national standards. Its focus is on equality in educational quality and a clear mandate for improvement[9].
These procedures and elements ensure the smooth operation and reliability of the information system. They also adapt to the organization's needs, ultimately supporting better decision-making and operational efficiency[10].

III. Research Methodology

This research is divided into two phases, and this would show for phase I.
1. Population and Samples
1.1 The first group of experts was the experts in the study of guidelines for developing a support system to monitor the results of basic education quality assessment and certification. The expert interviews and discussion groups consisted of quality assurance experts. Measurement & Evaluation and Information Technology specialists, a total of 15 people, were selected by purposive sampling based on qualifications, academic experience, and achievements.
1.2 The second group of experts was the experts in the study of the support system's effectiveness in monitoring the results of the basic education assessment and certification. The discussion group was the focus group of experts, including Measurement & Evaluation experts. Quality Assurance and Information Technology specialists, a total of nine people, were selected by purposive sampling based on qualification, academic experience, and achievements to improve the support system for monitoring and certifying the basic education quality. Based on the recommendations from the group discussions, experts assess the support system's effectiveness for monitoring and certifying the quality of basic education using the system performance assessment form.

2. Research Instruments

2.1 Interview form for group 1 experts about guidelines for developing a support system to monitor the results of basic education quality assessment and certification.
2.2 Discussion issues for group 1 experts and group discussion form on guidelines for developing a support system to monitor the results of basic education quality assessment and certification.
2.3 Discussion issues for group 2 experts and group discussion form on the support system's effectiveness of the evaluation and certification of basic education.
2.4 Evaluation form of the support system for the follow-up on the basic education quality assessment and certification for group 2 experts.

3. Collection of Data

The collection was carried out as follows.
Phase 1 – Development of a support system for monitoring and certifying the basic education quality
1. Contact and coordinate with the target groups preparing to develop a support system monitoring the basic education assessment and certification results.

2. Conduct interviews and group discussions with the target groups to study guidelines for developing a support system to monitor the results of basic education quality assessment and certification.
3. Use the information from the interviews and group discussions to analyze the content (Content Analysis).
4. Develop a support system for monitoring and certifying the basic education quality.
5. Contact and coordinate with the target groups to assess the support system's effectiveness.
6. Conduct group discussions to assess the support system's effectiveness
7. Use the information from the target group evaluation of the support system's effectiveness to analyze the content (Content Analysis).
8. Improve the support system based on the experts' recommendations.

4. Data Analysis

Content Analysis information about the guidelines for developing a support system to monitor and certify the basic education quality from the interviews and discussions with the target groups

IV. RESULT

1. The support systems' development results for monitoring the results of the assessment and certification of education quality.
Based on studies, concepts, theories, and related research documents and results from the content analysis of the expert interviews and group discussions for group 1, the details are as follows:
1.1 Guidelines for developing a support system to monitor the results of basic education quality assessment and certification consist of an input section, a processing section, an output section, and a feedback section.
1) The input section consists of
System infrastructure includes a network, network cloud server, hardware and software, access to different platforms (Windows, Mac OS, iOS, Android), and a security system (Security System) that prevents data attacks or threats from malware, computer viruses, backdoors, and spyware.
- The system's sub-components are the management system (Admin), management website, and basic education school database system. The sub-components should link with the agency's or ONESQA's database and user management system. Separate data access rights should be given to teachers, school administrators, and ONESQA so that the results can be reported and recorded. Schools should plan to develop the sub-component's quality following the P-D-C-A cycle.
2) The processing section consists of
- The processing system's follow-up for implementing the recommendations, such as the follow-up list of each year's assessment standards.
- The system collects user statistics, such as information about entering the report, activities processed in the system (to show the workload of teachers/schools), and implemented activities/projects based on expert recommendations, etc.
3) The output section (Output) consists of
- The publicity and public relations system are designed to have charts, statistics, star ratings, or ranking separated by area and province.
- The reporting system of user statistics, such as activities that are processed in the system (to show the workload of teachers/schools).
- The publication of manuals/videos on how to use the system/clinics, including frequently asked questions (FAQ).
- The display of web pages is vivid and easy to read. The screen layout is well-organized, easy to access, and user-friendly.
4) The feedback section consists of
- Interactive and non-interactive support system, including live admin support (Chat).
- Various communication channels for support, such as MSN, Line, etc.
In conclusion, the guidelines for developing a support system for monitoring the results of educational quality assessment and certification consist of Input, Process, Output, and Feedback.

1.2 The support systems' development results for monitoring the education quality results of the assessment and certification. The system has been designed in accordance with the evaluation results and the P-D-C-A cycle by analyzing various input data and the process, as shown in Figure 1.

Fig. 1. The P-D-C-A model of system activities in the evaluation follow-up

The system design and development demonstrated that users are divided into three groups: administrators (Admin), monitoring supervisors (ONESQA and districts), and schools. The details are as follows.

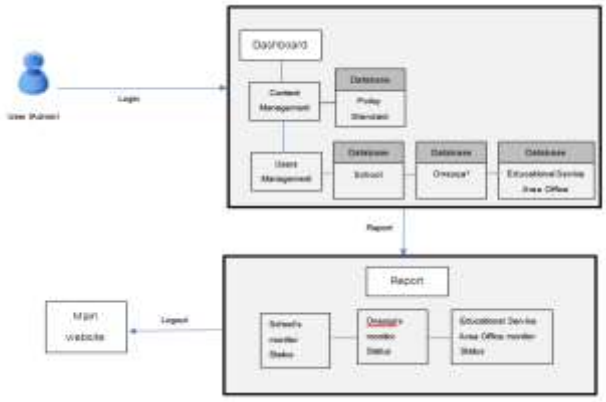

Fig. 2. Administrative system structure

The structure of system administrators has two main components: dashboard and Report. The dashboard, the main page, has two components: content and user management. Content manager administrators can edit various standards of the assessment result follow-up. User management administrators can edit any information related to the users from the three groups. The report displays quantitative data in various forms of statistical graphs with the information of the school Superintendent of the assessment follow-up from ONESQA and the educational service area office, as shown in Figure 3.

Fig. 3. The main page (Dashboard) of the administrators

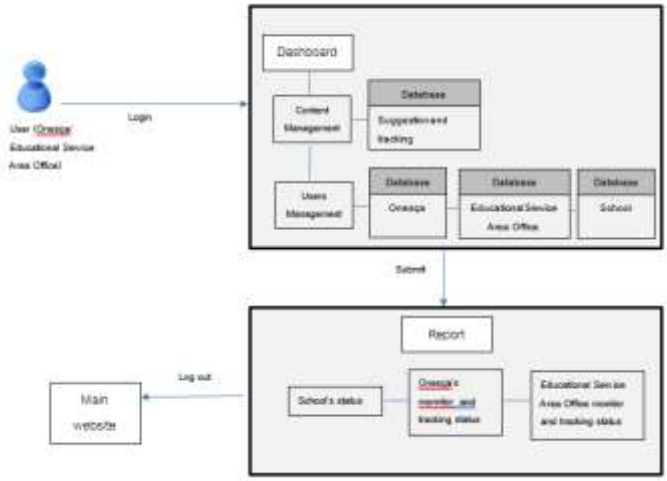

Fig. 4. User section system structure

In the system's structure of the users, from ONESQA and the educational service area, who follow the assessment results, there are two main components: 1) the Dashboard of recommendations for monitoring the results of the school's quality assessment and user data management and 2) the Report summary that displays the latest school's follow-up status, including the ONESQA's proposal and school's recommendations on the performance follow-up.

Fig. 5. The addition of followers' suggestions

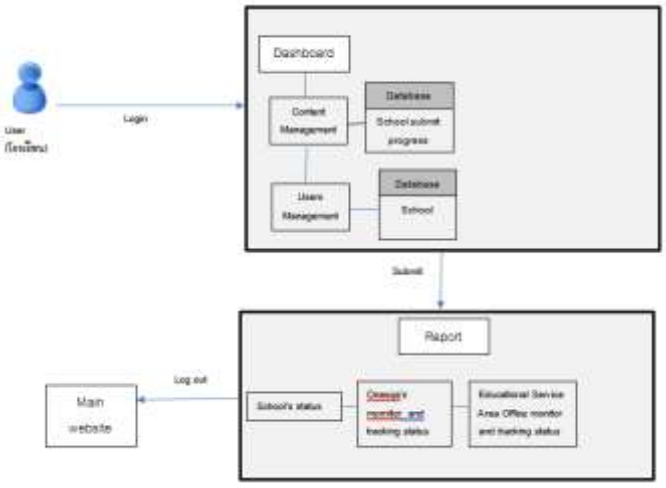

Fig. 6. The user system structure

In the system's structure of school users, there are two main components: 1) the Dashboard of the school's performance data, after receiving the previous assessment results, that can be attached with report files, and 2) the Report summary that displays the latest school's follow-up status, including the ONESQA's proposal and school's recommendations on the performance follow-up.

Fig. 7. The school information management page

V. CONCLUSION

In the development of the support system for monitoring and certifying the basic education quality, the process discovered that the operation of the system relied on the information of three parties: 1) schools that received at least one educational quality assessment result, 2) schools in the area, and 3) Office for Accreditation and Quality Assessment (Public Organization). The support system for the follow-up on the basic education assessment and certification consists of Input, Process, Output, and Feedback. The four components correspond to the method of information system development and the System Development Life Cycle (SDLC) steps to determine the system's requirements. The process analyzes the current work system and adjusts the system based on the needs [11]. After that, it designs, develops, evaluates, and tests the system [12],[13]. The research demonstrates that developing a monitoring system requires the creation of collaborative stakeholders who use the system. Moreover, the design must align with the follow-up process and quality management through lean management [14], and this is consistent with the research that in developing a tracking system, there must be an emphasis on knowledge collection and ontology engineering processes[15]. The knowledge gained is used as a basis for system development.

In addition, the study found that the support system was in the form of an API Service, or Application Programming Interface, which is a connection channel that exchanges data from one system to others with convenience, speed, functionality, and security. The platform is responsive, easy-processed, and suitable for future use [16]. This developed system can connect to other ONESQA systems to follow up on school assessment results; the components of the system were found to be consistent with the research framework for evaluating the quality of management of primary and secondary schools based on resource theory [17]. The role of effective school assessment is to help schools identify, analyze, see problems, and solve problems to ensure high-quality operations that increase from operating results that reflect past performance.

Ethical Research

Ethical approval was reviewed and approved by the Srinakharinwirot University,Thailand Research Ethics Review Committee (SWUEC-396/2564/E).

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