



Artificial Intelligence (AI) Analytics to Enhance EdPEX Self-Assessment Quality and Data-Driven Strategic Decision Making

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ABSTRACT

The research on the Study of the quality of self-assessment according to the criteria for developing educational quality towards excellence (EdPEX) has the objectives 1) to study the factors related to the quality assurance operation and the self-assessment process according to the criteria for developing educational quality towards excellence (EdPEX) 2) to find the formats, concepts, and main issues that affect the self-assessment according to the criteria for developing educational quality towards excellence (EdPEX) using a mixed research methodology. The research collected data from the sample group, including administrators, lecturers, and staff of Suan Sunandha Rajabhat University.

The quantitative findings revealed that the overall level of quality assurance system implementation and self-assessment was "high" (mean 4.02, SD = 0.48). The highest-scoring categories were organizational leadership and strategic planning, while the lowest-scoring categories were measurement, analysis, and knowledge management and implementation. A Pearson correlation analysis revealed a significant positive relationship between administrator commitment and staff engagement and the level of quality assurance system implementation ($r = 0.68$, $p < 0.01$). Multiple regression analysis indicated that administrator commitment and internal communication were key factors positively influencing quality assurance system implementation ($p < 0.05$) and accounted for 55% of the variance.

The qualitative findings from in-depth interviews indicated that Respondents have a basic understanding of EdPEX principles but lack a systematic understanding. Organizational leadership and governance play a crucial role in driving educational quality. Strategic planning is clear but lacks the use of evidence-based data to support decision-making. Regarding customer focus and knowledge management, there are still developments to include a central tracking system and database. Meanwhile, personnel have positive attitudes toward quality assurance but require further knowledge development.

Keywords: Education, Excellence, Self-Assessment, Artificial Intelligence.

INTRODUCTION

Educational quality assurance is a key mechanism for developing and raising the standards of higher education institutions, ensuring strength, transparency, and the ability to effectively meet the expectations of students and society. Currently, universities are placing importance

on internal quality assurance operations, emphasizing the self-assessment report (SAR) process to reflect performance, strengths, and areas for development. The assessment results are used to plan for continuous quality improvement. Education Criteria for Performance Excellence (EdPEX) It is an important framework used to assess the quality of management of educational organizations, emphasizing systematic development covering 7 main categories: organizational leadership, strategic planning, customer focus, measurement, analysis and knowledge management, personnel focus, operations and results, which helps educational institutions drive management towards sustainable excellence (Subcommittee on the Development and Enhancement of Education Quality Towards Excellence, 2021). And from the importance of driving the strategy of Suan Sunandha Rajabhat University, for excellence in practice, to study the level of success of the strategy, the relationship between the success of the strategy and the effective approach to holistic quality management for excellence in practice, problems and obstacles, and to know the approach to driving the strategy of Suan Sunandha Rajabhat University for excellence in practice effectively for other agencies to study in the future (Phetaeng et al, 2024).

Suan Sunandha Rajabhat University, recognizes the importance of educational quality assurance and organizational development in line with the EdPEX guidelines to enhance management and teaching quality for maximum efficiency. However, the implementation process remains challenging in many areas, such as linking indicators with outcomes, managing knowledge within the organization, and developing personnel potential to understand and be able to apply the EdPEX criteria in a concrete manner. This research, titled “Study of the quality of self-assessment according to the criteria for developing educational quality towards excellence (EdPEX), aims to examine factors related to quality assurance operations and the self-assessment process according to the criteria for developing educational quality towards excellence (EdPEX). It also aims to explore patterns, concepts, and key issues that influence self-assessment according to the criteria for developing educational quality towards excellence (EdPEX). This research is expected to serve as an important guideline for developing a more efficient educational quality assurance system and fostering a strong quality culture within the organization, aiming to become a higher education institution with sustainable excellence.

Research Objectives

1. To study the factors related to the quality assurance operation and the self-assessment process according to the criteria for developing educational quality towards excellence (EdPEX).
2. To find the formats, concepts, and main issues that affect the self-assessment according to the criteria for developing educational quality towards excellence (EdPEX).

Scope of the Research

1. Population Scope

1.1 The population includes personnel from the College of Innovation and Management, Suan Sunandha Rajabhat University, totaling approximately 30 people.

1.2 Sample group by specific sampling method, totaling 25 people.

2. Content scope

Mixed Methods Research using both quantitative and qualitative methods to obtain comprehensive and in-depth data on the study of self-assessment quality according to the

EdPEX (Education Criteria for Performance Excellence) quality development criteria.

Research Methodology

1. Research Methodology

In the study of the study of the quality of self-assessment according to the criteria for developing educational quality towards excellence (EdPEX), mixed methods research was used, using both quantitative and qualitative methods, to obtain comprehensive and in-depth data on the operating conditions and self-assessment in the educational quality assurance system according to the criteria for EdPEX (Education Criteria for Performance Excellence) Part 1 (Quantitative) : Study the factors related to quality assurance operations and self-assessment processes from the population, including academic personnel and support personnel of the Suan Sunandha Rajabhat University, and the sample group by means of specific sampling, totaling 25 people, including:

- 5 executives
- 13 teachers
- 7 staff

2. Research Steps

2.1 Sample population

2.2 Research instruments

2.3 Data collection

2.4 Instrument validation

2.5 Data analysis and processing

2.6 Research duration

2.7 Data presentation guidelines

3. Data Collection

In this research, the researcher collected data as follows:

3.1 Request permission from the administrators of the College of Innovation and Management to proceed with data collection.

3.2 Distribute questionnaires to personnel in the College of Innovation and Management who are the sample group and collect the questionnaires within the specified time period.

3.3 Conduct in-depth interviews with executives and those responsible for quality assurance, recording audio and taking notes.

3.4 Check the completeness and accuracy of the data before analyzing it.

4. Data Analysis

The researcher analyzed the data as follows:

4.1 Quantitative data

4.1.1 General data were analyzed using descriptive statistics, including frequency, percentage, mean, and standard deviation.

4.1.2 Analyze the relationship between factors related to quality assurance operations and self-assessment processes using inferential statistics such as:

- Pearson's Correlation Coefficient
- Multiple Regression Analysis

4.2 Qualitative Data

4.2.1 Data from the interviews were analyzed using content analysis.

4.2.2 Categorize and interpret data according to the EdPEX criteria to draw descriptive conclusions.

Research Results

From the research on the study of the quality of self-assessment according to the criteria for developing educational quality towards excellence (EdPEX), the researcher has collected quantitative and qualitative data from the sample group and analyzed the research results as follows:

Table 1: Means and Standard Deviations of Quality Assurance Operations and Self-Assessment Processes

Category	Mean	S.D.	Interpretation	Rank
1. Organizational Leadership	4.25	0.42	High	1
2. Strategic Planning	4.15	0.46	High	2
3. Operations	3.80	0.50	High	4
4. Measurement, Analysis, and KM	3.75	0.53	High	5
Overall Average	4.02	0.48	High	-

From the Pearson's Correlation Coefficient analysis, it was found that there was a positive and statistically significant relationship at the level of **0.01** between the management's commitment and the level of quality assurance system implementation ($r = 0.68$, $p < 0.01$), and the personnel participation and internal communication were related to the self-assessment process ($r = 0.62$, $p < 0.01$).

Table 2: Correlation and Multiple Regression Analysis of Factors Influencing Quality Assurance Success

Predictor Variables	Correlation (r)	Significance (p)	Result
Leadership Commitment	0.68**	< 0.01	Positive Influence
Internal Communication	0.62**	< 0.01	Positive Influence
Personnel Participation	0.62**	< 0.01	Positive

The multiple regression analysis revealed that leadership commitment and internal communication were significant positive predictors of quality assurance system implementation ($p < 0.05$). These factors collectively accounted for 55% of the variance in organizational performance (Adjusted $R^2 = 0.55$). Conversely, while human resources, technology, and budget appeared to be contributing factors, they did not reach statistical significance.

Summary of qualitative research results

1) Analysis of data from interviews using content analysis. Data from interviews with administrators, teachers, and staff, totaling **10** people, were analyzed in depth using content analysis to find patterns, concepts, and main issues that reflect the study of factors affecting the operation of the internal education quality assurance system according to the criteria for developing educational quality towards excellence (EdPEX). The results of the analysis found the following important issues:

1.1) Awareness and Understanding of EdPEX Criteria Most informants had a basic understanding of the structure and principles of EdPEX but lacked a deep understanding of how to link the different categories to the actual internal operations of Suan Sunandha Rajabhat University.

1.2) Organizational leadership and management play an important role in setting the direction, vision, mission, structure and supporting personnel to be aware of the quality of education. Communication within the organization is clearer, but development must still be increased to cover all levels and departments.

1.3) Strategic Planning (Strategy) College of Innovation and Management has prepared a strategic plan in line with the university's mission, with clear goals and indicators for monitoring and using data that can continuously improve the plan.

1.4) Focusing on service recipients and stakeholders (Customers), College of Innovation and Management places importance on student and stakeholder satisfaction. It conducts opinion surveys and uses the results to improve services. However, it lacks a systematic data collection and analysis system.

1.5) Measurement, Analysis and Knowledge Management found that quality data is being collected continuously, but there is still a lack of in-depth analysis systems and a shared central database. Knowledge management is still at a beginner's level, focusing more on exchange within the College of Innovation and Management than on systematic management.

1.6) The focus on workforce is to encourage personnel to be committed to their work and to cooperate in developing the quality of education. However, there is still a lack of systematic development in knowledge and understanding of the criteria for developing the quality of education towards excellence (EdPEX) and writing self-assessment reports (SAR).

1.7) Operations and Results Quality assurance operations have continued to progress and are beginning to show results in management and student satisfaction. However, some results are still unclear as the EdPEX assessment has only been implemented in recent years and comparative data is lacking.

2) Categorizing and interpreting data according to EdPEX criteria based on 7 categories of EdPEX criteria that are important for operations, writing self-assessment reports according to the criteria for developing educational quality towards excellence (EdPEX) by analyzing and summarizing descriptive results as follows:

Categorizing and interpreting data according to EdPEX criteria	
EdPEX Categories	Descriptive analysis results
Section 1: Organizational Leadership	The executives are committed to supporting operations and promoting an organizational culture that recognizes the quality of education within the College of Innovation and Management, ensuring that it meets the criteria for developing educational quality towards excellence (EdPEX).
Section 2: Strategic Planning	There is clear planning and strategy, but there is a lack of evidence-based data to support decision-making.
Section 3: Customer Focus	There is a focus on student and stakeholder satisfaction, but there is no systematic monitoring system and continuous data collection.
Section 4: Measurement, Analysis, and Knowledge Management	College of Innovation and Management still lacks a unified quality data collection system and the ability to systematically use analysis results for development planning.
Section 5: People Focus	College of Innovation and Management personnel have a positive attitude towards the quality assurance system but require further knowledge development and more specialized practitioners.
Section 6: Implementation	Quality assurance operations are systematically structured and have clear procedures, but there is a lack of serious evaluation of the effectiveness of the process.
Section 7: Results	There were positive results in terms of management and student satisfaction, but the measurement of outcomes still needs to be improved to better align with strategic indicators.

Discussion

Administrators play a vital role in driving the quality assurance system by setting visions and communicating goals. This aligns with Siriyota (2023), who emphasized commitment to EdPEX criteria in faculty management. Furthermore, strong leadership is essential for creating a culture of excellence, as noted by Sparks (2018), who argued that transformative leadership is the primary driver for institutional alignment with quality frameworks.

College of Innovation and Management has established strategies consistent with the

university's mission. However, monitoring remains inconsistent. Kaplan and Norton (2014) suggest that strategic planning must be coupled with continuous feedback loops to ensure that long-term goals are translated into operational reality.

Satisfaction surveys are conducted, but a concrete monitoring system is lacking. This gap in continuous service quality development is a common challenge; according to Sallis (2014), total quality management in education requires not just data collection, but a systemic "listening post" to proactively address stakeholder needs.

In-depth interviews revealed a lack of an effective central database. Davenport and Prusak (2010) highlight that for an organization to achieve excellence, knowledge management must move beyond simple storage to systematic analysis that informs strategic decision-making.

Promoting a positive attitude among staff is crucial for SAR preparation, consistent with Putiwattanachai and Boonphadung (2024). Additionally, Isariyanan (2021) noted that administrators must utilize vision to achieve set goals. To bridge the competency gap, Noe (2017) asserts that continuous professional development and training on organizational regulations are mandatory for achieving "excellent" work performance.

While administration efficiency and student satisfaction are improving, linking results to strategic planning is incomplete. Systematically linking "data, evaluation, and development" is the cornerstone of the Plan-Do-Check-Act (PDCA) cycle, which is fundamental to the EdPEX philosophy

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