

Management Strategies for Higher Education Institutions Based on the Principles of Education for Sustainable Development in the Lower Northern Region

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Abstract

Education for sustainable development is globally acknowledged as crucial for fostering knowledge, skills, and values essential for sustainable living. This research aimed to (1) examine the current and desired conditions of administrative strategies in higher education institutions in the lower northern region based on the concept of education for sustainable development, and (2) develop corresponding strategies focusing on economic, social, environmental, and systemic dimensions. A mixed-method approach was employed, with a sample of 243 administrators and personnel from 12 universities in the region. Research instruments included a conceptual framework assessment, a questionnaire, and structured interviews. The findings revealed that current administrative practices ranked as follows: (1) curriculum development, (2) teaching and learning management, and (3) educational measurement and evaluation. While all aspects showed a good level of development, the desired conditions indicated the need for further improvement, with the ranking of (1) curriculum development, (2) educational measurement and evaluation, and (3) educational management. The study identified three core strategies: (1) reforming integrated curriculum design to align with sustainable development by emphasizing comprehensive systems that connect theory to practice; (2) enhancing the quality of educational measurement and evaluation to support sustainability-focused skills and concepts; and (3) transforming teaching and learning management by utilizing technology to foster an environment conducive to learning and innovation. These strategies are essential for guiding universities toward sustainable development and align with Thailand's higher education standards focused on producing skilled, knowledgeable, and sustainability-minded graduates.

Keywords: *Management Strategies, Sustainable Development, Principles of Education.*

Introduction

The national strategy emphasizes the development of the potential and quality of Thai people across all ages to cultivate individuals who are morally sound, capable, and of high quality. Its goal is to restructure the economy and society in alignment with the global context, enhancing flexibility to address risks and threats while capitalizing on global changes. The strategy's vision is "Thailand: Stable, Prosperous, and Sustainable," guided by the principles of a sufficiency economy, which prioritize growth that preserves natural resources and the environment. The 20-year national strategy (2018-2037) aligns with the United Nations Sustainable Development Goals (SDGs), particularly in education, aiming to create equality and lifelong learning critical objectives for fostering global citizens equipped with knowledge, skills, and cultural appreciation to advance sustainable development by 2030. (National Economic and Social Development Board, 2018; Economic Research and Training Center (ERIC), 2020)

Achieving the 17 Sustainable Development Goals (SDGs) requires "education" as a pivotal mechanism, as education is the core of human development in all dimensions and is recognized as a tool for addressing social problems and promoting sustainable development. The United Nations designated the period from 2005 to 2014 as the "United Nations Decade of Education for Sustainable Development (DESD)" to highlight the critical role of education in global sustainability efforts. Sustainable development is an ongoing process that requires adaptability and understanding of changes in nature and the environment across individual, societal, and business levels. This concept has garnered strong international support, with moral and intellectual principles serving as the foundation for balanced actions amid continuous change.

In Thailand, the transition from the 20th to the 2st century has necessitated changes in economic and social structures, demanding the development of new capabilities aligned with the Thailand 4.0 model, an economic development framework aimed at driving the country towards prosperity, stability, and

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sustainability. This model is based on the Sufficiency Economy Philosophy, which emphasizes building internal strength while engaging with the global community. (Office of the Secretary-General of the Education Council, 2017)

The Sufficiency Economy Philosophy forms the cornerstone of the Thai way of life, which His Majesty King Bhumibol Adulyadej the Great likened to a foundation pile supporting both personal and national stability. The application of this philosophy in the 12th National Economic and Social Development Plan serves as a crucial strategy for improving the quality of life for Thai citizens and promoting sustainable development. Universities, in particular, play a key role in driving society towards sustainability by producing graduates with knowledge and skills in economics and the environment, fostering collaboration in natural resource conservation and development. Furthermore, universities generate knowledge through research and academic services, particularly in addressing the needs of the 21st-century labor market.

Currently, Thailand boasts one of the highest levels of higher education globally, with both public and private universities playing significant roles in producing graduates and offering academic services. However, societal and economic shifts have intensified competition among universities, driven by domestic challenges such as declining student enrollment and external pressures such as global competition (Hemkorn, P., & Wiratchanipawan, W. (2017). State controlled universities benefit from administrative autonomy, allowing for more efficient decision-making regarding management and resource utilization. However, misunderstandings persist in some parts of society, particularly the misconception that state-controlled universities are transitioning to private institutions and will charge higher tuition fees. Private universities, on the other hand, exhibit greater flexibility in management and curriculum development, adapting to societal changes with programs in science, technology, and emerging fields that cater to the labor market's demands in the digital age. Nonetheless, private institutions face challenges related to unstable government policies and stringent regulatory standards, which can hinder development and administrative agility (National Economic and Social Development Board, 2018).

Given these dynamics, the researcher is interested in examining how university administrators in Thailand implement strategies based on the concept of education for sustainable development. This is a critical issue at the international level, and the development of Thailand's educational system—both public and private—faces internal and external challenges. A proper understanding of the roles of state-controlled and private universities is essential for effective educational development, which will serve as a key driver in Thailand's pursuit of sustainable development.

Research Objectives

1. To examine the current and desired conditions of administrative strategies in higher education institutions in the lower northern region based on the concept of education for sustainable development.
2. To develop administrative strategies for higher education institutions in the lower northern region in alignment with the concept of education for sustainable development, focusing on economic, social, environmental, and systemic aspects.

Literature Review

1. The concept of the university administration process in producing graduates, as per the standards of the Ministry of Higher Education, Science, Research, and Innovation, is crucial for the development of higher education in Thailand. It emphasizes the creation of an administrative process aligned with the university's primary mission, which can be divided into three essential components: (1) Teaching and learning management: focusing on developing modern curricula and teaching methods that meet the demands of the labor market and society; (2) Research and innovation: promoting quality research and fostering innovations to advance national development; and (3) Academic service to society: utilizing the university's knowledge and expertise to benefit communities and society at large. An effective administrative process

will enable the university to fulfill all three missions efficiently, resulting in the production of quality graduates and sustainable national development (Yaemnun, S., 2012).

2. The concept of Education for Sustainable Development (ESD) emphasizes developing the capacity to manage environmental, social, and economic challenges through integrated learning, particularly raising awareness of resource conservation, sustainable economic growth, and equitable social development. This educational model enhances systematic analytical thinking, promotes responsible decision-making for society and the environment, and prepares individuals to adapt to global changes. The main principle of ESD involves the integration of four key areas: (1) Economy, which emphasizes the development of economic knowledge and skills that can adapt to labor market changes and effective resource management to create a stable and sustainable economy; (2) Society, which fosters understanding and social skills to promote equality, respect for diversity, and community participation in achieving sustainable progress; (3) Environment, which focuses on cultivating environmental awareness, efficient resource use, and understanding natural processes; and (4) Systems approach, which develops systems thinking skills to analyze relationships among various elements to grasp economic, social, and environmental issues holistically, facilitating careful and comprehensive decision-making. This approach aims to produce individuals capable of addressing global challenges (UNESCO, 2005).

3. The strategic development framework proposed by Wheelen, T. L., & Hunger, J. D. (2012) centers on strategic management through systematic analysis and planning, comprising three main components: (1) Environmental analysis (SWOT Analysis): an assessment of the organization's strengths, weaknesses, opportunities, and threats to understand its current situation and competitive potential. The PNI Matrix tool is used for evaluating positive, negative, and interesting impacts, aiding in the analysis of critical data for strategy formulation; (2) Strategy formulation: after conducting the environmental analysis, strategies are developed using the TOWS Matrix, which links strengths, weaknesses, opportunities, and threats to create appropriate strategies. This may involve leveraging strengths to capitalize on opportunities or mitigating weaknesses to address threats. The resulting strategies will form the foundation for subsequent steps; and (3) University administration strategy formulation: this step involves considering input from experts and stakeholders to design strategies tailored to the university's context, accounting for both internal and external needs to respond effectively to changes. This process ensures that strategies are comprehensive and grounded in thorough data analysis.

The concept of developing university administration strategies based on the principles of education for sustainable development is integral to this research. It emphasizes systematic analysis and planning through environmental analysis (SWOT Analysis) and strategy formulation using the TOWS Matrix. The study focuses on managing economic, social, and environmental factors to support stable and sustainable development. Effective strategic planning requires stakeholder engagement and environmental assessment using analytical tools, enabling universities to adapt and cultivate human resources capable of addressing global issues sustainably. Based on the concepts discussed in the various topics mentioned above, the following diagram illustrates the conceptual framework of the research:

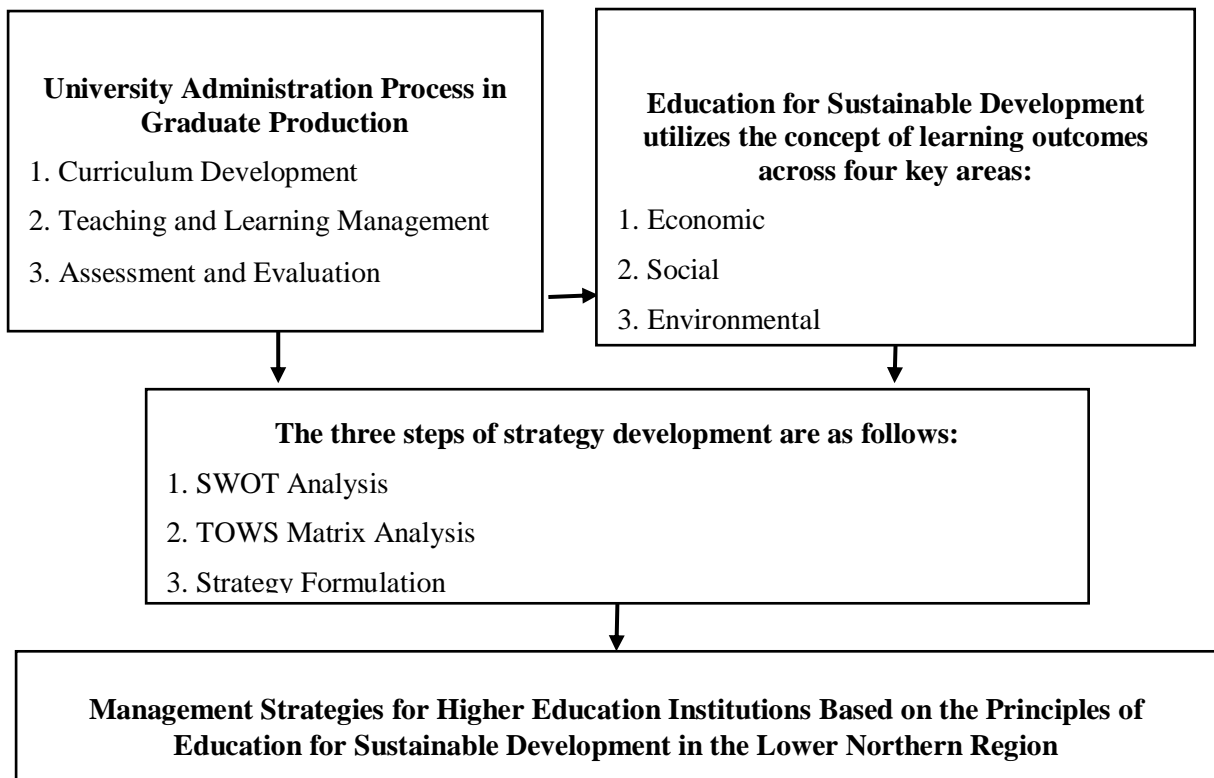


Figure 1. The conceptual framework of the research.

Methodology

Research on the administration strategy of higher education institutions based on the concept of education for sustainable development in the lower northern region, following the framework of education for development, which is still in progress, has the following scope of study:

1. Scope of Content: This research aims to study the meaning, concepts, and theories of 1) the university administration process in producing graduates, 2) education management for sustainable development in terms of economic, social, environmental, and systemic perspectives, and 3) the strategic development framework, based on data from documents, theses, dissertations, and other related research.

2. Scope of the Population, The population for this study consists of both public and private universities under the Office of the Higher Education Commission. In 2022, this includes a total of 12 universities 8 public universities and 4 private universities (Higher Education Opinion, 2020).

3. Sample Group, For qualitative data collection, the sample group consists of public and private universities under the supervision of the Office of the Higher Education Commission. This includes supervised universities, Rajabhat Universities, Rajamangala University of Technology, and private universities, totaling 8 public universities and 4 private universities, for a total of 12 universities. In the quantitative data collection section conducted via questionnaire, the researcher utilized the sample size calculation formula based on the Krejcie, R. V., & Morgan, D. W. (1970) table, applying a 5% margin of error for a population of 12 locations. The informant groups consisted of 1) Quantitative Informants, Group 1 University administrators, including, Vice Rectors for Academic Affairs and Research: 12 individuals, Vice Rectors for Student Affairs: 45 individuals, Deans: 25 individuals and Group 2: Lecturers 161 individuals. 2) Qualitative Informants, Group 1: University administrators, including, Vice Rectors for Academic Affairs and

Research: 12 individuals, Academic and Research Officer: 1 individual, Deputy Rector for Student Affairs, 1 individual, Deans: 2 individuals, Deputy Deans for Academic and Research Affairs: 2 individuals, Deputy Deans for Student Affairs: 2 individuals and Group 2: Lecturers: 2 individuals.

4. Scope of the Area, this research will collect data from government and private universities under the Office of the Higher Education Commission. The universities are classified into 12 supervised institutions, including Rajabhat Universities, Rajamangala University of Technology, and private universities in the lower northern region of Thailand, which covers the provinces of Tak, Phitsanulok, Sukhothai, Phetchabun, Uttaradit, Kamphaeng Phet, Phichit, Nakhon Sawan, and Uthai Thani.

5. Research Methodology, This research employs a qualitative approach. The study involves collecting data through a case study method to gain an in-depth understanding of the subject and apply the findings to related contexts. The research process is structured as follows:

Step 1: Review documents and studies related to the university administration process in producing graduates, the concept of education for sustainable development, and the strategic development framework.

Step 2: Investigate the current and desired conditions of university administration strategies aligned with the concept of education for sustainable development.

Step 3: Analyze the strengths, weaknesses, opportunities, and threats (SWOT) of university administration strategies based on the concept of education for sustainable development.

Step 4: Draft university administration strategies according to the concept of education for sustainable development.

Step 5: Evaluate the appropriateness and feasibility of the proposed university administration strategies.

Step 6: Finalize and develop university administration strategies grounded in the principles of education for sustainable development.

6. Sampling Method, 1) Quantitative Sampling, For the quantitative part of the study, data were collected using a probability sampling method, specifically simple random sampling without replacement. The researcher entered the names of 12 government and private universities into an online system and randomly selected them until the desired 12 institutions were obtained. The questionnaires were distributed through accidental sampling, targeting respondents who were available and willing to participate. 2) Qualitative Sampling, For the qualitative part of the study, data were collected using purposive sampling, where the researcher selected participants based on their relevance to the research objectives. The chosen sample group consisted of individuals with knowledge, expertise, and experience in organizational management and university administration strategies.

7. Data Collection is conducted using two instruments, 1) Quantitative Questionnaire, Part 1: Basic demographic information of the respondents, collected through a checklist covering status, gender, highest level of education, age, and length of employment at the university. Part 2: Assessment of the current and desired conditions of university strategies for enhancing the role of the university according to the concept of sustainability. This section uses a 5-point Likert scale, where 5 indicates "most favorable current conditions" and "most desirable conditions," and 1 indicates "least favorable current conditions" and "least desirable conditions." Part 3: Open-ended questions for additional comments on the strengths and weaknesses of university administration strategies concerning education management for sustainable development. The instruments were piloted (tryout) with a sample group similar to the actual study participants, consisting of 30 sets, to assess reliability. Using Cronbach's alpha coefficient formula, the reliability scores were 0.898 for the current condition and 0.972 for the desired condition. Interview Form, Interviews were conducted to explore the current and desired conditions of university administration strategies based on the concept of education for sustainable development.

8. Data Analysis, For the questionnaire data, the median, mean, and standard deviation (S.D.) were calculated, followed by a SWOT analysis using the Priority Needs Index (PNI Modified). The interview data were analyzed through content analysis, with responses categorized and presented in essay format for further organization and interpretation.

Results

The examination of the current and desirable conditions of university administration strategies, framed within the concept of education for sustainable development, is categorized into three principal areas: curriculum development, teaching management, and educational measurement and evaluation. The analysis indicates that the median scores for the current status are 3 and 4. Specifically, the area with a median of 3 pertains to curriculum development that emphasizes success factors in educational management for systematic advancement, while the area with a median of 4 concerns curriculum development that prioritizes economic, social, and environmental sustainability. Moreover, opinions regarding curriculum development reflect the highest mean values for the social, economic, and environmental dimensions, respectively. The median score for the desired status is consistently 5 across all areas, signifying that perceptions of the ideal conditions for university administration are at their peak. All domains exhibit elevated mean scores, particularly in curriculum development and educational measurement and evaluation. Opinions on Current and Desired Status: Opinions concerning the current state of curriculum development are notably high, especially regarding initiatives that address success factors in social and economic contexts. In contrast, perceptions of the desired status of teaching management underscore its critical importance, particularly concerning support from economic conditions and government policies. University administration, as it pertains to the principles of education for sustainable development, still presents opportunities for further enhancement. This is particularly evident in the domains of teaching management and educational measurement and evaluation, which necessitate collaboration across all sectors to foster sustainability within the education system.

Current and Desired Conditions of University Administration According to the Concept of Education for Sustainable Development. This study aims to analyze the current and desired conditions of university administration in relation to the concept of education for sustainable development, taking into account the median values associated with external factors. 1) Median Value of Current Conditions, The current condition has a median value ranging from 3 to 4. Issues rated with a value of 3 include curriculum development, technological conditions (I), teaching management, economic conditions (E), and government policies (P). In contrast, issues rated with a value of 4 encompass curriculum development, economic conditions (E), social conditions (S), and teaching management related to government policies (P). 2) Median Value of Desired Conditions, The desired condition exhibits median values of 4 and 5. Issues rated with a value of 4 include technological conditions (I) and government policies (P), both of which are crucial for curriculum development. Issues rated with a value of 5 include curriculum development emphasizing government policies (P), economic conditions (E), and social conditions (S). Opinions on Current Conditions, Overall opinions regarding current conditions are at a high level, with the highest mean value attributed to curriculum development, followed by teaching management. Conversely, the aspect with the lowest average value is the measurement and evaluation of educational studies. Opinions on desired conditions are detailed in Table 1, revealing an overall high level of satisfaction. The aspect with the highest average value remains curriculum development, followed by teaching management, while the lowest average value pertains to the measurement and evaluation of educational studies. Analysis of Each Aspect, The aspect of curriculum development is rated at a high level, with key items including economic conditions (E) and government policies (P). Technological conditions (I) have the lowest average value in this regard. The aspect of educational management also tends to be rated at a high level, particularly concerning social conditions (S) and government policies (P). The aspect of educational measurement and evaluation is similarly rated at a high level, with technological conditions (I) and social conditions (S) receiving broader acceptance than the study results suggest.

In conclusion, the current state of university administration, according to the concept of education for sustainable development, is assessed as high across all dimensions, including curriculum development,

teaching management, and educational measurement and evaluation. Nonetheless, this also indicates the necessity for future improvements across all aspects, particularly in curriculum development and teaching management, to effectively support education for sustainable development.

Table 1: The median values of the current and desired conditions of university administration based on the concept of education for sustainable development, as analyzed from the external environment and classified by item.

| University Administration Based on the Concept of Education for Sustainable Development | Current State: Median | Desired State: Median |
|---|-----------------------|-----------------------|
| In the context of curriculum development: | | |
| 1. Government Policy (P) | 4 | 5 |
| 2. Economic Conditions (E) | 4 | 5 |
| 3. Social Conditions (S) | 4 | 5 |
| 4. Technological Conditions (T) | 3 | 4 |
| In the context of teaching management: | | |
| 1. Government Policy (P) | 4 | 4 |
| 2. Economic Conditions (E) | 3 | 4 |
| 3. Social Conditions (S) | 4 | 4 |
| 4. Technological Conditions (T) | 3 | 4 |
| In the context of educational measurement and evaluation: | | |
| 1. Government Policy (P) | 3 | 4 |
| 2. Economic Conditions (E) | 3 | 4 |
| 3. Social Conditions (S) | 4 | 4 |
| 4. Technological Conditions (T) | 4 | 4 |

The SWOT analysis of university administration, based on the concept of education for sustainable development, revealed several key findings. The group with a high PNI Modified index value represents the threats to university administration based on the concept of education for sustainable development. This information can be utilized to propose strategies aimed at eliminating or reducing these threats. Conversely, the group with a low PNI Modified index value signifies opportunities for university administration, which can inform strategies to enhance these opportunities. The results are subsequently synthesized to provide information for drafting the strategy as shown in Table 2.

Table 2: Prioritization of University Administration Needs Based on the Educational Concept

| University Administration Needs Based on the Educational Concept | Desired State | | Environmental Analysis |
|--|---------------|-----------------------|------------------------|
| | PNI Modified | Clustering of Results | |
| 1. Government Policy (P) | 0.451 | High | Threat |
| 2. Economic Conditions (E) | 0.435 | High | Threat |
| 3. Social Conditions (S) | 0.371 | Low | Opportunity |
| 4. Technological Conditions (T) | 0.323 | Low | Opportunity |
| Total | 0.393 | | |

The highest index of need for graduate production is attributed to government policy (P) with a PNI Modified value of 0.434, followed closely by the economic situation (E) with a PNI Modified value of 0.460.

These factors pose a threat to teaching and learning management, which has a PNI Modified value of 0.399. When examining the external environment, the economic situation (E) again ranks highest in the need for graduate production (PNI Modified = 0.460), followed by government policy (P) (PNI Modified = 0.434). The lowest ranking is attributed to the technological situation (T) with a PNI Modified value of 0.346, representing an opportunity. Additionally, the measurement and evaluation of education has the second highest index of need for graduate production at 0.391, also classified as a threat. In terms of the external environment, the highest need index value is again associated with government policy (P) (PNI Modified = 0.483), followed by economic conditions (E) (PNI Modified = 0.414). The lowest index is for technological conditions (T) (PNI Modified = 0.300), which are seen as opportunities. Lastly, the need index for graduate production in curriculum development is rated at 0.388, identified as a threat. In summary, the highest need index in the external environment corresponds to government policy (P) (PNI Modified = 0.438), followed closely by economic conditions (E) (PNI Modified = 0.430), with technological conditions (T) (PNI Modified = 0.324) being the lowest, also regarded as opportunities as shown in Table 3.

Table 3: Priority Ranking of University Administration Needs Based on the Concept of Education for Sustainable Development, Analyzed by External Environment and Classified by University Administration Processes in Graduate Production.

| University Administration Based on the Concept of Education for Sustainable Development | Desired State | | Environmental Analysis |
|---|---------------|-----------------------|------------------------|
| | PNI Modified | Clustering of Results | |
| In the context of curriculum development: | | | |
| | 0.388 | Low | Opportunity |
| 1. Government Policy (P) | 0.438 | High | Threat |
| 2. Economic Conditions (E) | 0.430 | High | Threat |
| 3. Social Conditions (S) | 0.367 | Low | Opportunity |
| 4. Technological Conditions (T) | 0.324 | Low | Opportunity |
| In the context of teaching management: | | | |
| | 0.399 | High | Threat |
| 1. Government Policy (P) | 0.434 | High | Threat |
| 2. Economic Conditions (E) | 0.460 | High | Threat |
| 3. Social Conditions (S) | 0.364 | Low | Opportunity |
| 4. Technological Conditions (T) | 0.346 | Low | Opportunity |
| In the context of educational measurement and evaluation: | | | |
| | 0.391 | Low | Opportunity |
| 1. Government Policy (P) | 0.483 | High | Threat |
| 2. Economic Conditions (E) | 0.414 | High | Threat |
| 3. Social Conditions (S) | 0.383 | Low | Opportunity |
| 4. Technological Conditions (T) | 0.300 | Low | Opportunity |
| Total | 0.393 | | |

In the analysis of the external environment, the primary threats identified were government policies and economic conditions, while opportunities were noted in technology and societal factors. It was emphasized that government policies represented a major threat that needs to be addressed, with economic conditions also posing challenges to graduate production. Furthermore, the analysis found that the economy, society, environment, and systems thinking could function as both strengths and weaknesses in curriculum development and educational measurement and evaluation. Overall, the university demonstrates strong management based on the concept of education for sustainable development, particularly in curriculum and teaching management. However, there is a need for improvement in measurement and evaluation, as well as a proactive response to external threats, to effectively develop sustainable university administration strategies in the future.

The study revealed that the development guidelines for university administration strategies, grounded in the concept of education for sustainable development across economic, social, environmental, and systemic dimensions, indicate that universities currently exhibit strengths in curriculum development and teaching management, particularly in the economic and environmental areas. However, weaknesses were identified in educational measurement and evaluation, which require improvement. In terms of curriculum development, strengths were noted in economics, society, and the environment, while weaknesses were evident in the systemic approach. Teaching management shows strengths in economics and the environment, but weaknesses in social aspects. At the external level, social and technological conditions present opportunities for development, whereas government policies and economic conditions may pose threats that necessitate solutions. To achieve maximum efficiency and sustainability in university administration, it is crucial to consider both strengths and weaknesses across all areas. Key strategies should include curriculum development, teaching management, and measurement and evaluation. University administrators should prioritize these areas for further development in the future, particularly focusing on curriculum development that supports systemic concepts and enhances the evaluation of sustainable education.

The results of the study on the development of university administration strategies based on the concept of education for sustainable development were refined based on expert recommendations. The main strategies consist of three key components, Integrated Curriculum Design Reform: This strategy focuses on developing curricula that emphasize the systemic approach to sustainable development. It involves adjusting curriculum design methods to ensure effectiveness and comprehensiveness across all dimensions of education management. Additionally, technology will be utilized to assess quality and evaluate teaching and learning outcomes in alignment with sustainable development goals. Improving the Quality of Educational Measurement and Evaluation, This strategy aims to enhance measurement and evaluation processes that accurately reflect systemic outcomes related to the environment and society. A networking plan will be established, along with budget provisions, to facilitate the development of these processes. Transforming and Integrating Teaching and Learning, this strategy seeks to align teaching and learning with the principles of sustainable development by creating networks within communities and regions to develop technology and educational activities that address societal needs. The findings indicate that university administrators in Thailand currently lack clear guidelines for organizing education geared towards sustainable development. They often rely on personal beliefs and past experiences to interpret this concept. Therefore, this study underscores the importance of adopting established frameworks, such as the three-legged stool model or the Russian doll model commonly used in Western countries, to foster sustainable development at the university level more effectively.

Conclusion

A study on educational administration strategies for universities in Thailand found that administrators do not yet have a clear model for education for sustainable development. This lack of clarity is attributed to several factors, including the absence of a universally accepted definition of the concept from UNESCO, which results in varying interpretations. Furthermore, prevailing social, religious, and political concepts in Thailand such as the sufficiency economy and the middle way of life, contribute to this confusion. Additionally, educational institutions still lack clear guidelines for implementing education for sustainable development. Most academics tend to favor freedom of interpretation, which leads to a diverse range of applications of the concept.

The study of university administration based on the concept of education for sustainable development reveals that both current and desirable conditions are rated highly, particularly in curriculum development, teaching management, and educational measurement and evaluation. However, weaknesses remain in environmental management and system concepts, which may hinder the achievement of the goals of education for sustainable development. The analysis of both internal and external factors underscores the importance of effective management to address the needs of the labor market and society, especially within the context of economic integration in the ASEAN region. To ensure the success of university administration, it is essential to integrate the approach based on the philosophy of sufficiency economy,

which can be applied in curriculum development, student activity management, research, and academic services to society. The operations must prioritize the quality of education to produce graduates who possess characteristics aligned with the sustainable development approach. The study's findings indicate that educational administration must emphasize effective teaching management to foster sustainable products and consumption, thereby enhancing the quality of life for future generations (Office of the National Research Fund, 2006).

University Administration Strategy Based on the Concept of Education for Sustainable Development Education for Sustainable Development (ESD) is a crucial approach for establishing an education system that emphasizes the development of the knowledge, skills, and values necessary for sustainable living. In the context of Thai education, curriculum development and educational assessment still face significant limitations, particularly concerning systemic concepts and environmental development, which remain weak. Therefore, it is imperative to enhance management practices to create an integrated education system that effectively addresses economic, social, and environmental sustainability.

1. Reforming Integrated Curriculum Design, The first primary strategy in university administration is to reform curriculum design to align with sustainable development. This strategy consists of three sub-strategies:

Sub-strategy 1.1: Adjust the curriculum design methods to emphasize systemic concepts and practical application to enhance learning efficiency.

Sub-strategy 1.2: Revise curriculum goals and objectives to align with systemic concepts and prioritize practical implementation.

Sub-strategy 1.3: Promote learning activities that integrate systemic concepts into practical applications, thereby enhancing the understanding and skills necessary for sustainable development.

Implementing these reforms will result in the production of quality graduates, consistent with the framework of characteristics outlined in the higher education standards in Thailand (Sinlarat, P., Arisophonpichet, S., & Siritho, S., 2012).

2. Improving the Quality of Educational Measurement and Evaluation

The second primary strategy is to enhance the quality of educational measurement and evaluation to support sustainable development, which includes two sub-strategies:

Sub-strategy 2.1: Improve the quality of measurement and evaluation in accordance with the established goals for sustainable development.

Sub-strategy 2.2: Develop robust measurement and evaluation methods that accurately reflect learning outcomes.

Effective management of educational measurement and evaluation requires a budget plan and the organization of activities that align with curriculum objectives, facilitating the development of sustainable education skills and concepts (Wongyai, W., 2011).

3. Transforming and Integrating Teaching and Learning Management, The third primary strategy involves transforming teaching and learning management to emphasize sustainable education skills and concepts, encompassing two sub-strategies:

Sub-strategy 3.1: Transform teaching and learning management to focus on skills and concepts related to sustainable development.

Sub-strategy 3.2: Incorporate technology into teaching and learning management to support sustainable development.

Utilizing information technology in teaching and learning management creates an engaging learning environment that encourages self-directed learning, data analysis, and knowledge synthesis. Additionally, integrating technology into teaching fosters the development of critical thinking and innovation skills among learners (Wongyai, W., 2011). The university administration strategy grounded in the concept of education for sustainable development is vital for creating an educational system that meets societal and environmental needs. By improving the curriculum, measurement and evaluation processes, and organizing teaching and learning effectively, this approach will lead to the production of quality graduates equipped with the knowledge and capabilities to develop society and the environment sustainably in the future.

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