



Guidelines for Developing School Administrators' Roles in Encouraging the Use of Digital Technology for School Administration under the Secondary Educational Service Area Office Bangkok 1

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Abstract

This study aimed to examine the current and the expected roles of school administrators in encouraging the use of digital technology for school administration under the Bangkok Secondary Educational Service Area Office 1, and to propose guidelines for these roles. A mixed methods research design was employed, consisting of 2 phases. In Phase 1, Study was conducted to analyze the needs for school administrators' roles in encouraging digital technology for school administration. The sample consisted of 357 teachers working in schools selected through multistage sampling. Data were analyzed using descriptive statistics and a PNI_{modified} index. In Phase 2, guidelines for role development were explored through semi structured interviews with 7 experts, and the data were analyzed using content analysis. The findings revealed that the overall needs for school administrators' roles in encouraging the use of digital technology for school administration were at a high level. The area with the highest need was Internal Management of the school, followed by Infrastructure, Resources, and Environment Management, Personnel Development and Promotion, and Instructional Management, respectively. Furthermore, the proposed guidelines for developing school administrators' roles encompassed four key aspects: Budget management, Learning technology, Training and development, and Systemic approach. These guidelines provide practical direction for educational administrators and policy agencies in strengthening digital technology integration in school administration.

Keywords: School Administrators' Role, Digital Technology Use, School Administration, Guidelines Development

Introduction

The advancement of digital technology that impacts the national, regional, and global economic and social systems. The changing global economic and social context resulting from the Digital Revolution and the transition towards the Fourth Industrial Revolution (Industry 4.0), which represents a major challenge in the 21st century world. The persistence of problems in the education system, such as issues with the quality and standards of education management at all levels, a lack of agility, and disparities in educational opportunities and equity. It is therefore necessary for Thailand to reform its education system. The reform must focus on developing learners to meet the objectives regarding learner attributes and 21st Century Learning Skills (3Rs and 8Cs). This is to achieve the vision, aims, and goals set forth in the 20 Year National Strategy (2018-2037) for developing quality human capital with life competencies and enhanced national competitiveness. Specifically, this includes accelerating the establishment of digital technology infrastructure in school and developing administrators, teachers, and personnel to be able to appropriately utilize and integrate technology across all dimensions of education management. Furthermore, the Ministry of Education has been driving policies such as “Education 4.0,” “Digital Education,” “DEEP (Digital Education Excellence Platform),” and “Smart Learning,” which emphasize the use of technology in teaching and learning, administrative management, and human resource development within school. The successful implementation of these efforts necessitates the presence of educational leaders who possess the requisite abilities, attitudes, and genuine technological leadership.

In the management of digital technology within schools, it is found that emphasis must be placed on both infrastructure preparation and the integration of digital technology into the school environment. This necessitates that schools must be organized to accommodate the use of digital technology and ensure the readiness of personnel. Administrators are required to possess a clear vision and provide necessary support. They must strategically plan the use of digital technology to align with the established strategic plan. Furthermore, there must be a proper budget allocation for the procurement of appropriate equipment, materials, and software, as well as the establishment of various essential systems, such as network systems, information systems, security systems, and systems for controlling, monitoring, and evaluating usage. Crucially, personnel development in the use of digital technology must be carried out to ensure that information technology is utilized with maximum efficiency and effectiveness. (Wongwuth, 2021), However, the school administrator, being a key figure in the educational organization, must facilitate and promote the management of digital-era technology within the institution. This is to ensure convenience, accuracy, and speed (in operations), and to drive

the organization toward success. (Cheknooh, 2024), Technology is highly significant for both school administration and learning management within school. It serves as a tool to enhance the efficiency of administration and management, allowing institutions to overcome limitations imposed by various emergencies. This enables work to continue even when external circumstances are abnormal, as the numerous forms of developed technology allow operations to proceed amidst otherwise impossible conditions. This represents a new challenge that administrators must learn and address, evolving their skills to truly harness the highly advanced digital technology for the benefit of both management and collaborative learning. (Thawinkarn, 2021).

The 5 Year Basic Education Development Plan (B.E. 2566-2570) from the Bangkok Secondary Educational Service Area Office 1. Summarized its SWOT Analysis, revealing a key Weakness in the area of Materials. This weakness specifically includes the insufficient support for equipment, technology media, and wireless internet networks (Wi-Fi) in school. There are also limitations imposed by the standardized models of technological equipment prescribed by the government. To enhance the quality of education within the Secondary Educational Service Area Office Bangkok 1 in alignment with the mission of educational administration particularly the use of educational innovation, digital technology, and stakeholder participation this study aims to develop guidelines for strengthening the roles of school administrators in promoting the use of digital technology for school administration. Given its high potential, this Area Office can serve as a model for urban schools with guidelines applicable to other contexts. Schools under this jurisdiction face increasing expectations regarding administrative efficiency, educational quality, and transparency. As a result, school administrators are required to transition from operational management to digital change leadership by establishing clear digital visions and policies aligned with national education strategies, strengthening information management systems, and supporting evidence-based decision-making. In addition, administrators play a critical role in developing the digital competencies of teachers and educational personnel. Therefore, enhancing school administrators' roles in promoting digital technology is essential for improving educational management quality and supporting sustainable educational development in the digital.

Based on the background and issues mentioned above, it is evident that the promotion of digital technology use in school administration by administrators has not yet achieved maximum effectiveness. Therefore, this study focuses on examining the roles of school administrators as a key factor in the continuous and effective encouraging of teacher and school development. This study will be conducted through the perspective of government teachers working under the Bangkok Secondary Educational Service Area Office 1, who are crucial personnel directly affected by the implementation of technology

in schools. The objective is to understand the factors contributing to the success or obstacles in implementation and the viewpoints on the administrator's role in the actual context. The findings from this research will then be used to establish clear, systematic, and practically applicable guidelines for development to enhance the quality of school administration in the digital age and support schools in effectively and sustainably adapting to and keeping pace with technological changes.

Research objectives

1. To examine the current state roles of the school administrators in encouraging the use of digital technology for school administration in schools under the Secondary Educational Service Area Office Bangkok 1.
2. To analyze the expected state roles of school administrators in encouraging the use of digital technology for school administration in schools under the Secondary Educational Service Area Office Bangkok 1.
3. To propose guidelines for the developing the roles of school administrators in encouraging digital technology for school administration in schools under the Secondary Educational Service Area Office Bangkok 1.

Conceptual framework

This research aims to study the school administrators' role in encouraging the use of digital technology for school administration in schools under the Secondary Educational Service Area Office Bangkok 1. And analytically synthesized from prior studies to indicate that the school administrator's role in encouraging the use of digital technology for school administration encompasses the following key areas: Provision of Infrastructure Resources and Environment, Management of Teaching and Learning, Teacher Promotion and Development, and Internal School Administration. (Bungsri & Silanookit, 2023; Cheknooh, 2024; Khamsong & Thongprong, 2022; Kunteekrom, 2022; Laosue & Thongprong, 2024; Mulsuta, et al., 2024; Ninkaew & Suesor, 2022; Paladorn, 2023; Puapunwattana, et al., 2021; Saensri & Wannawan, 2022; Sangsom & Dechhome, 2023; Wongwuth, 2021; Xu & Julsuwan, 2024). Based on the review of related literature, academic articles, and research reports, the researcher has established the Conceptual Framework for Research, as illustrated in Figure 1.

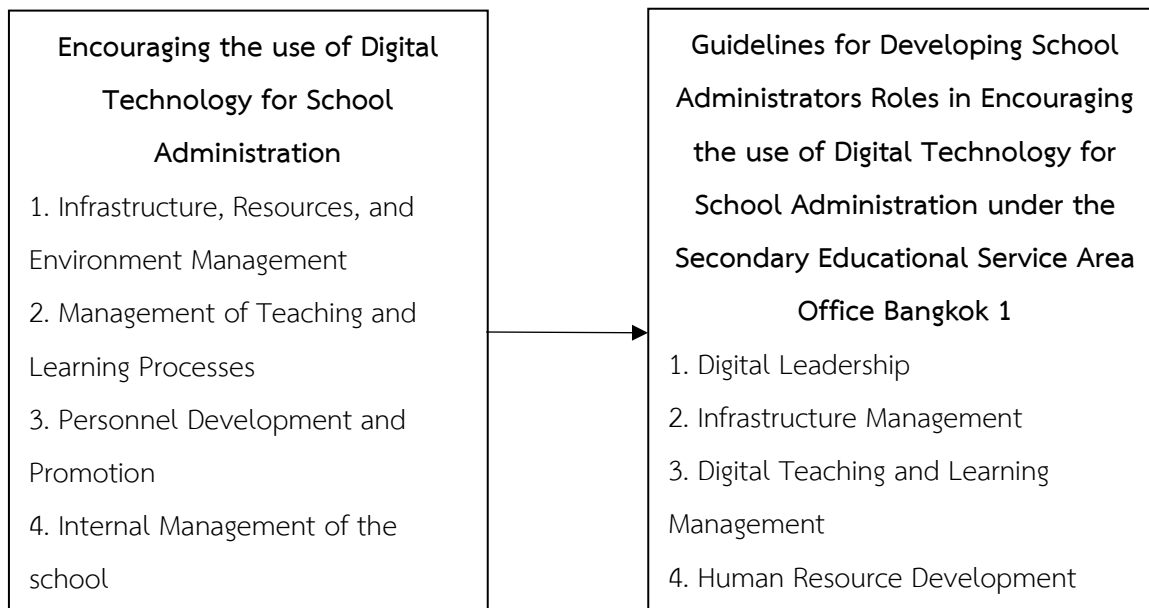


Figure 1 Conceptual framework

Methodology

This research employs Mixed Methods Research design. The researcher conducted the study in 2 distinct phases

Phase 1 Quantitative Research. This phase involved studying the current state, the expected state, and the necessary requirements of the school administrators' role in encouraging the use of digital technology for school administration in schools under the Secondary Educational Service Area Office 1 Bangkok.

Population and Sample

For this research, the researcher defined the population and sample as follows: The Population for this study consisted of 4,299 government teachers working in school under the Bangkok Secondary Educational Service Area Office 1 during the Academic Year 2025 (Data as of June 10, 2025). The Sample Size was determined to be 357 individuals, calculated at a statistical significance level of .05 (Cohen, Manion, and Morrison, 2011). Multi Stage Random Sampling was employed, consisting of the following steps: Stratified random sampling was first utilized to select one area group from the 6 administrative area groups. Group 5, consisting of 11 secondary schools, was selected randomly as the study region. In the second stage, cluster random sampling was executed at the school level, utilizing all school within the specified area group as sample clusters. In the last phase, simple random selection

was utilized to select government educators from each school, in proportion to the size of the teaching population at each institution, resulting in a total sample of 357 participants.

Research Instruments

The instrument used for data collection was a questionnaire designed to assess the current state and the expected state of the school administrators' encouraging of digital technology for school administration in schools under the Secondary Educational Service Area Office Bangkok 1. The questionnaire is divided into 3 parts: Part 1 General Information Basic demographic information regarding the respondents' general status. Part 2 Questionnaire on current state and expected state conditions regarding for the school administrators' role in encouraging the use of digital technology for school administration. This part uses a 5 level Likert type Rating Scale (Likert, 1961) and is structured around four dimensions: 1) Infrastructure, Resources, and Environment Management 2) Management of Teaching and Learning Processes 3) Personnel Development and Promotion 4) Internal Management of the school and Part 3 Additional Suggestions.

Data Analysis

1. Data collected from the questionnaire were analyzed using descriptive statistics by calculating the arithmetic mean (M) and the standard deviation (SD).

2. Analysis of Priority Needs in the school administrators' role in encouraging the use of digital technology for school administration in schools under the Bangkok Secondary Educational Service Area Office 1 was performed by calculating the Modified Priority Needs Index ($PNI_{modified}$) (Suwimon Wongwanich, 2019). The $PNI_{modified}$ was derived from the analysis of the current state (M) and the expected state (M), using the following formula

$$PNI_{modified} = \frac{I-D}{D}$$

I	mean	Expected State
D	mean	Current State

Phase 2 Qualitative Research. This phase involved studying the development guidelines for the school administrators' role in encouraging the use of digital technology for school administration in schools under the Secondary Educational Service Area Office Bangkok 1.

Instruments Used in the Research

The instrument used for data collection in this phase was the Semi-Structured Interview. The interviews were conducted with a panel of seven experts, selected through purposive sampling. The expert panel consisted of one scholar in educational administration, one educational administrator, three school administrators, and two educational supervisors. Based on their professional experience, the interviews aimed to elicit their perspectives on development guidelines for the role of school administrator's role in encouraging the use of digital technology for school administration in schools under the Secondary Educational Service Area Office Bangkok 1. The interview guide (semi-structured interview form) was developed based on the Modified Priority Needs Index (PNI_{modified}) values derived from the findings of Phase 1 of the study.

Data Analysis

The data obtained from the interviews will be analyzed using Content Analysis. The data will be categorized and separated by component (Dimension of the administrator's role). This analysis includes Frequency Distribution: Conducting a frequency distribution of the identified data/components. Selection of Top Components: Selecting the top 4 components with the highest frequencies. Guideline Formulation: Using these four highest-frequency components as the foundation for developing the guidelines for enhancing the school administrators' role in encouraging the use of digital technology for school administration in schools under the Secondary Educational Service Area Office Bangkok 1.

Research results

Phase 1 Results of the Study on the Current State, Expected State, and Priority Needs of the School Administrators' Role in Encouraging the Use of Digital Technology for School Administration under the Secondary Educational Service Area Office Bangkok 1

The results of the analysis of the Modified Priority Needs Index (PNI_{modified}) for encouraging the use of digital technology for school administration in schools under the Bangkok Secondary Educational Service Area Office 1 yielded an overall value of 0.338. When considering the results by dimension, the dimension with the highest was Internal School Administration Internal Management of the school. Value, equal to 0.352. And the dimension with the lowest was Management of Teaching and Learning Processes. Value, equal to 0.344 the detailed information is presented in Table 1.

Table 1 The Current State, Expected State, and Priority Needs Index ($PNI_{modified}$) of the School Administrators' Role in Encouraging the Use of Digital Technology for School Administration under the Secondary Educational Service Area Office Bangkok 1.

Encouraging the use of Digital Technology for School Administration	Current State			Expected State			$(PNI_{modified})$	Order of Priority Needs
	M	SD	Level	M	SD	Level		
1. Infrastructure, Resources, and Environment Management	3.48	0.50	Moderate Level	4.68	0.43	Highest Level	0.344	2
2. Management of Teaching and Learning Processes	3.57	0.56	High Level	4.70	0.42	Highest Level	0.316	4
3. Personnel Development and Promotion	3.57	0.48	High Level	4.79	0.30	Highest Level	0.341	3
4. Internal Management of the school	3.55	0.54	High Level	4.80	0.29	Highest Level	0.352	1
Overall	3.54	0.52	High Level	4.74	0.36	Highest Level	0.338	-

Phase 2 Results of the Study on the Development Guidelines for the School Administrators' Role in Encouraging the Use of Digital Technology for School Administration under the Secondary Educational Service Area Office Bangkok 1

Based on the research findings from Phase 1 the study of the current state, expected state, and priority needs the researcher selected the top 3 questions items ($PNI_{modified}$) from each dimension. These selected items were then used to formulate the core interview questions for the 7 experts. The experts provided development guidelines for the school administrators' role in encouraging the use of digital technology for school administration in schools under the Secondary Educational Service Area Office Bangkok 1. The details of these guidelines are as follows:

1) Infrastructure, Resources, and Environment Management refers to budget management, which is the process by which a school determines and allocates budgets appropriately across various dimensions. This ensures that each unit receives the necessary funds to operate effectively, while

emphasizing value for money, transparency, and the achievement of development objectives. This concept encompasses establish a clear vision and objectives for investment in technological infrastructure, determine appropriate budget allocations and cost-effectiveness, and analyze the needs of the school. In addition, they should study procurement regulations and prioritize expenditures according to urgency.

2) Management of Teaching and Learning Processes refers to learning technology, which includes the tools, methods, equipment, and technologies utilized by teachers to convey content, promote the learning process, and help learners achieve understanding and develop skills effectively. This concept encompasses creating motivation for teachers to adjust their teaching methods and learning approaches. Active listening and support from administrators. Establishing model classroom innovations (Smart Classroom Model). Promoting Professional Learning Communities (PLC).

3) Personnel Development and Promotion refers to training and development, which is the process of enhancing the knowledge, competencies, skills, and processes of teachers, educational personnel, or students through theoretical and practical activities. This aims to create a body of knowledge to align with the changing work context of the digital era. This concept encompasses creating conditions for teachers' self-development. Providing opportunities for teachers' professional development, accompanied by budgetary support. Determining themes, guidelines, and planning for the development of teachers and personnel. Actively listening to teachers' opinions and feedback.

4) Internal Management of the school refers to a system approach, which is the core mechanism used by school administrators, teachers, personnel, and other stakeholders involved in education for the administration, operation, and coordination of various tasks within the school. It serves as a central platform connecting administrators, teachers, students, parents, and the community to enable them to work together systematically. This concept encompasses clearly defining the administrative structure. Establishing information technology systems and workflows. Planning, monitoring, auditing, and evaluating the efficiency of operations. Developing ICT infrastructure.

Guidelines for Developing School Administrators Roles in encouraging the use of Digital Technology for School Administration under the Secondary Educational Service Area Office Bangkok 1, as illustrated in Figure 2.

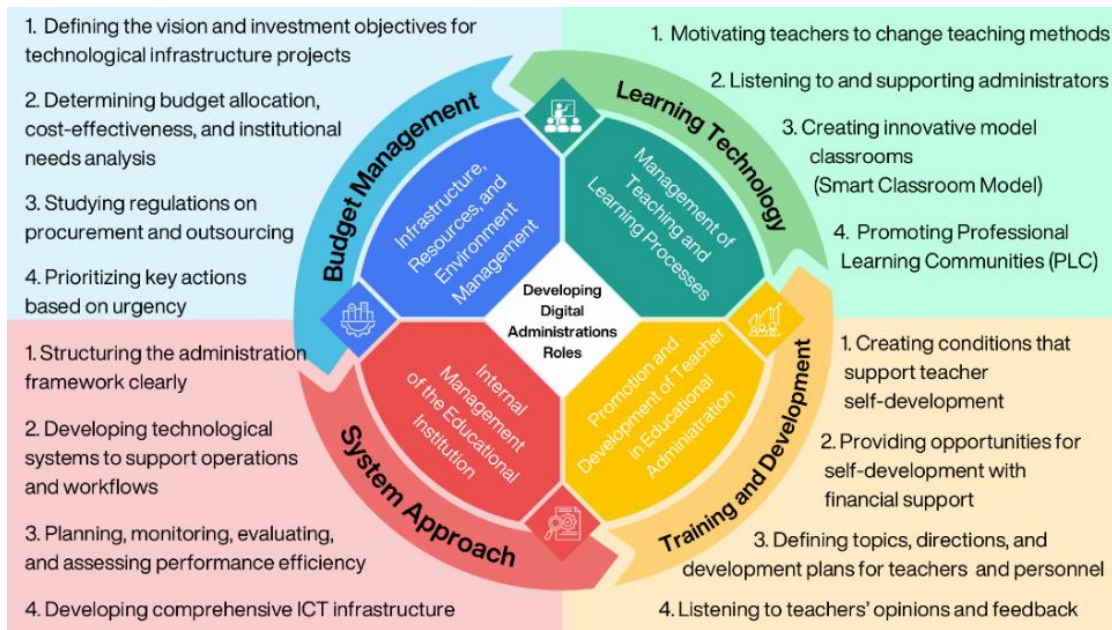


Figure 2 Guidelines for Developing School Administrators Roles in Encouraging the use of Digital Technology for School Administration under the Secondary Educational Service Area Office Bangkok 1

Discussion

1. To examine the current state roles of the school administrators in encouraging the use of digital technology for school administration in encouraging the use of digital technology for school administration in schools under the Secondary Educational Service Area Office Bangkok 1 found that the overall current state was at a High Level. When analyzed by dimension, the findings showed that 2 dimensions were at a High Level

1.1 Management of Teaching and Learning Processes. It was found that the school administrators establish policies to promote students' learning management in the area of technology, making it distinctive and aligned with learning in the technological era. They foster awareness among students and teachers to use educational technology media to create innovations in teaching and learning management, and they encourage teachers to organize teaching and learning through a variety of digital technologies that are appropriate for learners at all grade levels.

1.2 Personnel Development and Promotion. It was found that the school administrators promote and support teachers and personnel in presenting educational works or innovations related to the use of technology in educational administration and management on various occasions. They also encourage and provide opportunities for teachers and personnel with knowledge and expertise in technology to serve as trainers or speakers in providing training and knowledge to external organizations.

In addition, administrators support and promote the development of teachers' and personnel's technological knowledge and skills to align with the changes in the digital era.

These findings are consistent with the study by Laosue and Thongprong (2024) who studied the role of administrators in encouraging technology use in schools under the Secondary Educational Service Area Office Bangkok 1. That study found that in the Management of Teaching and Learning dimension, administrators promote teachers' use of technology as a tool for instructional management, encourage teacher participation in defining learning guidelines, and implement technology service systems that are student centered.

2. To analyze the expected state roles of school administrators in encouraging the use of digital technology for school administration in encouraging the use of digital technology for school administration in schools under the Secondary Educational Service Area Office Bangkok 1 found that the overall expected state was at the Highest Level. The overall Modified Priority Needs Index ($PNI_{modified}$) for the administrators' role was calculated at 0.338. When analyzed by dimension, the dimensions with the highest Priority Needs Index ($PNI_{modified}$) was: Internal Management of the school. It was found that the Current State of this dimension was at a High Level overall, while the Expected State was at the Highest Level overall. The overall Modified Priority Needs Index ($PNI_{modified}$) was calculated at 0.352. This is because school administrators' emphasis on the use of technology in various internal operations has not yet resulted in the highest level of efficiency and effectiveness. Therefore, another crucial role for the administrator is budgetary support for teachers and personnel to use in developing the implementation of teaching and learning through digital technology. This role must align with the concepts of 21st century educational administration, which involves using digital technology to reduce redundant internal school tasks and establish an information technology development plan for the institution. Opportunities are provided for personnel and school board members to participate in planning the development of digital technology for the school. Internal school operations are promoted through efficient technological systems, and operational manuals or standards are developed to enhance teachers' understanding and to ensure consistent practices in the same direction. These factors are essential for advancing the school toward more quality-driven and modern administration.

Consistency with Prior Research This finding aligns with the research of: Cheknooh (2024) who studied The model of technology management in digital era of school administrators under the Narathiwat Primary Educational Service Area Office 2. The study found that in the Internal School Administration dimension, administrators clearly assigned responsibility for digital technology functions, possessed a vision and strategy for the school's digital technology development, and used digital technology as

a tool for school administration. Laosue and Thongprong (2024) who studied The role of administrators in promoting technology use in schools under the Secondary Educational Service Area Office Bangkok 1. The study found that in the Internal School Administration dimension, administrators promoted school development to keep pace with the rapidly changing technological landscape by jointly planning administration and management and clearly defining work scope and responsibilities. With respect to the Management of Teaching and Learning Processes. It was found that the Current State of this dimension was at a Moderate Level overall, while the Expected State was at the Lowest Level overall. The overall Modified Priority Needs Index (PNI_{modified}) was calculated at 0.316. This indicates that school administrators have a vital role in listening to feedback and reflecting on teachers' issues regarding technology needs. This information should be used for systemic planning and development and for solving problems. Administrators should provide opportunities for teachers to participate in setting the direction of instructional management based on real classroom conditions. Furthermore, administrators should support teachers in utilizing technology for learning management to elevate the quality of students in a manner appropriate for 21st century changes. They must also create an environment conducive to the development of teaching practices by promoting Professional Learning Communities (PLC), providing a platform for teachers to share knowledge and collaboratively develop instructional innovations. Consistency with Prior Research This finding aligns with the research of: Paladorn (2023) who studied the school administrators in promoting the use of educational technology for opportunity expansion school teachers in Thoeng District, under Chiang Rai Primary Educational Service Area Office 4. The study found that in the Management of Teaching and Learning dimension, administrators played a key role in driving and adjusting instructional processes to keep pace with technology, and in developing organizational personnel to be continuously ready for new changes in educational technology for use in contemporary instruction, as well as fostering the school as a learning organization. Bungsri and Silanookit (2023) who studied The role of administrators in promoting the use of information technology for learning management from the opinions of teachers under the Khlong Sam Wa District Office, Bangkok. The study found that in the Management of Teaching and Learning dimension, school administrators served as role models in using information technology for administration and learning activities, encouraged and supported teachers to use information technology as a tool for designing lesson plans across different subject groups, and utilized diverse technology-based learning formats to organize learning activities effectively for students.

3. Guidelines for Developing School Administrators Roles in encouraging the use of Digital Technology for School Administration the results of Phase 2 show that the development guidelines

consist of four key areas: Budget Management, Learning Technology, Personnel Training and Development, and System Approach Administration. These development guidelines reflect the essential role of school administrators as digital leaders in driving organizational change within school. Effective budget management ensures that investments in digital infrastructure and learning technologies are aligned with institutional priorities and yield long-term value. The emphasis on learning technology and personnel training highlights the need to enhance teachers' and staff's digital competencies, enabling them to integrate technology meaningfully into both instructional and administrative practices. Moreover, adopting a system approach to administration allows digital technology to function as a central mechanism that streamlines operations, reduces redundancy, and improves coordination across departments. Collectively, these factors support sustainable school administration and respond effectively to the demands of education in the digital. Consistency with Prior Research These findings align with the research of: Phengphon and Sucharitrak (2024) who studied guidelines for using digital technology for school administration under the Ratchaburi Primary Educational Service Area Office 1. The research found that guidelines for using technology in school administration comprised 1) Student Data Management, 2) School Operations Management, 3) Instructional Supervision, 4) Budgetary Affairs, 5) Personnel, and 6) Communication. Molalai and Kwanmun (2025) who studied Guidelines development for technological leadership in the Digital era for school administrators in Phran Kratai District, under the Kamphaeng Phet Primary Educational Service Area 1. The research found that the guidelines for developing digital-era technology leadership included 1) Leadership and Vision in Digital Technology, 2) Supporting the Use of Digital Technology in Instruction, 3) Using Digital Technology in School Management, 4) Supporting the Use of Digital Technology in Educational Measurement and Evaluation, and 5) Ethics in Using Digital Technology.

Recommendations

Suggestions for applying the research results

1. Based on the findings for the Internal School Administration dimension, which showed school administrators should establish a vision for system-based administration and recognize the importance of utilizing technology in various internal school operations. Encourag the use of digital technology across various functions. Plan development and create an annual operational plan for the school's technology. Clearly define tasks and responsibilities. Support budgetary allocations for the development of digital technology operations to reduce redundant tasks.

2. Based on the findings for the Management of Teaching and Learning Processes. Which showed the lowest. This suggests that school administrators under the Secondary Educational Service Area Office Bangkok 1 are actively encouraging teachers' use of diverse and engaging technologies to assist in instructional management, thereby elevating student quality to meet the demands of the 21st century changes. Therefore, school administrators should facilitate teachers' access to appropriate and diverse technologies, provide motivation for teachers to adapt their learning and transform their teaching methods, and remain open to listening to teachers' opinions, so that the quality of teaching and learning management can be effective and continuously improved.

3. The Secondary Educational Service Area Office Bangkok 1 should utilize the developed guidelines to enhance the school administrators' role in encouraging the use of digital technology for school administration within its jurisdiction. This should involve creating a training curriculum for school administrators to be implemented prior to their appointment to the position. This pre-service training is crucial because school administration within the high-potential context of the Secondary Educational Service Area Office Bangkok 1 requires administrators to be responsive to the management context, using technology to assist in decision-making, monitoring operational results, and conducting analysis. This will ultimately lead to raising the quality of administration and educational management in alignment with educational policies and future changes.

Suggestions for further research

1. The developed Guidelines for Developing School Administrators' Roles in Encouraging the Use of Digital Technology for School Administration should be implemented and piloted in a real-world setting. This is necessary to validate the tool (the guidelines themselves) and to use the evaluation results to further refine and perfect the Guidelines for Developing School Administrators' Roles in Encouraging the Use of Digital Technology for School Administration under the Secondary Educational Service Area Office Bangkok 1.

2. Since this study utilized a Mixed Methods Research design to develop the Guidelines for Developing School Administrators' Roles in Encouraging the Use of Digital Technology for School Administration, future research should focus on the Effectiveness of Implementing the Development Guidelines for the school administrators' role in promoting the use of technology for school administration. This study should aim to evaluate the outcomes of using the development guidelines within the administrative context of schools under the Secondary Educational Service Area Office Bangkok 1.

3. Future research should investigate the role of school administrators in encouraging the use of digital technology for school administration in other jurisdictions. Examples include: School administrators under the Bangkok Primary Educational Service Area Office. School administrators under the Department of Local Administration. School administrators under the Office of the Vocational Education Commission. This comparative study across different sectors would serve to further develop the role of school administrators in encouraging the use of digital technology more broadly.

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