Guidelines for Development of Information Technology in Primary School Administration: A Case Study of Ariyamongkol Network Groups under Rayong Primary Education Service Area Office, 2

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Abstract

Background and Aim: Information technology advancements in elementary school administration increase productivity by simplifying duties including communication, record-keeping, and attendance. Additionally, it facilitates data-driven decision-making, which enhances student results and general school administration. This study aims to (1) investigate the use of information technology (IT) in educational administration within the Ariyamongkol Educational Network, under the Rayong Primary Educational Service Area Office, Area 2, and (2) establish guidelines for enhancing IT use in these educational institutions. The survey targeted teachers and school administrators within the Ariyamongkol Educational Network for the 2023 academic year, comprising a total population of 255 individuals. A sample of 152 participants was selected based on Krejcie and Morgan's sample size determination table using simple random sampling. Data collection was conducted through a questionnaire designed with a five-level Likert scale, and data analysis involved statistical methods such as percentage, mean, and standard deviation.

Materials and Methods: The research utilized a quantitative survey design, employing a structured questionnaire to gather data on current IT usage, challenges, and perceived barriers in educational administration. The questionnaire was developed based on existing literature and validated through expert reviews. Statistical analyses, including descriptive statistics (percentages, means, and standard deviations), were performed using SPSS software to interpret the data collected from the sample.

Results: The findings revealed that (1) current conditions, challenges, and barriers in IT usage for educational administration in the Ariyamongkol Educational Network are perceived at a high level overall, indicating a strong recognition of the importance of IT in educational processes, and (2) the principles and strategies for IT integration in administration within this network are also rated highly. Specific areas identified for improvement include enhancing IT adoption for curriculum development, facilitating budget planning, and supporting manpower planning.

Conclusion: To promote further development, it is essential to enhance IT adoption by providing access to adequate and modern IT tools and resources. Implementing these guidelines will facilitate more efficient educational administration and improve overall educational outcomes within the Ariyamongkol Educational Network. Future research should explore the long-term impact of these IT enhancements on teaching and learning outcomes.

Keywords: Information technology, Educational administration, Ariyamongkol Educational Network, Rayong Primary Educational Service Area Office Area 2

Introduction

The Thai education system's policies on compulsory and basic education have driven substantial advancements in IT integration to improve school management and promote educational reform. Since 2005, the Ministry of Education has advocated for IT-enhanced administrative functions in areas like academic administration, budgeting, and personnel management Studies indicate that effectively utilizing IT in these areas helps institutions to manage resources better, providing a more supportive learning environment However, research also highlights challenges in infrastructure development and the need for personnel with IT management competencies To address these issues, studies have suggested adopting strategies that leverage IT to enhance efficiency in both administrative and academic functions, underscoring the importance of IT management competencies among administrators (Duangjinda et al, 2023).

In an era of rapid technological advancement, digital technology has become integral to daily life, influencing almost every sector globally. In educational institutions, digital technology plays a critical role in teaching, resource management, information processing, and administrative functions, underscoring the need for effective integration For today's youth, developing digital literacy is essential to leverage these tools for personal, societal, and national growth (Hongton & Jaichalad, 2023; Hongton & Jaichalad, 2023).

Education systems are foundational in preparing students with the skills needed to thrive in a digitally driven society. The effectiveness of educational administration is crucial in shaping human capital aligned with national development goals. This requires comprehensive planning to establish clear visions, objectives, and strategies, as reflected in the National Education Plan 2017-2036, where information technology (IT) is recognized as a vital component supporting educational institutions in achieving these objectives (Kaew & Busarakul, 2022; Khieo, 2022).

Effective IT management can enhance educational administration by streamlining processes and improving outcomes, particularly as students and youth are integral to the nation's future growth. In Thailand, policies supporting nine years of compulsory education and 12 years of basic education have propelled efforts to integrate IT into the education system. The Ministry of Education (2005) has introduced IT policies to modernize school management and facilitate educational reform, aimed at fostering comprehensive student development. To realize this vision, a robust IT infrastructure and skilled personnel are necessary to manage areas such as academic administration, budgeting, human resources, and general administration efficiently. Effective allocation and management of IT resources also create a supportive learning environment (Khuntha et al, 2022; Pasawang et al., 2022).

This study investigates the application of IT in educational administration within the Ariyamongkol Educational Network under the Rayong Primary Educational Service Area Office, Area 2. Focusing on academic administration, budget management, personnel management, and general administration, it aims to identify current conditions and challenges while offering guidelines for enhancing sustainability and operational efficiency in educational administration. (Phuangbuppha et al. 2021; Maungnak, 2023).

In Thailand, the push for nine years of compulsory education and 12 years of basic education has driven significant efforts to integrate information technology (IT) into the educational system. The Ministry of Education's policies, initiated in 2005, emphasize IT utilization to enhance school management and support a broader vision of educational reform focused on maximizing student development. Achieving these goals relies on establishing a strong IT infrastructure and equipping skilled personnel to handle various administrative areas, including academic administration, budgeting, human resources, and general management, to ensure seamless operations within schools Effective allocation and management of IT resources are crucial in creating a conducive learning environment that fosters educational growth and innovation.

Objectives

　　1. To examine the current utilization of information technology in educational administration within the Ariyamongkol Educational Network, under the Rayong Primary Educational Service Area Office, Area 2.
　　2. To identify guidelines for enhancing the use of information technology in educational administration in the Ariyamongkol Educational Network, under the Rayong Primary Educational Service Area Office, Area 2

Literature review

　　The integration of information technology (IT) in educational administration has become essential for enhancing efficiency across four primary functions: academic administration, personnel management, general administration, and budget management. Effective leadership, coupled with well-defined IT policies, can facilitate smoother and more efficient operations within educational institutions. This review highlights key studies that examine the challenges and opportunities of IT integration in these areas (Khieo, 2022; Kerdkai, & Noichan. (2023).

　　Using Information Technology in Academic Administration

The application of IT in academic administration enables educational institutions to streamline processes and improve access to resources. Research by Nakkaew and Busarakul (2022) in the Nonthaburi Education Service Area Office highlights the challenges schools face, particularly a shortage of computers for library management, online research, and creating teaching media. Many schools have only 1-2 computers, which limits access for both teachers and students. These shortages, along with connectivity issues, significantly impede the effective use of IT for academic purposes, indicating a critical need for more extensive digital infrastructure in schools (Muangklam. 2021; Shehzadi et al (2021).

　　Using Information Technology in Personnel Management

　　In the domain of personnel management, studies have identified IT-related challenges affecting data management and communication. Kong & Suebsoe (2023) report that limited data storage and outdated software hinder the efficient management of information related to staff, students, and parents. Additionally, many personnel lack sufficient IT skills, resulting in inefficiencies in handling administrative tasks. Kaew & Busarakul (2022) corroborate these findings, noting that budget constraints restrict schools' ability to provide adequate IT resources, further complicating personnel management tasks. These limitations underscore the need for increased IT training and funding to improve staff efficiency and data handling in schools (Szymkowiak et al, 2021; Tedpol, 2022).

　　Using Information Technology in General Administration

General administration in schools can benefit significantly from IT integration, yet studies reveal considerable obstacles in this area. Tedpol (2022) points to difficulties in establishing functional school websites and internal information systems due to poor-quality equipment. Similarly, Thanyaphol et al (2023) find that the adoption of E-Office systems in the Sa Kaeo Educational Service Area Office is limited by inadequate training and outdated computer systems. These barriers prevent schools from fully utilizing modern document processing and communication tools, which could otherwise enhance administrative efficiency and support transparent communication channels (Kong & Suebsoe, 2023

　　Using Information Technology in Budget Management

IT in budget management faces persistent challenges, particularly regarding the availability of adequate financial resources. Tedpol (2022) reports that many schools in the Chachoengsao Educational Service Area struggle with obsolete computers, making it difficult to perform essential budgeting tasks. Similarly, Wongyai et al (2022) note that many schools still rely on paper records for budget and asset management due to a lack of digital solutions, leading to inefficiencies in record-keeping and reporting. The integration of digital solutions for budget management could help streamline financial processes, yet this remains constrained by funding limitations and outdated resources (Wongyai et al, 2022).

　　Summary and Implications

Across all areas of educational administration, the integration of IT faces common barriers such as outdated equipment, insufficient funding, and limited personnel training. These constraints impact essential functions, from supporting academic activities to maintaining efficient budget management. To address these issues, there is a pressing need for guidelines and policies aimed at enhancing IT use in educational administration. Worapongpat (2024). This study thus seeks to provide comprehensive guidelines to improve IT integration in the areas of academic, personnel, general, and budget management within educational institutions. These recommendations aim to support the development of more efficient and sustainable administrative practices. (Worapongpat et al 2024B)

Conceptual Framework

Independent Variables

Use of Information Technology in Academic Administration

Availability of IT resources for teaching and learningUsage of digital media and internet for academic purposesEffectiveness of digital libraries and online resources of Information Technology in Personnel Management

Efficiency in storing and managing personnel, Accessibility and usability of personnel management softwarePersonnel's digital literacy and IT training levelUse of Information Technology in General Administration

IT infrastructure for communication and document managementDigital systems for daily administrative tasks. Use of network systems to improve the school operations of Information Technology in Budget Management

Availability of budget for IT resourcesEfficiency in digital budget tracking and reportingUtilization of IT for financial management and asset tracking

Dependent Variables

Efficiency of Educational AdministrationImproved productivity and time management in administrative tasksEnhanced data accessibility and reliability for decision-making. Effective communication within and across educational institutions

Quality of Educational Services ProvidedEnhanced academic support and resources for students and staffHigher satisfaction levels among staff and students. Improved operational stability and administrative satisfaction.

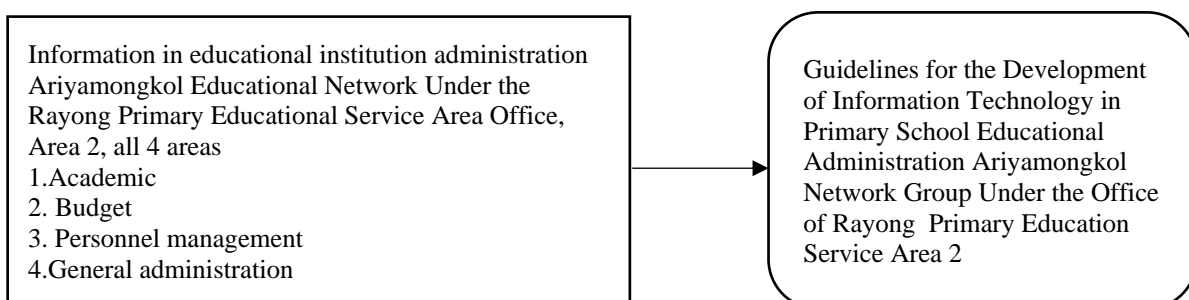Independent variable   Dependent variable

| Information in educational institution administration Ariyamongkol Educational Network Under the Rayong Primary Educational Service Area Office, Area 2, all 4 areas
1.Academic
2. Budget
3. Personnel management
4.General administration | → | Guidelines for the Development of Information Technology in Primary School Educational Administration Ariyamongkol Network Group Under the Office of Rayong Primary Education Service Area 2 |

Figure 1 shows the research concept

Methodology

1. Research Design: This study employs a quantitative research design to gather and analyze data systematically.

2. Population and Sample Groups

2.1 Population: The target population comprises educational institution administrators, deputy directors, and teachers within the Ariyamongkol Educational Network. The total population is 255 individuals.

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2.2 Sample Size: Using Krejcie and Morgan's sample size determination table (1970), a sample size of 152 individuals will be selected for the study. This sample includes educational administrators and teachers from the population mentioned above.

3. Research Tools

The primary research tool is a structured questionnaire, which includes three distinct parts:

Part 1: Basic Information of Respondents. This section collects demographic data such as age and teaching experience using a checklist format.

Part 2: Problems and Obstacles in Using Technology comprises 24 questions addressing challenges faced in utilizing information technology in educational administration, categorized into four areas of administration.

Part 3: Approaches and Methods for Using Technology includes another set of 24 items focused on strategies and practices for implementing information technology in administration across the same four areas.

Quality Assurance of Research Tools:

Expert Consultation: The questionnaire was reviewed and revised based on feedback from a consultant.

Content Validity: The revised questionnaire was evaluated by three experts to ensure alignment with the research objectives using the Index of Item-Objective Congruence (IOC). The IOC values ranged between 0.80 and 1.00.

Pilot Testing: A pilot test was conducted with a non-sample population of 30 individuals to assess the questionnaire's discriminatory power, yielding values between 0.25 and 0.75. The reliability of the questionnaire was assessed using Cronbach's alpha, resulting in a reliability coefficient of 0.95.

4. Data Collection

Data will be collected through:

Secondary Data: Relevant documents, including books, academic papers, and electronic resources, will be gathered for contextual background.

5. Data Analysis

Quantitative Data Analysis: The responses from the distributed questionnaires will be processed using statistical software to derive meaningful insights.

6. Statistical Techniques

Descriptive statistics will be utilized to summarize the data, employing the following methods:

Percentage (%): To illustrate the proportion of responses.

Mean (M): To determine the average response for quantitative items.

Standard Deviation (SD): To assess the variability of responses around the mean.

This methodology outlines a clear framework for conducting the research, focusing on the effective application of information technology in educational administration. It emphasizes the importance of rigorous tool development, sample selection, and data analysis to ensure valid and reliable findings. Would you like to delve deeper into any specific section or aspect of this methodology?

Results

Objective 1: Results of the study regarding the current condition Problems and obstacles in using information technology in educational institution administration The Ariyamongkol Educational Network under Rayong Primary Educational Service Area Office 2 was overall at a high level (Mean = 4.20 S.D. = .568), with the aspect with the highest average being academics (Mean = 4.51 S.D. = .541) followed by general administration (Mean = 4.29 S.D. = .527), personnel (Mean = 4.20 S.D. = .555) and the aspect with the lowest average. is the budget side (Mean = 3.82 S.D. = .649)

Table 1 summarizes the findings on the current state of IT utilization within the Ariyamongkol Educational Network under the Rayong Primary Educational Service Area Office 2.

Aspect	Mean (X̄)	Standard Deviation (S.D....)
Academic Administration	4.51	0.541

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Aspect	Mean (X)	Standard Deviation (S.D....)
General Administration	4.29	0.527
Personnel Management	4.20	0.555
Budget Management	3.82	0.649
Overall	4.20	0.568

These results highlight the need for targeted improvements in budget management to enhance IT efficiency in educational administration.

Objective 2: Results of the study regarding the principles and methods of using information technology in the administration of educational institutions in the Ariyamongkol Educational Network. Under the jurisdiction of the Rayong Primary Educational Service Area Office, Area 2, the overall level was at a high level (Mean = 4.19, S.D. = .528). The aspect with the highest average was academics (Mean = 4.47, S.D. = .519), followed by general administration (Mean= 4.27 S.D. = .528), human resources (Mean = 4.20, S.D. = .536), and the aspect with the lowest average is the budget side (Mean = 3.84, S.D. = .622)

Table 2: Principles and Methods for IT Use in Educational Administration

Aspect	Mean (X)	Standard Deviation (S.D)
Academic Administration	4.47	0.519
General Administration	4.27	0.528
Personnel Management	4.20	0.536
Budget Management	3.84	0.622
Overall	4.19	0.528

Results of data analysis of guidelines for using information technology in educational institution administration. Ariyamongkol Educational Network, under the jurisdiction of the Rayong Primary Educational Service Area Office, Area 2, the results appear as shown in the table. Guidelines for Using IT in Educational Administration

Based on the data analysis, the study proposes guidelines for effectively using IT in educational administration, with an emphasis on academic support, improving general administrative tasks, efficient personnel management, and overcoming budgetary constraints.

Discussion

Study of guidelines for using information technology in educational institution administration. Ariyamongkol Educational Network. Under the Rayong Primary Educational Service Area Office 2, the study results can be used for discussion as follows.

1. Results of the study regarding the current condition, Problems, and obstacles in using information technology in educational institution administration. The Ariyamongkol Educational Network under the Rayong Primary Educational Service Area Office, Area 2, is overall at a high level. This is because in the administration of educational institutions, there is administration and management. Set criteria and procedures from the Educational Service Area Office. Ministry of Education. The workload has been clearly defined in 4 areas: academics, budget, personnel management, and general administration in administration Various information regarding administration will be collected. And learning management to use and report results. Therefore, it is necessary to use various technologies to collect data. Report information and forward information. Therefore, the use of technology has been brought in to help with operations to facilitate and speed up the continuous changes that occur. Make the present condition. Problems and obstacles in using information technology in educational institution administration. The Ariyamongkol Educational Network under the Rayong Primary Educational Service Area Office, Area 2, is at a high level. This is

in line with Worapongpat et al (2024) Study of system management and information problems in the administration of basic educational institutions. Under the Phra Nakhon Si Ayutthaya Educational Service Area Office, Area 1, the research results found that 1) Conditions of using information technology for basic educational institution administration. It is at a high level both overall and in each aspect.

2. Results of the study regarding the principles and methods of using information technology in the administration of educational institutions in the Ariyamongkol Educational Network. Under the jurisdiction of the Rayong Primary Educational Service Area Office, Area 2, the overall level is high. It may be because the administration of the educational institution has been carried out efficiently. And has already been improved by bringing in information technology to help Personnel develop to gain knowledge and the ability to perform their jobs. Technology is continuously used to help teach and work. Modern for learning and working. There is development on your own and training both online and offline. Training workshops in various formats to be continuously updated at all times. Therefore, the principles and methods of using information technology in the administration of educational institutions in the Ariyamongkol Educational Network under the Rayong Primary Educational Service Area Office, Area 2 are at a high level both overall and in each aspect. This is consistent with Worapongpat & Bhasabutr (2024) studied problems and approaches to solving problems in organizing data and information systems in basic educational institutions. Under the jurisdiction of the Udon Thani Educational Service Area Office 4 in 6 areas, the research results found that 1) Problems with organizing data and information systems in basic educational institutions It is at a high level both overall and in each aspect. In line with the work of Worapongpat & Somchob (2024) studied guidelines for developing the use of information technology in primary school education administration. Under the jurisdiction of the Phra Nakhon Si Ayutthaya Primary Educational Service Area Office, Area 2, the research results found that 1) Principles and methods of using information technology in educational administration at primary school. Summarizing all aspects as a whole, there are opinions. At a high level, when considering the aspect
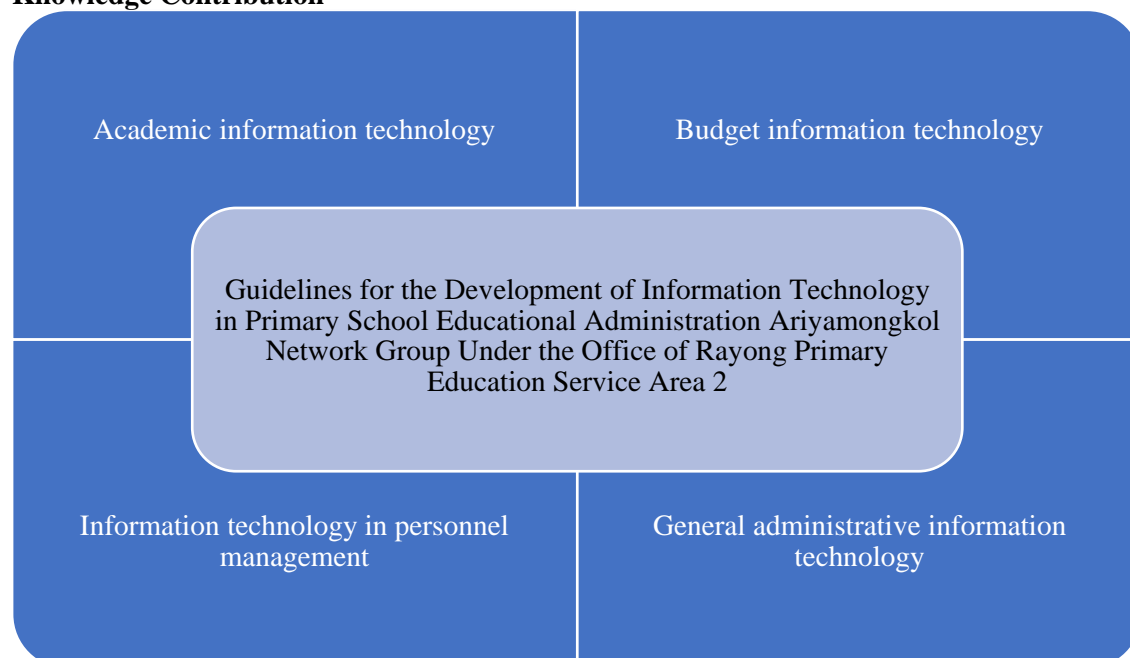
Knowledge Contribution

Figure 2: Knowledge Contribution

Figure 2, it is shows that the guidelines for developing information and communication technology for education are the guidelines for developing information and communication technology of the Office of the Basic Education Commission. Which is the agency responsible for providing basic education in the country, has promoted and supported the application of information and communication technology To be a tool for management and educational services Information in educational institution administration Ariyamongkol Educational Network Under the jurisdiction of the Rayong Primary Educational Service Area Office, Area 2, all 4 areas are as follows: 1. Information on educational institution administration. Academic aspect 2. Information in the educational institution administration Budget 3. Information in educational institution administration, Human resource management 4. Information in educational institution administration. General administration. To be an agency that is a center for providing services using information and communication technology for education. Both management and learning are for affiliated agencies at the educational institution level. Educational Service Area Office: Central office and student users, Teachers and educational personnel, officials, and the general public.

Recommendation
1. The use of technology should be promoted to help with the development of curricula in educational administration for greater development. The results of the study found that the use of technology in curriculum development. Educational institutions should bring in information technology to help plan curriculum development.
2. Should provide knowledge about the use of technology to help with budget planning. The results of the study found that Technology is used to help in work. It is a low point in terms of budget work in terms of planning. Report preparation and accounting
3. The use of information technology should be promoted to help with workforce planning. Because there is the lowest level of practice in personnel management. Educational institutions should develop the use of information technology to help with staffing planning.
4. Information technology tools and equipment should be procured that are modern and sufficient to meet needs. Because it is the lowest point in general administration.
Suggestions for next research
1. There should be a comparative study of the use of information technology in educational institution administration. Ariyamongkol Educational Network under Rayong Primary Educational Service Area Office 2
2. The factors affecting the use of information technology by administrators and teachers of the Ariyamongkol Educational Network should be studied. Under the Rayong Primary Educational Service Area Office, Area 2

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