


Optimizing administrative efficiency in education departments: a knowledge management approach

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Article Info	ABSTRACT
<p>Keywords: Knowledge Management, Administrative, Education.</p>	<p>This study explores the implementation of knowledge management architecture in enhancing administrative efficiency and the quality of educational services within the Education Department. The primary issue addressed is this institution's administrative complexity, challenges in managing dispersed knowledge, and the need for more information technology integration. Research methods encompass qualitative and quantitative data analysis from interviews, observations, and surveys conducted with administrative staff. The findings indicate that applying knowledge management architecture significantly enhances administrative efficiency, reinforces collaboration among staff and teachers, and facilitates better decision-making. The contribution of this research lies in providing a robust foundation for policymakers and educational practitioners to implement measurable and sustainable knowledge management strategies to enhance the quality of educational services and strengthen the foundation for social and economic advancement.</p>
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INTRODUCTION

The Education Department holds a central role in the development of society and the economic growth of a nation. As an institution responsible for providing education, the Education Department is responsible for shaping and directing the younger generation's intellectual, moral, and social development. By providing access to quality education, the Education Department not only opens doors of opportunity for individuals to enhance their quality of life but also strengthens the foundation for a nation's social and economic advancement (Maruhawa, 2023; Petchamé et al., 2023; STAI Rasyidiyah Khalidiyah Amuntai Kalimantan Selatan & STAI Rasyidiyah Khalidiyah Amuntai Kalimantan Selatan, 2022).

Despite the paramount importance of the Education Department's role, its administrative challenges are often complex and diverse. From managing student and staff data and scheduling learning sessions to monitoring compliance with educational regulations, the administration of the Education Department can be intricate and time-consuming. Additionally, there is pressure to continuously improve the quality of

educational services while ensuring efficiency and accountability in managing limited resources.

Administrative efficiency is critical in maintaining the optimal quality of educational services. By allocating resources efficiently, the Education Department can enhance productivity, expedite decision-making processes, and provide prompt responses to the needs of the educational community (Muñoz et al., 2022; Santoso & Yulia, 2017; Tashkhodjaev, 2023). Moreover, administrative efficiency also enables educational institutions to focus on curriculum development, enhancing teaching quality, and innovating teaching approaches, all of which directly contribute to improving the quality of education delivered. Therefore, efforts to enhance administrative efficiency in the Education Department enable the more effective use of limited resources and have a significant positive impact on the quality of educational services provided to the community.

The administrative processes in the Education Department are often complex and involve various aspects, ranging from student and teacher data management to budget management and curriculum planning. This complexity arises from the multitude of entities involved, including schools, teachers, students, parents, and other stakeholders, as well as the diverse administrative needs that must be met. For example, student registration administration involves collecting personal information, supporting documents, and verification processes that require coordination among various relevant parties. Similarly, curriculum management processes require thorough planning, organizing teaching materials, and evaluating the effectiveness of teaching methods applied at various levels of education (Al-Rahmi et al., 2018; Khatibi et al., 2020; Wang & Conwell, 2022).

Knowledge management poses a significant challenge in the context of the Education Department. Information and knowledge are dispersed across various platforms and formats, ranging from physical documents to digital data, and are often difficult to manage centrally and easily accessed by all stakeholders. Another challenge lies in ensuring the continuity of knowledge, especially during staff or school head turnovers. Poor integration and documentation can result in the loss of valuable information and redundant work (Agasisti et al., 2023; Bahamid et al., 2022; Casalegno et al., 2023; Lv et al., 2022; Wan & Niu, 2019).

Despite rapid advancements in information technology, the Education Department often needs help implementing such technology to support its administrative tasks. One of the primary challenges is the need for adequate IT infrastructure, especially in remote areas or those with limited budgets (Dingsøyr & Lassenius, 2016; Kantola et al., 2022; Persson et al., 2022). Additionally, more IT expertise among administrative staff is needed to ensure the adoption of more sophisticated technological solutions. Moreover, initial investment and maintenance expenses of IT systems can also act as limiting factors in implementing adequate information technology solutions to support educational administration.

The primary objective of this research is to investigate the potential and effectiveness of implementing knowledge management applications in enhancing administrative efficiency within the Education Department. Specifically, this research aims to identify the main administrative challenges faced by the Education Department in data management,

scheduling, and monitoring compliance with educational regulations. Furthermore, this research also aims to analyze how implementing knowledge management applications can address these challenges and improve efficiency in administrative processes. The impact evaluation of implementing knowledge management applications on productivity, decision-making speed, and the quality of educational services provided by the Education Department is also a focus of this research. This research will provide practical recommendations for improvement and further development in implementing knowledge management applications in the educational administration environment. In terms of benefits, this research is expected to make a significant contribution in the context of educational administration: This research will provide a deeper understanding of the administrative challenges faced by the Education Department and solutions that can be applied through information technology.

This research will provide practical guidance for the Education Department to select, implement, and manage knowledge management applications that suit their needs. By enhancing efficiency in data management, scheduling, and monitoring compliance with educational regulations, this research enables a greater focus on curriculum development, improving teaching quality, and innovation in teaching approaches. This research is expected to enhance the quality of educational services provided to the community by maximizing the utilization of limited resources more effectively. This research is also expected to stimulate further development in knowledge management and information technology in the education sector and stimulate discussion and further research efforts in the broader endeavor to improve administrative efficiency.

METHODS

The research methodology, as depicted in Figure 1, adopts a case study approach to investigate the implementation of knowledge management in improving administrative efficiency within the education department. The research focuses on administrative staff responsible for data management, scheduling, and ensuring compliance with educational regulations. Data is gathered through interviews, observations, and document analysis, facilitating a comprehensive grasp of the context and ramifications of knowledge management implementation. The analysis employs a blend of qualitative and statistical techniques to discern patterns, examine contexts, and evaluate relationships among variables. This approach furnishes a thorough comprehension of the efficacy of knowledge management implementation in enhancing administrative efficiency within the education department.



Figure 1. Research Stages

Data Collection

In order to gain a comprehensive understanding of the administrative challenges encountered by the Education Department and their knowledge management-related needs, the initial activity undertaken involves conducting direct interviews with administrative staff. Through these interviews, information about existing administrative processes, such as student data management and scheduling arrangements, as well as potential constraints within these processes, can be gathered. Additionally, direct observation of administrative processes is conducted to pinpoint specific areas where knowledge management applications could offer significant contributions. Furthermore, surveys are administered to administrative staff to collect quantitative data regarding their perceptions of the effectiveness of the knowledge management solutions being considered..

Data Analysis

Following data collection, the subsequent step involves an in-depth analysis of the acquired information. The transcription of interviews and qualitative data processing is performed using thematic analysis techniques to identify patterns or themes emerging about administrative challenges and knowledge management needs. This process entails coding and categorizing data to pinpoint key concepts and relationships. Furthermore, quantitative data from surveys are statistically analyzed to generate descriptive statistics, and inferential analysis is performed to test the proposed hypotheses. Statistical analysis techniques such as t-tests and ANOVA can be employed to compare results between different respondent groups or to evaluate relationships between specific variables. The results of observations are also evaluated to assess the alignment between administrative needs and the knowledge management solutions offered. This involves comparing findings from direct observations with results from qualitative and quantitative analyses to identify whether the proposed solutions can effectively address the administrative challenges faced.

By employing various analysis techniques, it is anticipated that a comprehensive understanding of the administrative challenges encountered by the Education Department and the effectiveness of knowledge management solutions in addressing them can be attained. The outcomes of this analysis will aid in formulating recommendations and implications to enhance administrative efficiency and knowledge management in educational environments..

Recommendations for Knowledge Management Architecture

Following the completion of data analysis, the subsequent step entails developing recommendations for a knowledge management architecture that aligns with the needs and characteristics of the Education Department. Specific needs are identified based on the findings from data collection and analysis. A literature review is then conducted to identify models of knowledge management architecture that have proven effective in similar contexts. Drawing from these findings, a knowledge management architecture tailored to the needs of the Education Department is devised, encompassing strategies for managing both tacit and explicit knowledge, organizing information, and integrating with existing

systems. These recommendations are subsequently presented to relevant stakeholders for feedback and approval and for further implementation planning.

RESULTS AND DISCUSSION

Data Collection

The outcome of the Data Collection phase is a deeper understanding of the administrative challenges faced by the Education Department and its knowledge management needs. Comprehensive information regarding existing administrative processes, such as student data management and scheduling arrangements, was obtained through direct interviews with administrative staff. The interviews also aided in identifying potential constraints within these processes, providing a clearer picture of the encountered issues. Furthermore, direct observation of administrative processes facilitated the identification of specific areas where knowledge management applications could significantly enhance efficiency. The surveys also provided valuable quantitative data to acquire administrative staff perceptions regarding the effectiveness of knowledge management solutions, thereby offering additional insights for further analysis. Consequently, the Data Collection phase outcomes furnish a robust foundation for subsequent analysis and decision-making stages within this research.

Table 1. Data Collection Results

No	Data Type	Data Collection Method	Information obtained
1	Qualitative Data	Interview with Staff	Existing administrative processes, such as student data management and timetabling. Obstacles that may arise in the administrative process. Staff perceptions of the benefits and drawbacks of the administrative system in use.
2	Qualitative Data	Direct Observation	Identify specific areas where knowledge management applications can make a significant contribution in improving efficiency. Hands-on evaluation of existing administrative processes.
3	Quantitative Data	Staff Survey	Administrative staff perceptions of the effectiveness of the knowledge management solution under consideration. Quantitative data on staff needs and preferences for desired features in the knowledge management application.
4	Qualitative Data	Document Review	Analysis of existing administrative policies and procedures. Documentation of previously used information systems.

Table 1 details the types of data collected, the methods utilized, and the information obtained from each method during the data collection phase. Data are categorized into two main types: qualitative and quantitative. Data collection methods include interviews with staff, direct observation, staff surveys, and document review. Through interviews with staff, researchers gained a deep understanding of administrative processes, potential constraints, and staff perceptions regarding existing administrative systems—direct observation allowed for identifying specific areas where knowledge management applications could offer significant contributions. Staff surveys provided insights into the effectiveness of the knowledge management solutions considered and quantitative data regarding staff needs and preferences for features desired in the knowledge management application. Document review provided insights into existing administrative policies and procedures and documentation regarding previously used information systems. By employing these various data collection methods, the research comprehensively understood the administrative challenges faced by the Education Department, their knowledge management needs, and staff preferences for the solutions to be implemented.

Data Analysis

The outcomes of the Data Analysis phase provide a comprehensive understanding of the administrative challenges encountered by the Education Department and their knowledge management needs through thematic analysis of qualitative data consisting of interview transcripts, systematic identification of patterns or themes related to administrative challenges, and knowledge management needs can be achieved. Thus, a deeper understanding of critical aspects of administrative challenges and knowledge management needs can be obtained. Moreover, the quantitative data from surveys are statistically analyzed to generate descriptive statistics, such as means and frequency distributions, offering a clear overview of administrative staff perceptions regarding knowledge management solutions. Inferential analysis is also conducted to test the proposed hypotheses, enabling researchers to draw stronger and more valid conclusions.

The outcomes of observations are also evaluated to assess the alignment between administrative needs and the offered knowledge management solutions. By analyzing observation results, researchers can ensure that recommended solutions effectively meet existing administrative needs and align with the organizational context of the Education Department. Thus, the Data Analysis phase provides critical insights and relevant information for developing knowledge management solutions tailored to the needs and objectives of the Education Department.

Knowledge Management Architecture

After conducting an in-depth data analysis, the next step is to develop recommendations for a knowledge management architecture that aligns with the needs and characteristics of the Education Department. Specific needs are identified based on the data collection and analysis results, which encompass interviews, observations, surveys, and document reviews. Subsequently, a literature review is conducted to identify models of knowledge management architecture that have proven effective in similar contexts.

Findings from this literature review serve as the foundation for developing a knowledge management architecture tailored to the needs of the Education Department.

The recommended knowledge management architecture includes strategies for managing tacit and explicit knowledge, organizing information, and integrating with existing systems within the Education Department. These recommendations are designed to ensure the effectiveness and sustainability of the implemented knowledge management solutions. Furthermore, the recommendations are presented to relevant stakeholders, such as administrative managers, educational staff, and IT personnel, to gather feedback and approval. This process ensures that the recommended knowledge management architecture considers various perspectives and needs from different stakeholders involved.

Upon receiving feedback and approval, the next step is further implementation planning. This involves developing detailed action plans, resource allocation, and setting schedules to implement the recommendations. Thus, the Knowledge Management Architecture Recommendation phase provides a strong foundation for developing and implementing effective knowledge management solutions tailored to the unique needs of the Education Department.

The delineated knowledge management framework, illustrated in Figure 2, comprises several essential stages aimed at augmenting knowledge management within the Education Department. Initially, knowledge identification and mapping entail the recognition of both tacit and explicit knowledge sources within the department, spanning from staff and teacher expertise to documented information and organizational experience. Following this, the development of knowledge systems entails the design and implementation of suitable information technology solutions to effectively manage and harness the identified knowledge assets. Subsequently, clear standards for information organization are established to ensure accessibility and coherence, thereby facilitating efficient dissemination and utilization of knowledge.

Furthermore, the creation and sharing of knowledge are facilitated by fostering collaboration among staff and teachers, cultivating a culture of continuous learning and improvement. Integrating existing systems, such as student information and human resource systems, streamlines data flow and accessibility, enhancing overall operational efficiency. Training programs and technical support initiatives are crucial to facilitate the effective use of knowledge management systems among staff, ensuring successful implementation and adoption. Lastly, periodic evaluation and continuous improvement efforts are undertaken to assess the system's effectiveness, aligning it with organizational goals and evolving needs. Overall, this comprehensive approach aims to establish a robust framework for knowledge management, fostering collaboration, informed decision-making, and continuous improvement within the Education Department.

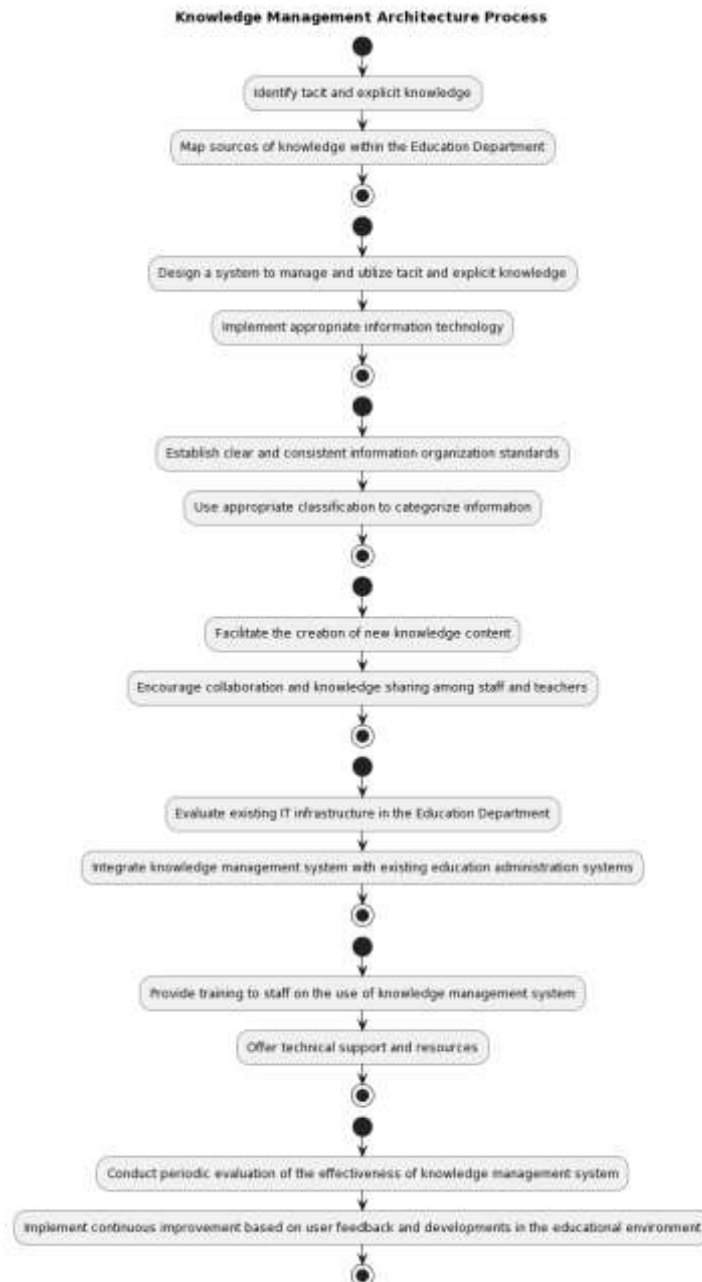


Figure 2. Knowledge Management Process

The knowledge management features, Table 2, resulting from this study encompass various crucial aspects. Firstly, knowledge identification and mapping involve recognizing both explicit and tacit knowledge sources within the Education Department, including staff expertise and organizational experience. Subsequently, the development of knowledge systems focuses on implementing suitable IT solutions to manage and utilize these identified knowledge assets effectively. Clear standards for organizing information ensure accessibility and promote efficient dissemination of knowledge. Additionally, facilitating collaboration among staff and teachers fosters a culture of continuous learning and

improvement. Integrating existing systems simplifies data flow, while providing training and technical support ensures staff proficiency in utilizing knowledge management systems. Finally, periodic evaluation and continuous improvement efforts ensure the alignment of systems with organizational goals and evolving needs, fostering sustainable improvement in administrative efficiency and the quality of educational services.

Table 2. Knowledge Management Feature

Knowledge Management Feature	Description
Knowledge Identification and Mapping	This feature involves identifying both explicit and tacit knowledge sources within the Education Department. It includes recognizing staff and teacher expertise, documented information, and organizational experience.
Development of Knowledge Systems Standards for Organizing Information	Designing and implementing appropriate information technology solutions to manage and leverage the identified knowledge assets. Establishing clear standards for organizing information to ensure accessibility and clarity, thus promoting effective dissemination and utilization of knowledge.
Knowledge Sharing	Facilitating collaboration among staff and teachers, fostering a culture of continuous learning and improvement.
Integration of Existing Systems	Integrating existing systems, such as student information and human resource systems, to streamline data flow and accessibility, thereby enhancing overall operational efficiency.
Training and Technical Support	Providing training programs and technical support initiatives for staff to ensure the effective use of knowledge management systems.
Evaluation and Continuous Improvement	Conducting periodic evaluation and continuous improvement efforts to assess the system's effectiveness, aligning it with organizational goals and evolving needs.

CONCLUSION

This study indicates that implementing knowledge management architecture within the Education Department can enhance administrative efficiency and the quality of educational services. Knowledge identification, development, and organization processes are pivotal in understanding, leveraging, and disseminating knowledge optimally throughout the department. Integrating existing systems and staff training is also crucial in ensuring the success of implementing and adopting knowledge management architecture. By implementing these measures, the Education Department can improve collaboration among staff and teachers, accelerate information flow, and facilitate better decision-making. In the long run, the effective implementation of knowledge management architecture can enhance administrative efficiency, improve the quality of educational services, and strengthen the foundation for social and economic progress in the served areas, providing a solid

foundation for policymakers and practitioners in the field of education to implement measurable and sustainable knowledge management strategies.

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