

Mediating Role of Knowledge Management to Data Management and School Performance in Public Elementary School

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Abstract

In this study, the researcher focused on the data management practices and school-based management level of practice of public schools in one district in the Philippines. The data were gathered using a researcher-made but expert-validated survey questionnaire. The study ran from December 2022 to April 2023. Data were solicited from teachers who identified themselves aware of the data management and SBM practices of their schools. Schools have substantial data management procedures in data cataloging, data storage, data management attributes, and data management culture. Also, schools exercise leadership in governance, curriculum and instruction, accountability and continuous improvement, and resource management. In terms of invention, schools have substantial knowledge management, but in terms of application, acquisition, sharing, and internalization, they have extensive knowledge management. Data management techniques were strongly and positively connected with knowledge management status and school-based management level of practice. Knowledge management partially mitigated this association. The hypothesis that data management techniques of participating schools have no significant relationship to knowledge management status and school-based management level of practice is not supported by statistical results. Statistical results do not support the premise that knowledge management status does not affect school-based management level of practice. Finally, statistical results do not support the hypothesis that knowledge management status does not significantly mediate the association between participating schools' data management techniques and school-based management level. This study suggested the promotion of data management, improvement of data management culture, knowledge management, and SBM; upskilling of data managers, and further study on school data management.

Keywords – knowledge management, data management, school- based management of practices

INTRODUCTION

Management of schools is one of the important aspects of educational administration and supervision. When schools are properly managed, they would most likely produce better results. In order to enhance the learning environments for students, education management entails the administration of all educational procedures and technology employed in the learning process. The goal of school improvement is to offer suitable learning environments for the children (Ates and Artuner, 2018).

Educational managers are responsible for working toward achieving goals by arranging the resources of a society to satisfy the educational goals established by the political leaders of that society. This is accomplished via the careful application of management ideas in a practical setting. As a consequence of this, the various educational goals that have been set by various societies and to which educational managers at all levels of the educational system are required to respond are, by definition, modifiable. This is the same as the changing socioeconomic conditions that exist within a society and the upheaval that is caused by the rapid development of digital technologies that are used as management tools (Mulford, 2013).

Management has several facets, and one of them is data management. The process of collecting, storing, and using information in a manner that is risk-free, productive, and economical is referred to as "data management."

According to The University of Queensland (n.d.), the objective of data management is to "assist individuals, organizations, and linked things in optimizing the use of data within the constraints of policy and regulation." This is done with the goal of "making judgments and conducting activities that will benefit the business as much as possible."

Literature support the positive impact which data management have on outcomes. They show how proper data management practices help in making data-driven decision which consequently facilitate creation of appropriate programs and interventions. Data-driven decision-making (DDDM), according to experts, is the practice of making choices based on facts rather than feelings, observations, or educated guesses. The quality of the data, as well as its analysis and interpretation, determine the value of data-driven decisions (Stobierski, 2019).

Thanks to data-driven decision making, educational institutions now have the capacity to provide real-time insights and forecasts for the purpose of improving student performance. They will be able to determine the effectiveness of different techniques and acceptable educational possibilities for their long-term growth if they do it in this manner. However, schools are also challenged by data mismanagement or the weak or ineffective processes in place for acquiring, validating, storing, protecting and processing data.

In one study, Curriculum Management Handbook , Vught (2016) discovered that the qualities of the data have a substantial impact on how they are used for education. The organizational qualities of the school have an impact on how data are used for accountability and school growth. Furthermore, Vught (2016) came to the conclusion that a number of elements, including data, school structure, data user characteristics, and teamwork, affect how data are used for various objectives. Schools with little data use are more likely to use data for monitoring.

Considering the possible poor data management practices in public schools, the current study seeks to investigate the variable. It also intends to correlate data management in public schools with the status of school performance in terms of the four principles of school-based management. From this point of departure, the researcher could propose a framework that may be used by public schools in managing data to ensure informed decisions.

OBJECTIVES OF THE STUDY

This study sought to describe the extent teacher-respondents perceived the data management practices of participating schools in terms of data cataloging, data storage, data manager qualities and data management culture. It also described that school-based management level of practice of participating schools as to leadership and governance; curriculum and instruction; accountability and continuous improvement; and management of resources. It further presented how knowledge management implemented by participating schools in terms of creation, application, acquisition, sharing, and internalization. More importantly, this study tested the relationship between the data management practices of participating schools to the status of knowledge management and school-based management level of practice. The paper also investigated the significant relationship between the status of knowledge management and the school-based management level of practice. Finally, it determined whether the status of knowledge management significantly mediates the relationship between the data management practices of participating schools and the school-based management level of practice.

METHODOLOGY

This study is quantitative because it involves numbers, logic, and an objective perspective.

Research Design

The present research is characterized as descriptive-correlational with mediation analysis due to its reliance on numerical data, logical reasoning, and an objective perspective. This study examines the correlation between data management strategies and the level of School-Based Management (SBM) practices. The research focuses on quantitative and static data, as well as precise and convergent reasoning, as opposed to divergent reasoning. The study can be classified as convergent due to its utilization of a survey questionnaire that established limitations in the answers provided by the research subjects. The researcher successfully drew timely conclusions that promoted desired outcomes by utilizing the principles of convergent thinking.

This research employs a quantitative methodology with a descriptive-correlational design. The descriptive correlational design is a research methodology utilized to furnish static depictions of situations and to establish the association between distinct variables. To obtain the necessary data, the researcher utilized survey questionnaires

with a large-scale sample and predominantly employed closed-ended questions to efficiently gather information that was subsequently analyzed. Survey research is a unique approach to gathering information from a large group of individuals. According to Jones et al. (2018), surveys offer several benefits, including enhanced statistical power due to a larger sample size, the ability to gather substantial amounts of data, and access to validated models.

Furthermore, this research incorporates mediator analysis. A mediator variable is a variable that facilitates a relationship between the independent and dependent variables. Stated differently, the aforementioned elucidates the correlation between the reliant variable and the autonomous variable. The development of a mediation model is based on the mediation effect induced by the mediator variable. The model that arises as a result of mediation is a causal model. The statement posits that the mediator variable is presumed to be the cause of the effect in the outcome variable, rather than the reverse, as per Statistics Solutions (2022).

Respondents

The study's participants consisted of 22 public elementary schools, each with a total of 142 teachers. The study employed cluster sampling as a method for selecting respondents due to the extensive population size that needed to be accounted for.

Cluster sampling involves the division of a population into smaller groups, referred to as clusters, by a researcher. Subsequently, the user employs a random selection method to choose from the aforementioned clusters in order to create a representative sample. Thomas (2022) explains that cluster sampling is a probability sampling technique commonly employed to investigate large populations, particularly those that are geographically dispersed. The present investigation employs pre-existing units, namely schools or clusters, as the basis for analysis.

For the purpose of this study, the municipality of Calauan was considered. It was where the researcher was assigned during the conduct of the study. Moreover, it was the immediate locality to use the results and findings of the study. The table below shows the names of schools in Calauan Sub-office and the number of respondents from each school. The respondents were one hundred forty-two (142) which is the sample size of the teachers who are currently associated with the twenty-two (22) public elementary schools in the Division of Laguna. The majority of the respondents are teachers from Cluster 2 which is 44. While the least number of the respondents are associated from Cluster 4 which is 26.

Procedure

For content and face validity checks, the researcher sent survey questions to a subject matter expert, a language critic, and a statistician. This serves as a check to see if the data being collected using the instrument are appropriate for answering the research questions.

After that, five (5) teachers in a different district not involved in the pilot testing sample were given the electronic version of the test. The instrument was determined to be prepared for administration to all respondents after passing the pilot testing. Before beginning data collection, the researcher obtained permission from the district supervisor for the public schools and the superintendent of the Schools Division.

The researcher communicated with the administrators of the selected public elementary schools during the data collection phase. The researcher asked the master teachers for help in distributing the survey-electronic questionnaire's form. In order to recruit the desired number of teachers to participate in the study, the researcher gave the data collection phase four weeks. Master teachers were requested to send links to their school group chats. Weekly follow-up with the master teachers was done until such time that the number of respondents was completed.

The summary data was obtained in Microsoft Excel format following the data collection session. These were then handled utilizing the statistical techniques previously covered. A statistician was consulted to validate the statistical findings.

Research Instrument

Questionnaire was drafted and validated with the help of a language critic, statistician, and an experienced school head. It was also piloted to 10 teachers who were not part of the sample. The results of pilot testing helped adjust the statements and improve the construction of the instruments.

Upon validating, master teachers in the involved public schools were given access to a survey questionnaire created by the researcher and approved by industry professionals via Google Form. The interested teachers received electronic copies of the survey questionnaire. The respondents were asked to complete them patiently and honestly. After obtaining approval from the administrators of the schools, the supervisor of the public school district, and the superintendent of the schools division, the researcher individually approached the master instructors and asked for their help in overseeing the survey to assure this. Providing their names and the names of their schools was regarded as optional in order to safeguard the respondents' interests. The research tool was divided into three sections; Part I dealt with the schools' data management procedures, Part II focused on knowledge and Part III concentrated on their SBM level of implementation

Validation. The researcher delivered the survey questionnaire to the thesis adviser and other panel members for corrections and suggestions on how to improve it to ensure its consistency and correctness. To ensure the quality of statements and alignment to the subject matter under study, the researcher requested content validation by one principal, one headteacher, one master teacher, and an English teacher.

Furthermore, before conducting the study, the researcher conducted a pilot test with thirty teachers to determine the internal consistency of the items in the survey questionnaire. Cronbach's Alpha was applied to the data collected during the pilot testing.

The instrument underwent an internal consistency test to assess the reliability of the data gathered during its pilot testing. In terms of data management practices, knowledge management practices, and school-based management level of practice, the sub-variables were all higher than 0.6 which indicated that the statements used were all excellent.

Statistical Treatment of Data

The following are the statistical tools used in the study. In order to describe well the data management practices, knowledge management and level of SBM, mean and standard deviations were used.

Pearson product moment correlations was used in order to answer the problem whether each variable is correlated with one another parameter. Finally, Process Mean was used to determine if Knowledge management mediates the Data Management Practices and School Performance in Public Elementary Schools.

RESULTS AND DISCUSSION

This section presents the tabulated data and the results of the study, the corresponding analysis as well as the interpretation of the data as a result of the statistical treatment used.

Table 3. Extent of Data Management Practices in terms of Data Cataloging

Indicators	Mean	SD	VI
1. School data such as reports and other documents whether printed or electronic are properly cataloged.	4.45	0.58	Great Extent
2. Redundant school data are traced and properly organized for merging or deletion.	4.36	0.59	Great Extent
3. Data collection in our school has description which indicates alternate names for the same object and helps build data ontology more comprehensively.	4.40	0.61	Great Extent
4. Data (reports/documents) are properly grouped and labeled for better and easy access.	4.54	0.54	Very great extent
5. Data kept in storages are only those which underwent validation.	4.36	0.69	Great Extent
Overall	4.42	0.31	Great Extent

Legend: 4.50-5.00 Very great extent 1.50-2.49 Lessen Extent
 3.50-4.49 Great extent 1.00-1.49 Not at all practice
 2.50-3.49 Moderate extent

Table 3 presents the data management practices in terms of data cataloging.

Overall, results implied that data cataloging were found great extent ($M=4.42$, $S 0.31$). It was determined that data management methods in terms of data cataloging were widespread in public schools. This implied the great extent of organized treatment of data among public schools.

Related studies on data organization in public schools in the Philippines suggest that there is still room for improvement in terms of the level of organization. While there have been some advances in the use of digital record-keeping systems and student information systems, many public schools still rely on manual record-keeping methods, which can be prone to errors and inefficiencies.

A study conducted by the Department of Education (2020) found that while the majority of schools have started using digital systems for record-keeping, the data is often incomplete or inaccurate. The study found that only 49% of schools had complete and accurate data on student enrolment, and only 43% had complete and accurate data on teacher attendance.

Another study conducted by the World Bank (2019) found that while some public schools in the Philippines had adopted digital record-keeping systems, these systems were often fragmented and not integrated with other systems. This made it difficult to get a complete picture of the school's performance and to make informed decisions based on the data.

In general, the studies suggest that there is still a need for more comprehensive and integrated data organization systems in public schools in the Philippines. While there have been some improvements in recent years, there is still a long way to go to ensure that data is organized and used effectively to improve education outcomes.

Table 4. Extent of Data Management Practices in terms of Data Storage

Indicators	Mean	SD	VI
Our school ...			
1. has created, enforced, and updated a comprehensive data storage security plan.	4.43	0.60	Great Extent
2. makes data accessible only to appropriate individuals to protect their integrity.	4.46	0.61	Great Extent
3. regularly identifies, protects, and monitors data in transit and data at rest in the storage areas such as laptops, desktops, mobile phones, or other devices.	4.48	0.57	Great Extent
4. employs a means to trace individuals who access data whether electronically or in print.	4.44	0.64	Great Extent
5. has cloud storage services that offer encryption of school data.	4.28	0.71	Great Extent
Overall	4.42	0.29	Great Extent

Legend: 4.50-5.00 Very great extent
 3.50-4.49 Great extent
 2.50-3.49 Moderate extent
 1.50-2.49 Lessen Extent
 1.00-1.49 Not at all practice

Table 4 presents the data management practices in terms of data storage.

Overall, the data management practices in terms of data storage was often ($M=4.42$, $SD=0.29$). Results implied great extent of practice of storing data. Results may also imply the protection which schools give to data privacy considering that they also protect personal data of their personnel and students. However, it was observed that they need to improve data encryption.

Data encryption is the process of converting plaintext data into an unintelligible ciphertext to secure sensitive information during storage and transmission. Encryption is important to prevent unauthorized access and theft of confidential information. Mandated by various laws and regulations such as HIPAA and PCI DSS, encryption technology has advanced significantly in recent years, with algorithms such as AES and RSA providing strong protection against attacks. However, it is important for organizations to implement encryption correctly and use strong encryption keys to ensure data security (National Institute of Standards and Technology, 2017; PCI Security Standards Council, 2019; U.S. Department of Health & Human Services, n.d.).

The findings of the present study support the findings of Cabanban and Dapitan (2017) that most public schools in the Philippines have some basic information security measures in place, such as antivirus software and firewalls. However, the study also identified several areas for improvement, including the lack of formal information security policies, inadequate risk assessment, and limited resources for information security. The related study also

found that many schools had not implemented adequate measures to protect data stored on servers and other devices. This included insufficient access controls, limited encryption, and the lack of regular backups. Overall, the study highlighted the need for public schools in the Philippines to improve their information security practices and invest more resources in information security. The authors suggested that schools should develop formal information security policies, conduct regular risk assessments, implement better access controls and encryption, and provide regular training and awareness programs to staff and students.

Table 5. Extent of Data Management Practices in terms of Data Manager Qualities

Indicators	Mean	SD	VI
The school data management <i>coordinator</i> ...			
1. is familiar with mainframe computers and hard disk arrays and has a logical, analytical mind with good problem-solving skills.	4.37	0.60	Great Extent
2. has the ability to analyze, interpret, and organize large amounts of data.	4.40	0.57	Great Extent
3. has excellently communication skills to translate complex problems using non-technical terms.	4.39	0.58	Often
4. has in-depth understanding of modern database and information technologies.	4.38	0.57	Often
5. helps the school by optimizing the use of data within the bounds of policy and regulation.	4.45	0.54	Often
Overall	4.40	0.25	Often

Legend: 4.50-5.00 Very great extent
 3.50-4.49 Great extent
 2.50-3.49 Moderate extent
 1.50-2.49 Lessen Extent
 1.00-1.49 Not at all practice

Table 5 describes the extent of data management practices in terms of data manager qualities.

Overall, results implied that data managers in public schools were competent in the skills described ($M=4.40$, $SD=0.25$). This means that designated data managers were qualified to hold their posts having the skills required to properly carry out their functions.

Data managers play a critical role in public schools, as they are responsible for organizing, analyzing, and interpreting data to support informed decision-making. With increasing demands for accountability and evidence-based practices in education, data managers help ensure that schools use data effectively to monitor student progress, evaluate programs, and identify areas for improvement. Additionally, they play a key role in ensuring that data is collected and managed in compliance with privacy and security regulations.

According to a report by the National Center for Education Statistics, "data managers are crucial to ensure that the data are available, accurate, and easily accessible for analysis and decision-making" (Gleason, 2016, p. 8). Data managers also help ensure that data is used ethically and transparently, which is essential for building trust with stakeholders and promoting data-driven decision-making.

In summary, data managers' qualities are essential for effective data management and analysis in public schools, and their role is critical for promoting evidence-based practices and improving student outcomes.

Table 6. Extent of Data Management Practices in terms of Data Management Culture

	Mean	SD	VI
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Indicators				
1. Our school promotes data transparency which encompasses the teachers and staff's ability to read, manage, interpret, and argue with data.	4.56	0.58	Very great extent	great
2. Our school head invests in infrastructure for data driven processes instead of merely focusing on key performance indicators.	4.37	0.66	Extent	
3. Our school ensures that right data is supplied to teachers and staff as quickly as possible, ideally instantly.	4.46	0.59	Extent	
4. Our school adheres to the principles of automation and avoid manual data management touchpoints which hinders everything from the ability to collect data to school data storage.	4.43	0.58	Extent	
5. Our school promotes data analytics which successfully allows teachers and staff to make data driven decisions and better understand their role in the school.	4.42	0.61	Extent	
Overall	4.45	0.26	Extent	

Legend: 4.50-5.00 Very great extent 1.50-2.49 Lessen Extent
 3.50-4.49 Great extent 1.00-1.49 Not at all practice
 2.50-3.49 Moderate extent

Table 6 describes the extent of data management practices in terms of data management culture.

Overall, results showed that data management practices in terms of data management culture was great extent ($M=4.45$, $SD=0.26$). This implied that public schools were engaged on proactive data management practices. However, they need improvement when it comes to investing in infrastructure for data driven processes.

Provost and Fawcett (2018) defined infrastructure for data-driven processes as the combination of hardware, software, and services required to collect, process, store, and analyze data in order to derive insights and make decisions. This infrastructure can be deployed on-premise, in the cloud, or as a hybrid solution, depending on the specific needs of the organization.

Table 7. School-Based Management Level of Practices in terms of Leadership and Governance

Indicators	Mean	SD	VI
<i>Our School...</i>			
1. has its localized mission, vision, and goals which serve as bases for the crafting of the school improvement plan.	4.55	0.60	Very great extent
2. regularly involves the community in reviewing the school improvement plan.	4.57	0.55	Very great extent
3. involves external stakeholders in management decisions.	4.49	0.59	Great extent
4. has a clear and operational communication line among external and internal stakeholders.	4.51	0.58	Very great extent
5. has an operational training system for both internal and external stakeholders.	4.44	0.60	Great extent
Overall	4.51	0.26	Very great extent

Legend: 4.50-5.00 Very great extent 1.50-2.49 Lessen Extent
 3.50-4.49 Great extent 1.00-1.49 Not at all practice
 2.50-3.49 Moderate extent

Table 7 presents the school-based management level of practices in terms of leadership and governance.

Overall, results showed that school-based management practices in terms of leadership and governance was very great extent ($M=4.51$, $SD=0.26$). Results further implied that while the schools involved their external stakeholders, it was highly focused on review of plans. Nevertheless, engaging them in management decisions and providing them with training for such were also evident but may still be improved.

This supported the claim of Tijani (2020) when he suggested among others that to achieve the educational goals and objectives, the school principal should develop managerial skills that will enhance effective participation

of other school stakeholders. Involving all the stakeholders of the school in decision making will enable the principal to see other stakeholders as resources from which he/she can tap their knowledge and experience to bring about school effectiveness.

Table 8. School-Based Management Level of Practices in terms of Curriculum and Instruction

Indicators	Mean	SD	VI
<i>Our School...</i>			
1. modifies and documents learning activities based on the local context.	4.51	0.57	Very highly practiced
2. promotes and documents the use of localized materials in teaching.	4.57	0.55	Very highly practiced
3. is involved in the modification of learning materials and assessments.	4.43	0.63	Highly practiced
4. invites community members to observe classes and other school activities.	4.33	0.75	Highly practiced
5. conducts workshops on developing and enhancing assessment activities involving stakeholders.	4.32	0.66	Highly practiced
Overall	4.43	0.31	Highly practiced

Legend: 4.50-5.00 Very great extent
3.50-4.49 Great extent
2.50-3.49 Moderate extent
1.50-2.49 Lessen Extent
1.00-1.49 Not at all practice

Table 8 presents the school-based management level of practices in terms of curriculum and instruction.

Overall, results showed that school-based management practices in terms of curriculum and instruction was (M=4.43, SD=0.31). Overall, it was discovered that the school-based management in terms of curriculum and instruction was highly practiced. Localization and contextualization were evident in the schools but require improvement as to the involvement of external stakeholders. Nevertheless, the involvement discovered was a little higher than that of Cabardo's (2016) who found moderate involvement of stakeholders in SBM. In the previous study, stakeholder's involvement was also moderate but in the present study, the level earned higher mean which implied a little better involvement.

Table 9. School-Based Management Level of Practices in terms of Accountability and Continuous Improvement

Indicators	Mean	SD	VI
<i>Our School...</i>			
1. orients the community on their role in the education of the youth.	4.46	0.63	Highly practiced
2. together with the external stakeholders, has developed a merit system for recognizing outstanding work performance.	4.39	0.67	Highly practiced
3. encourages its external stakeholders' involvement in ensuring transparency in its operations.	4.51	0.58	Very highly practiced
4. has a feedback mechanism developed with the participation of the external stakeholders.	4.48	0.63	Highly practiced
5. conducts periodic performance review involving external stakeholders.	4.45	0.63	Highly practiced
Overall	4.46	0.25	Highly practiced

Legend: 4.50-5.00 Very great extent
3.50-4.49 Great extent
2.50-3.49 Moderate extent
1.50-2.49 Lessen Extent
1.00-1.49 Not at all practice

Table 9 presents the school-based management level of practices in terms of accountability and continuous improvement.

The overall mean was 4.46, SD=0.25 which was indicative of high level of school-based management in terms of accountability and continuous improvement.

The involvement of external stakeholders in recognizing the efforts of teachers is important. According to Satyendra (2019), stakeholders are the people or groups who have an interest, claim, or stake in the organization. Hence, stakeholders usually focus on the performance of the organization and ensure that it remains at an acceptable level. Stakeholders do not have any role in the management of the organization, but they do influence the organizational management.

Table 10 presents the school-based management level of practices in terms of management of resources.

Overall, results showed that school-based management practices in terms of management of resources was highly practiced (M=4.43, SD=0.31). Overall, the results showed that the school-based management level of practices in terms of management of resources was highly practiced in these public schools. Improvement area was observed for bottom-up budgeting and periodic inventory.

Table 10. School-Based Management Level of Practices in terms of Management of Resources

Indicators	Mean	SD	VI
<i>Our School...</i>			
1. conducts periodic inventory of resources together with internal and external stakeholders.	4.40	0.6	Highly practiced
2. practices bottom-up budgeting with the participation of external stakeholders.	4.39	0.63	Highly practiced
3. involves stakeholders in the management of its resources.	4.43	0.60	Highly practiced
4. encourages external stakeholders' involvement during inventory and financial reviews.	4.46	0.61	Highly practiced
5. has clear and transparent procedures in receiving and allocating donations.	4.49	0.59	Highly practiced
Overall	4.44	0.25	Highly practiced

Legend: 4.50-5.00 Very great extent
 3.50-4.49 Great extent
 2.50-3.49 Moderate extent
 1.50-2.49 Lessen Extent
 1.00-1.49 Not at all practice

According to Mahr (2022), bottom-up budgeting often results in a more accurate budget due to the fact that all expenses from each individual department are accounted for from the start. Top-down budgeting can be less accurate in some cases because upper management may not clearly understand all the expenses for each department.

According to Freshbooks (2023), periodic inventory is ideal for smaller schools that maintain minimum amounts of inventory. The physical inventory count is easy to complete, small businesses can estimate the cost of goods sold figures for temporary periods. While the system may work for smaller schools, it can prove to be highly problematic for large schools due to its high level of inaccuracy. Since the periodic system is manual, it is prone to human error and the inventory data can be misplaced or lost.

Table 11. Implementation of Knowledge Management in terms of Creation

Indicators	Mean	SD	VI
<i>The Teacher...</i>			
1. read various sources of information and synthesize them for lesson purposes	4.46	0.54	Often
2. craft session guides for school-based seminars using a variety of sources.	4.44	0.60	Often
3. analyzes results of assessment and produce report with analysis and interpretations.	4.45	0.60	Often
4. document ideas during brainstorming sessions with co-teachers and synthesize them.	4.51	0.57	Always
5. conduct researches to further understand how things can work better in my classroom.	4.26	0.69	Often
Overall	4.42	0.27	Often

Legend: 4.50-5.00 Very great extent
 3.50-4.49 Great extent
 2.50-3.49 Moderate extent
 1.50-2.49 Lessen Extent
 1.00-1.49 Not at all practice

Table 11 presents the status of knowledge management in terms of creation.

Overall, results showed that knowledge management in terms of creation was ($M=4.42$, $SD=0.27$). Overall, the results showed that teachers have often knowledge management in terms of creation. However, there is need to improve their engagement in conducting researches.

According to Wulandari et al. (2019), teachers feel more confident in using classroom action research to find out if students are learning from their lessons. However, the problems occurred in implementing classroom action research such as identifying the problem, proposing literature review and analyzing the data. The conduct of action research was extensive but still requires improvement. In the case of the present study, conducting action research gained the lowest mean which implied the need to provide teachers support in this aspect.

Table 12. Implementation of Knowledge Management in terms of Application

Indicators	Mean	SD	VI
<i>The Teacher...</i>			
1. use readings to further improve the lessons.	4.57	0.54	Always
2. conduct or facilitate seminars in school.	4.51	0.57	Always
3. use assessment results to revise or adjust the lessons.	4.58	0.52	Always
4. use results of research studies in crafting or adjusting intervention programs.	4.44	0.62	Often
Overall	4.52	0.28	Always

Legend: 4.50-5.00 Very great extent
 3.50-4.49 Great extent
 2.50-3.49 Moderate extent
 1.50-2.49 Lessen Extent
 1.00-1.49 Not at all practice

Table 12 shows the status of knowledge management in terms of application.

Overall mean of 4.52 and SD of 0.28 was indicative of always apply their knowledge in school processes. Research-based interventions describe instructional practices and interventions in a school or district that have been researched and determined to be effective for improved student outcomes or proven to excel student learning as evidenced by data. To this end, teaching-learning methods that involve research can be useful tools to increase interest and encourage the search for knowledge (Scientific Research-Based Interventions, n.d.).

Table 13. Implementation of Knowledge Management in terms of Acquisition

Indicators	Mean	SD	VI
<i>The Teacher...</i>			
1. attend professional development.	4.68	0.48	Always
2. read books relevant to teaching and learning.	4.62	0.50	Always
3. watch videos related to teaching and learning.	4.63	0.53	Always
4. engage in meaningful exchange or discussions with my colleagues and other professionals.	4.59	0.49	Always
5. enroll in professional development courses like graduate studies, conferences, and seminars.	4.48	0.66	Often
Overall	4.60	0.28	Always

Legend: 4.50-5.00 Very great extent 1.50-2.49 Lessen Extent
 3.50-4.49 Great extent 1.00-1.49 Not at all practice
 2.50-3.49 Moderate extent

Table 13 presents the status of knowledge management in terms of acquisition.

The overall mean of 4.60 and $SD=0.28$ was indicative that knowledge acquisition through various professional development activities is implemented in the schools. This supports the findings of Ancho and Arrieta (2021) that for teachers, TPD is a route to enhance and upgrade their knowledge and skills and professional growth, with teaching as a life-long learning process. Teachers have been exposed to webinars and training on online teaching and learning, technological capacity, and mental health. Regardless of background and profile have a mindset to grow in the profession and be better educators. They want to unlearn the old, and relearn new knowledge and skills because they want their students to learn according to their current needs and what the world needs in the future.

Indeed, education is a dynamic field with evolving pedagogies, technologies, and student needs. Continuous knowledge acquisition helps teachers stay updated with the latest research, practices, and trends, allowing them to adapt their teaching methods accordingly.

Table 14. Implementation of Knowledge Management in terms of Sharing

Indicators	Mean	SD	VI
<i>The Teacher...</i>			
1. let other use the learning materials they personally produced.	4.57	0.50	Always
2. make their files accessible or viewable to everyone who wish to them.	4.56	0.55	Always
3. have social media account devoted for professional exchanges of ideas.	4.48	0.66	Often
4. help facilitate seminars and help produce materials for these.	4.48	0.62	Often
5. entertain coaching sessions with colleagues who wish to learn from them.	4.54	0.54	Always
Overall	4.53	0.27	Always

Legend: 4.50-5.00 Very great extent 1.50-2.49 Lessen Extent
 3.50-4.49 Great extent 1.00-1.49 Not at all practice
 2.50-3.49 Moderate extent

Table 14 presents the status of knowledge management in terms of sharing.

Overall, the results were indicative that teachers always share their knowledge to others ($M=4.53$, $SD=0.27$). This shows their willingness to help others when it comes to materials and files they make and use in school.

These findings supported the findings of Abdullah and Hamzah (2020) that knowledge sharing was evident among teachers. In the related study, the researchers showed that knowledge sharing among teachers can be enhanced by developing work group for discussion. It can encourage workers to communicate and share their knowledge effectively as a community of practitioners, through knowledge network in retrospective ways.

Knowledge sharing allows teachers to exchange ideas, strategies, and best practices. It creates opportunities for continuous learning and helps teachers stay up-to-date with the latest research, pedagogical approaches, and educational resources. By sharing their knowledge and experiences, teachers can collectively enhance their skills and expertise.

Additionally, knowledge sharing contributes to the overall development and growth of educational institutions. When teachers share their expertise and collaborate, it creates a culture of innovation and continuous improvement. This collaborative spirit can positively impact the entire school community, leading to enhanced institutional practices, increased teacher satisfaction, and improved student outcomes.

Table 15. Implementation of Knowledge Management in terms of Internalization

Indicators	Mean	SD	VI
<i>The Teacher...</i>			
1. reflects on their growth as a professional.	4.62	0.52	Always
2. assumes their responsibility to increase their knowledge and skills as a teacher.	4.58	0.54	Always
3. recognize their job is complex and they are willing to keep going.	4.58	0.56	Always
4. manage time to attend to different activities that would help my knowledge grow.	4.56	0.53	Always
5. is happy about learning new things and using them in the practice of teaching.	4.60	0.51	Always
Overall	4.59	0.20	Always

Legend: 4.50-5.00 Very great extent 1.50-2.49 Lessen Extent
 3.50-4.49 Great extent 1.00-1.49 Not at all practice
 2.50-3.49 Moderate extent

Table 15 presents the status of knowledge management in terms of internalization.

The overall results showed the teachers' internalize their professional roles ($M=4.59$, $SD=0.20$). Reflection was the most evident tool among teachers. This supports the conclusion of Mathew et al. (2017) that being a teacher, one needs to reflect on the experiences or activities one is doing for one's growth. In short, by developing knowledge and understanding the setting practice and the ability to identify and react to the problems the student teachers can become effective teachers. Teachers can deal with the needs and different issues of the learners and demand of time if they reflects on their daily teaching learning activities for their professional growth. To deal and survive in their professional field, the teachers need to grow and bring changes in their behaviors and style. Reflection is a flash back that the teachers need to mediate for their development.

Table 16. Relationship Between Data Management Practices to the Status of Knowledge Management and School-Based Management Level of Practice

Data Management Practices	Knowledge Management				SBM Level				
	KM1	KM2	KM3	KM4	KM5	SBM1	SBM2	SBM3	SBM4
Data Cataloging	.675**	.664**	.628**	.651**	.623**	.519**	.547**	.529**	.577**
Data Storage	.678**	.629**	.582**	.667**	.627**	.605**	.569**	.578**	.662**
Data Manager Qualities	.667**	.607**	.565**	.641**	.608**	.608**	.639**	.599**	.605**
Data Management Culture	.772**	.744**	.690**	.757**	.738**	.768**	.731**	.714**	.784**

** . Correlation is significant at the 0.01 level (2-tailed).

Test of correlation was undertaken to determine whether a significant relationship does exist between data management practices and the status of knowledge management and school-based management level of practice. The results of the test were presented in Table 16.

Results indicated that data cataloging was positively and significantly correlated with creation ($r=.675^{**}$), application ($.664^{**}$), acquisition ($.628^{**}$), sharing ($.651^{**}$), internalization ($.623^{**}$), leadership and governance ($.519^{**}$), curriculum and instruction ($.547^{**}$), accountability and continuous improvement ($.529^{**}$), and management of resources ($.577^{**}$). This means that when data cataloging practices in schools becomes more often, the knowledge management and SBM level of practices become more often as well. Results implied that the SBM success of the schools is attributed to data cataloging. This further implies that schools have properly organized data.

Data cataloging plays a crucial role in the management of organizations by providing a centralized and organized repository of information about the organization's data assets. By providing a centralized platform for data documentation and collaboration, data cataloging fosters knowledge sharing among teachers. It encourages data asset documentation, annotations, and user feedback, which can be valuable for other users. This collaborative environment promotes a data-driven culture and helps teams work together more efficiently.

According to Seghal (2022), data cataloging helps schools in improving data discovery, comprehension, and consumption. All of their data, related metadata, and discovery tools are arranged, indexed, and easy to find for both school needs and data users. Using a data catalog, schools can simply keep an eye on their data and make sure it originates from reliable sources. They can regularly update it to maintain correctness and can classify it into the appropriate subset depending on how it will be used and what value it will bring to the schools. By doing so, a data catalog can help save countless man-hours and at the same time boost the productivity and morale of teachers and staff.

Similarly, it was observed that data storage was significantly correlated with knowledge management and SBM level of practices in all aspects. data cataloging was positively and significantly correlated with creation ($r=.678^{**}$), application ($.629^{**}$), acquisition ($.582^{**}$), sharing ($.667^{**}$), internalization ($.627^{**}$), leadership and governance ($.605^{**}$), curriculum and instruction ($.569^{**}$), accountability and continuous improvement ($.578^{**}$), and management of resources ($.662^{**}$). This means that when data storage practices in schools becomes more often, the knowledge management and SBM level of practices become more often as well. Results implied that the SBM success of the schools is also attributed to data storage practices. This further implies that schools have secured data in their keep.

Schools collect and store vast amounts of personal information about students, parents, and staff members. This includes sensitive data such as addresses, social security numbers, medical records, and academic records. Ensuring data security safeguards this information from unauthorized access, identity theft, or misuse, protecting the privacy and well-being of individuals.

It may be inferred that schools are free from possible information mishandling. According to the University of Nevada (2021) if a data breach occurs or sensitive information is mishandled, it can erode any goodwill a school has earned from stakeholders. The lasting effects can devastate schools, as they struggle to regain the trust that kept them respected. Even greater reputational damage may occur if it is found that the affected parties tried to hide the breach, demonstrating not only a lapse in security but an unwillingness to shoulder responsibility for it.

Data manager qualities were positively and significantly correlated with creation, application, acquisition, sharing, internalization, leadership and governance, curriculum and instruction, accountability and continuous improvement, and resource management. As knowledge management and SBM practices increase, so do data manager qualities. Results showed that data managers' skills and schools' data managers contribute to SBM performance.

Data managers helps minimize potential errors by establishing processes and policies for usage and building trust in the data being used to make decisions across the schools. With reliable, up-to-date data, companies can respond more efficiently to changes and needs of learners and communities (Tableau, 2023).

Finally, data management culture was favorably and strongly connected with creation, application, acquisition, sharing, internalization, leadership and governance, curriculum and instruction, accountability and continuous improvement, and resource management. Data management culture promotes school knowledge management and SBM. Results also showed that schools' data management cultures boost their knowledge management and SBM success.

Overall, results indicated that data management practices have significant relationship with knowledge management and school-based management level of practice. Thus, the success of schools in the latter may be attributed to data management. Data management plays a crucial role in schools' knowledge management and governance. Efficient data management ensures that educational institutions can collect, organize, and analyze information effectively. It enables schools to make informed decisions, track student progress, and improve teaching methodologies. Robust data governance frameworks ensure data privacy, security, and compliance with regulations, safeguarding sensitive student and staff information.

Table 17. Relationship between the Implementation of Knowledge Management and the School-Based Management Level of Practice

Knowledge Management	SBM Level of Practice			
	Leadership Governance	and Curriculum Instruction	and Accountability and Continuous Improvement	and Management of Resources
Creation	.662**	.729**	.665**	.702**
Application	.681**	.751**	.721**	.752**
Acquisition	.672**	.718**	.684**	.721**
Sharing	.706**	.752**	.684**	.728**
Internalization	.731**	.677**	.658**	.705**

** . Correlation is significant at the 0.01 level (2-tailed).

Test of correlation was likewise undertaken to determine whether a significant relationship does exist between knowledge management and the status of school-based management level of practice. The results of the test were presented in Table 17

Results demonstrated strong connection between creation and SBM level of practice in leadership and governance (.662), curriculum and instruction (.729), accountability and continuous improvement (.665), and resource management (.702). Application, acquisition, sharing, and internalization had substantial relationships (r-values = .681**, .751**, .721**, and .752**). The values were all significant at the 0.01 level. They implied a positive association between knowledge management and school-based management level of practice. They showed how creation, application, acquisition, sharing, and internalization of knowledge contribute to the management success of school leaders.

Knowledge management and school governance are closely intertwined. Knowledge management practices provide the information, insights, and data necessary for informed decision-making and policy development. At the same time, effective school governance supports the implementation of knowledge management strategies, fostering a learning organization, data-informed decision making, accountability, and transparency within the school community.

These results supported the claim of StarMind (2022) knowledge management provides school heads with timely and accurate information to support decision-making processes. By having access to relevant data, insights,

and expertise, managers can make informed decisions, mitigate risks, and identify opportunities for growth. These also supported the claims of Eisenhauer (2021) that knowledge management promotes collaboration and teamwork by creating platforms and tools for employees to connect, share ideas, and work together on projects. It enables cross-functional teams to collaborate more efficiently, leverage each other's expertise, and achieve common goals.

Effective knowledge management provides a wealth of data, research, and information to support decision-making processes within SBM. It enables school leaders to access and analyze relevant information, such as student performance data, curriculum resources, and research findings. Informed decision-making based on reliable knowledge leads to better policies, strategies, and interventions that improve student outcomes.

Table 18. Mediation Analysis of Knowledge Management to the Relationship between Data Management Practices and the School-Based Management Level of Practice

Effect	Estimate	SE	95% Confidence Interval		T	P
			Lower	Upper		
Direct	.3139	.0916	.1327	.4951	3.4257	.0008
Indirect	.5659	.1117	.3440	.7834	5.0662	
Total	.8798	.0597	.7618	.9978	14.7404	.0000

Effect	Estimate	SE	95% Confidence Interval		T	P
			Lower	Upper		
Data Mgt. Prac. --> Know. Mgt.	.8300	.0466	.7378	.9221	17.8103	.0000
Data Mgt. Prac --> SBM Level	.3139	.0916	.1327	.4951	3.4257	.0008
Know. Mgt. --> SBM Level	.6818	.0920	.5000	.8636	7.4137	.0000
DMP --> KM --> SBM	.5659	.1117	.3440	.7834	5.0662	

Note: Partial mediation exists

The table shows the mediating role of knowledge management on the relationship between data management practices and school-based management level of practice. The results revealed a significant indirect effect of impact of data management practices and school-based management level of practice through knowledge management ($b=.5659$, $t=5.0662$). Furthermore, the direct effect of data management practices and school-based management level of practice in presence of the mediator was also found significant ($b=.3139$, $p<0.0008$). Hence, knowledge management partially mediated the relationship between data management practices and school-based management level of practice.

Knowledge management acts as a mediator between data management and school governance by bridging the gap between raw data and effective decision-making. It facilitates the transformation of data into actionable knowledge that can inform governance processes within a school. Through knowledge management practices such as data analysis, interpretation, and synthesis, raw data is transformed into meaningful knowledge. This knowledge helps school administrators and decision-makers understand trends, identify challenges, and make informed choices regarding governance strategies.

By leveraging the knowledge derived from data management, school governance processes can be informed and evidence-based. Knowledge management ensures that decision-makers have access to relevant and up-to-date information, enabling them to make informed choices regarding resource allocation, curriculum development, policy formulation, and other governance matters.

In summary, knowledge management serves as a critical link between data management and school governance by converting raw data into actionable knowledge, promoting knowledge sharing, and facilitating informed decision-making. It enables schools to utilize data effectively to enhance governance processes, ultimately leading to improved educational outcomes.

CONCLUSION AND RECOMMENDATION

Based on the results of this study, the following conclusions are made: there is no significant relationship between the data management practices of participating schools to the status of knowledge management; and school-based management level of practice is not supported by statistical results; there is no significant relationship between the status of knowledge management and the school-based management level of practice is not supported by statistical results; and the status of knowledge management does not significantly mediate the relationship between the data management practices of participating schools and the school-based management level of practice is not supported by statistical results.

From these points of departure, the researcher encouraged school leaders to promote data management. These may strengthen data management culture, improving knowledge management and SBM. The PSDS sub-office was also encouraged to upskill data managers to improve their knowledge, abilities, and attitude. Upskilling data managers will also improve knowledge management and school management practices.

Additional recommendation was the provision of data literacy training and professional development for school leaders and teachers. This includes how to use data to make decisions and improve instruction. SBM coordinators are further encouraged to involve stakeholders in data analysis, goal planning, and decision-making to promote school community collaboration. Promote data-driven discussion. Collaboration promotes various viewpoints and better tactics and solutions.

Data should also inform curriculum planning, resource allocation, and instructional practices by the School Planning Team. Data-driven decision-making ensures that school personnel and other stakeholders act on evidence and maximize good outcomes. Finally, future researchers may observe school data management. They can monitor data collection, storage, and use in classroom instruction, student evaluation, and decision-making in schools. This method helps researchers understand current procedures, difficulties, and prospective improvements

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